Surface Water Quality Screening Assessment of the Tennessee River Basin- 2003

Part I: Wadeable Rivers and Streams

REPORT DATE: AUGUST 31, 2005

AQUATIC ASSESSMENT UNIT -- FIELD OPERATIONS DIVISION
ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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LIST OF ABBREVIATIONS

Abbreviation	Interpretation
§	Section
A&I	Agricultural and Industrial Water Use Classification
AAU	Aquatic Assessment Unit of ADEM's Field Operations Division
ADEM	Alabama Department of Environmental Management
ALAMAP	Alabama Monitoring and Assessment Program
AU	Animal Unit as defined by ADEM CAFO Rules
AWPCA	Alabama Water Pollution Control Act
BMP	Best Management Practices
Br	Branch
CAFO	Concentrated Animal Feeding Operation
cfs	Cubic Feet per Second
Chem.	Chemical/Physical Water Quality
Co.	County
Confl.	Confluence
Cr	Creek
CR	County Road
CU	Cataloging Unit
CWA	Clean Water Act
CWP	Clean Water Partnership
ds	Downstream
EIS	Environmental Indicators Section of ADEM’s Field Operations Division
EMT	Escatawpa, Mobile Bay, Tombigbee Basin Group
EPA	U.S. Environmental Protection Agency
EPT	Ephemeroptera, Plecoptera, and Trichoptera
F&W	Fish and Wildlife Water Use Classification
FOD	Field Operations Division
GPS	Global Positioning System
GSA	Geological Survey of Alabama
H	Shellfish Harvesting Water Use Classification
IBI	Index of Biotic Integrity (fish community)
LWF	Limited Warmwater Fishery
Macroinv.	Aquatic Macroinvertebrate
MB-EPT	Multihabitat Bioassessment for Ephemeroptera, Plecoptera and Trichoptera
mg/L	Milligrams per Liter
mgd	millions of gallons per day
mi^2	square miles
Mod.	Moderate
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
nr	Near
NRCS	Natural Resources Conservation Service
OAW	Outstanding Alabama Water Water Use Classification
ONRW	Outstanding National Resource Waters Water Use Classification
OE/DO	Organic Enrichment/Dissolved Oxygen
PWS	Public Water Supply Water Use Classification
R	River
Rd	Road
RM	River Mile

S	Swimming and Other Whole Body Water-Contact Sports Water Use Classification
SSWCC	State Soil and Water Conservation Committee
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TNTC	Too numerous to count
TVA	Tennessee Valley Authority
µg/g	Micrograms per Gram
µg/L	Micrograms per Liter
ur	Unreported
us	Upstream
WQDS	Water Quality Demonstration Study

SUMMARY

Background: The goal of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's Waters (Water Pollution Control Federation 1987). As the state's environmental agency, the Alabama Department of Environmental Management (ADEM) establishes water quality standards and implements management programs to meet this goal. The ADEM conducts monitoring to evaluate the effectiveness of these programs and to determine water quality status and trends.

Section 303(d) of the CWA (§303(d)) requires that each state identify those waters that do not currently support water quality standards or designated uses. For each waterbody on the list, the state is required to establish a Total Maximum Daily Load (TMDL) for the pollutant or pollutants of concern at a level necessary to implement the applicable water quality standards. Nationwide, this process has been most effective at addressing impairments caused by point source discharges. However, 236 nonpoint source pollutants from 303 sources were on Alabama's 2002 §303(d) list. Pollutants from point sources accounted for only 47 (15%) of the 303 total sources listed.

Since 1998, ADEM's voluntary, incentive-based nonpoint source management program has been implemented through ten basinwide Clean Water Partnership Projects. Through these partnerships, management plans are developed and implemented for each basin. The partnerships allow for participation and collaboration among community-based groups, government agencies, industry, farms, forestry, special interest groups, and individual citizens.

Basinwide screening level assessment methods were developed in 1997 to meet the needs of both ADEM's Office of Education & Outreach (OEO), responsible for administering ADEM's 319 Program, and ADEM's Water Quality (WQ) section, responsible for development of ADEM's biennial 305(b) report to Congress and Alabama's 303(d) list.

Basinwide screening assessments are completed in five steps and consist of a desktop screening to identify data gaps and to prioritize assessment of sub-watersheds with the most potential for impairment, a screening level macroinvertebrate assessment, which also includes completion of a habitat assessment and in-situ measurements of flow, dissolved oxygen, pH, conductivity and turbidity. One or two water samples for chemical analyses may also be collected, depending on the macroinvertebrate assessment results.

In 2003, the USEPA linked CWA §319 funding to the TMDL process to begin to implement nonpoint source control activities more effectively. To obtain funding, a Watershed Plan that addresses an approved TMDL must be developed. The Watershed Plan must describe a holistic strategy to improve, maintain, or protect water quality, it must address both point and nonpoint source issues within the watershed, and it must describe how nonpoint source load reductions will be achieved.

In 2004, the EPA released the Integrated Water Quality Monitoring & Assessment Report Guidance which requires that all waters in the State be placed into one of five categories that indicates whether or not a waterbody is meeting all of its use classifications. In 2005, the draft ADEM Water Quality Assessment and Listing Methodology established minimum data quantity and quality requirements necessary to categorize all waters.

ADEM Monitoring and Management Strategy: From 1997 to 2004, ADEM used a 2-phased monitoring approach to identify impaired waters, determine the causes and sources of impairment, and evaluate the effectiveness of pollution control activities. This approach concentrates ADEM's resources in areas with the greatest potential for impairment and where more intensive monitoring is required. Phase I monitoring, completed using ADEM's basinwide screening-level assessment methods, is conducted on a repeating 5-year management cycle during ADEM's Nonpoint Source (NPS) Monitoring Program to evaluate water quality, estimate water quality status and trends, and evaluate causes and sources of impairment.

During Phase I, basinwide screening assessments were conducted at stream reaches where landuse estimates and NPS information from the local SWCD suggested a relatively moderate or high potential for impairment for nonpoint sources in nonurban areas. Stations that received a macroinvertebrate assessment rating of "fair" or "poor" were placed on a list of priority sub-watersheds. The list was then used by OEO to prioritize sub-watersheds for 319 funding to concentrate BMP implementation in areas with moderate or high risk landuse practices, but also provided flexibility to administer funds in areas where stakeholder interest was greatest.

Results of all data collected during the basinwide screening projects, as well as all other data included in the final report, are reviewed by ADEM's WQ section to categorize each of the waterbodies in the biennial Integrated Report. Data collected during the basinwide screening assessments 1997-2004 would receive a second set of monitoring before they can be fully assessed. Water bodies on the NPS priority sub-watershed list are prioritized for further monitoring.

The Aquatic Assessment Unit (AAU) of ADEM's FOD has completed basinwide NPS screening assessments of the Black Warrior (1997), the Tennessee (1998), the southeast Alabama River basins (1999), the Alabama, Coosa, and Tallapoosa River basins (2000), and the Escatawpa, Mobile Bay, and Tombigbee River basins (2001). In 2002, AAU completed the 2nd basinwide screening assessment of the Black Warrior and Cahaba River (BWC) basins. Statewide, the results of these assessments have identified 162 NPS priority sub-watersheds. Data and information collected during these assessments have been used to direct CWA §319 funds, develop nonpoint source basin management plans, and to direct intensive monitoring efforts. The results of these assessments have been reported in 10 separate documents (ADEM 1999a, ADEM 2000a, ADEM 2002a, ADEM 2002b, ADEM 2002c, ADEM 2002d, ADEM 2002e, ADEM 2002f, ADEM 2003c, and ADEM 2004e). Copies can be obtained at www.adem.state.al.us

Phase II monitoring projects, completed using watershed-specific, intensive assessment methods, are implemented at a much smaller scale and a more frequent monitoring cycle. They are used during ADEM's Nonpoint Source (NPS) Management Program to monitor the effectiveness of watershed management plans. In 2003, ADEM initiated Phase II

Monitoring Projects in the Tennessee River Basin to evaluate the effectiveness of changing land uses and pollution control activities in the Sand Mountain and Big Nance River sub-watersheds.

2003 Tennessee Basinwide Assessment: During 2003, the Aquatic Assessment Unit (AAU) of the Field Operations Division completed the 2nd basinwide assessment of the Tennessee River basin. The basin group contains 93 sub-watersheds in 10 Level IV Ecoregions (Fig. 1 and Fig. 2). As with all basinwide assessments, the project included reviews of landuse, Departmental regulatory databases, listing documents, and monitoring data collected by multiple agencies; assessment of selected sites using ADEM's screening-level assessment techniques; and compilation and analysis of all data to estimate level of impairment and to evaluate potential causes and sources of that impairment.

Final Report: The purpose of this document is to provide an overview of recent data and assessment information that can be used to prioritize stream segments for more in-depth monitoring and to assist with the development of NPS watershed plans. The document includes a description of the methods used during the basinwide screening assessment. Landuse information, Departmental regulatory databases and listing documents, monitoring data and other assessment information are summarized. ADEM used these data to identify data gaps and to prioritize sub-watersheds with the greatest potential for NPS impairment. Bioassessment data and intensive water quality monitoring data collected since 1999 are also provided. Based on these analyses, biological conditions were estimated as "fair" or "poor" within 17 sub-watersheds (Table 1). Four of these sub-watersheds contain CWA §303(d) stream segments. This final report contains a summary of results for these 17 sub-watersheds and all data utilized for evaluation are included in the tables and appendices.

Table 1. List of sub-watersheds evaluated by macroinvertebrate assessment as Fair or Poor. 1999-2003.

Sub-watershed		303(d)/ TMDL Stream[a]	Macroinvertebrate Assessment Results (WMB-EPT)	NPS sources rating "moderate" or "high" within the sub-watershed.
0603-0001 Guntersville Lake				
80	Long Island Creek		Fair	Animal Husbandry, Crop Runoff, Pasture grazing, Mining, Forestry
140	Big Coon Creek		Poor	Crop Runoff, Forestry
160	Coon Creek	303(d)	Fair	Animal Husbandry, Crop Runoff, Pasture grazing, Mining, Forestry, WWTP
180	Jones Creek		Fair	Animal Husbandry, Crop Runoff, Pasture grazing, Mining, WWTP
Wheeler Lake (0603-0002)				
40	Larkin Fork		Poor	Forestry
60	Guess Creek	303(d)	Fair	Aquaculture, Pasture grazing, Forestry
140	Upper Flint River		Fair	Animal Husbandry, Crop Runoff, Pasture grazing, Urban Development, WWTP
200	Hurricane Creek		Fair	Pasture grazing, Urban Development, Septic Tank Failure, WWTP
Lower Elk River (0603-0004)				
20	North Elk River		Fair	Animal Husbandry, Crop Runoff, Pasture grazing, Forestry, Urban Development
120	Sugar Creek		Fair	Animal Husbandry, Crop Runoff, Pasture grazing, Urban Development, WWTP
150	Anderson Creek		Fair	Crop Runoff, Pasture grazing, Urban Development, WWTP
Pickwick Lake (0603-0005)				
10	Big Nance Creek	303(d) TA	Fair	Aquaculture, Crop Runoff, Pasture grazing, Forestry, Septic Tank Failure, WWTP
40	Town Creek		Fair	Aquaculture, Crop Runoff, Pasture grazing, Septic Tank Failure, WWTP
220	Sinking Creek		Poor	Crop Runoff, Pasture grazing, Urban Development
230	Cane Cr.		Fair	Aquaculture, Pasture grazing, Urban Development, WWTP
Bear Creek (0603-0006)				
10	Upper Bear Creek	303(d)	Fair	Animal Husbandry, Aquaculture, Crop Runoff, Mining, Septic Tank Failure, WWTP
40	Upper Cedar Creek		Fair	Animal Husbandry, Aquaculture, Crop Runoff, Mining, Septic Tank Failure

a. 303(d): currently on ADEM's 2002 §303(d) list of impaired waters; TA: approved TMDL

METHODOLOGY

STUDY AREA

The Tennessee River basin drains 6,826 mi^2 (13.1%) of Alabama's land area. It flows through parts of fifteen counties in Alabama, but only ten counties (Lauderdale, Limestone, Madison, Jackson, DeKalb, Marshall, Morgan, Lawrence, Colbert, and Franklin) contain a significant portion of the Basin.

The Alabama portion of the Tennessee River Basin (0603 & 0602) is comprised of seven major divisions or 'cataloging units' (Guntersville Lake, Wheeler Lake, Upper Elk River, Lower Elk River, Pickwick Lake, Bear Creek, and Chickamauga) and ninety-three sub-watersheds. However, the Chickamauga and the Upper Elk River cataloging units (CU) are small (52 and 0.4 sq. mi., respectively) (USDASCS 1995). Table 6 lists the 93 sub-watersheds by CU and basin.

Ecoregions

Most of this basin lies above the Fall Line within the *Southwestern Appalachians (68)* and the *Interior Plateau (71)* ecoregions; a small portion of the basin is in the *Transition Hills(65j)* subecoregion of the *Southeastern Plains (65)* (Fig. 5)

Stretching from Kentucky to Alabama, the open low mountains of the *Southwestern Appalachians* contain a mosaic of forest and woodland with some cropland and pasture. The eastern boundary of the ecoregion along the more abrupt escarpment where it meets the Ridge and Valley (67), is relatively smooth and only slightly notched by small eastward flowing stream drainages. The western boundary, next to the Interior Plateau's Eastern Highland Rim (71g), is more crenulated with a rougher escarpment that is more deeply incised. The mixed mesophytic forest is restricted mostly to the deeper ravines and escarpment slopes, and the upland forests are dominated by mixed oaks with shortleaf pine (Griffith et al 2001).

The *Interior Plateau* is a diverse ecoregion extending from southern Indiana and Ohio to northern Alabama. Rock types are distinctly different from the coastal plain sands of ecoregion 65, and elevations are lower than the Appalachian ecoregions (66, 67, 68) to the east. Mississippian to Ordovician-age limestone, chert, sandstone, siltstone, and shale compose the landforms of open hills, irregular plains, and tablelands. The natural vegetation is primarily oak-hickory forest, with some areas of cedar glades. The springs, lime sinks, and caves contribute to this region's distinctive faunal distribution (Griffith et al 2001).

Table 2. Sub-watersheds of the Tennessee River Basin.

Cataloging Unit	Sub-Watershed	
0602-0001	**Chickamauga**	
	290	Lookout Creek
	350	Warren Creek
0603-0001	**Guntersville Lake**	
	060	Widows Creek
	080	Long Island Creek
	100	Crow Creek
	120	Little Coon Creek
	140	Big Coon Creek
	150	Lower Crow Creek
	160	Coon Creek
	170	Mud Creek
	180	Jones Creek
	190	Roseberry Creek
	200	Chisenhall Spring Branch
	210	North Sauty Creek
	220	South Sauty Creek
	230	Dry Creek
	240	Boshart Creek
	250	Town Creek
	260	Lower Town Creek
	270	Scarham Creek
	280	Short Creek
	290	Lower Short Creek
	300	Big Spring Creek
	310	Browns Creek
	320	Honey Comb Creek
0603-0002	**Wheeler Lake**	
	020	Estill Fork
	040	Larkin Fork
	050	Lick Fork
	060	Guess Creek
	070	Upper Paint Rock River
	080	Clear Creek
	090	Little Paint Creek
	100	Lower Paint Rock River
	110	Shoal Creek
	130	West Fork Flint River
	140	Upper Flint River
	160	Mountain Fork Flint River
	180	Brier Fork Flint River
	190	Middle Flint River
	200	Hurricane Creek
	210	Lower Flint River
	220	Dry Creek
	230	Aldridge Creek
	240	Huntsville Spring Branch
	250	Indian Creek
	260	Barren Fork Creek
	270	Cotaco Creek
	280	Beaver Dam Creek

Cataloging Unit	Sub-Watershed	
0603-0002	**Wheeler Lake**	
	300	Limestone Creek
	320	Piney Creek
	330	Upper Flint Creek
	340	Crowdabout Creek
	350	Lower Flint Creek
	360	West Flint Creek
	370	Prior Branch
	380	Baker Creek
	390	Swan Creek
	400	Round Island Creek
	410	Mallard Creek
	420	Spring Creek
	440	Second Creek
0603-0003	**Upper Elk River**	
	120	Martin Branch
0603-0004	**Lower Elk River**	
	020	North Elk River
	060	Shoal Creek
	070	Baptizing Branch
	080	Big Creek
	120	Sugar Creek
	130	Maple Swamp Branch
	150	Anderson Creek
0603-0005	**Pickwick Lake**	
	010	Big Nance Creek
	030	Bluewater Creek
	040	Town Creek
	090	Upper Shoal Creek
	140	Butler Creek
	150	Lower Shoal Creek
	160	Pond Creek
	180	Upper Cypress Creek
	200	Lower Cypress Creek
	210	Spring Creek
	220	Sinking Creek
	230	Cane Creek
	240	Colbert Creek
	250	Brush Creek
	270	Second Creek
	280	Panther Creek
	320	Hitchcock Branch
0603-0006	**Bear Creek**	
	010	Upper Bear Creek
	030	Little Bear Creek
	040	Upper Cedar Creek
	050	Lower Cedar Creek
	070	Rock Creek
	100	Lower Bear Creek
	110	Buzzard Roost Creek

Fig. 1 Cataloging units and sub-watersheds of the Tennessee River Basin.

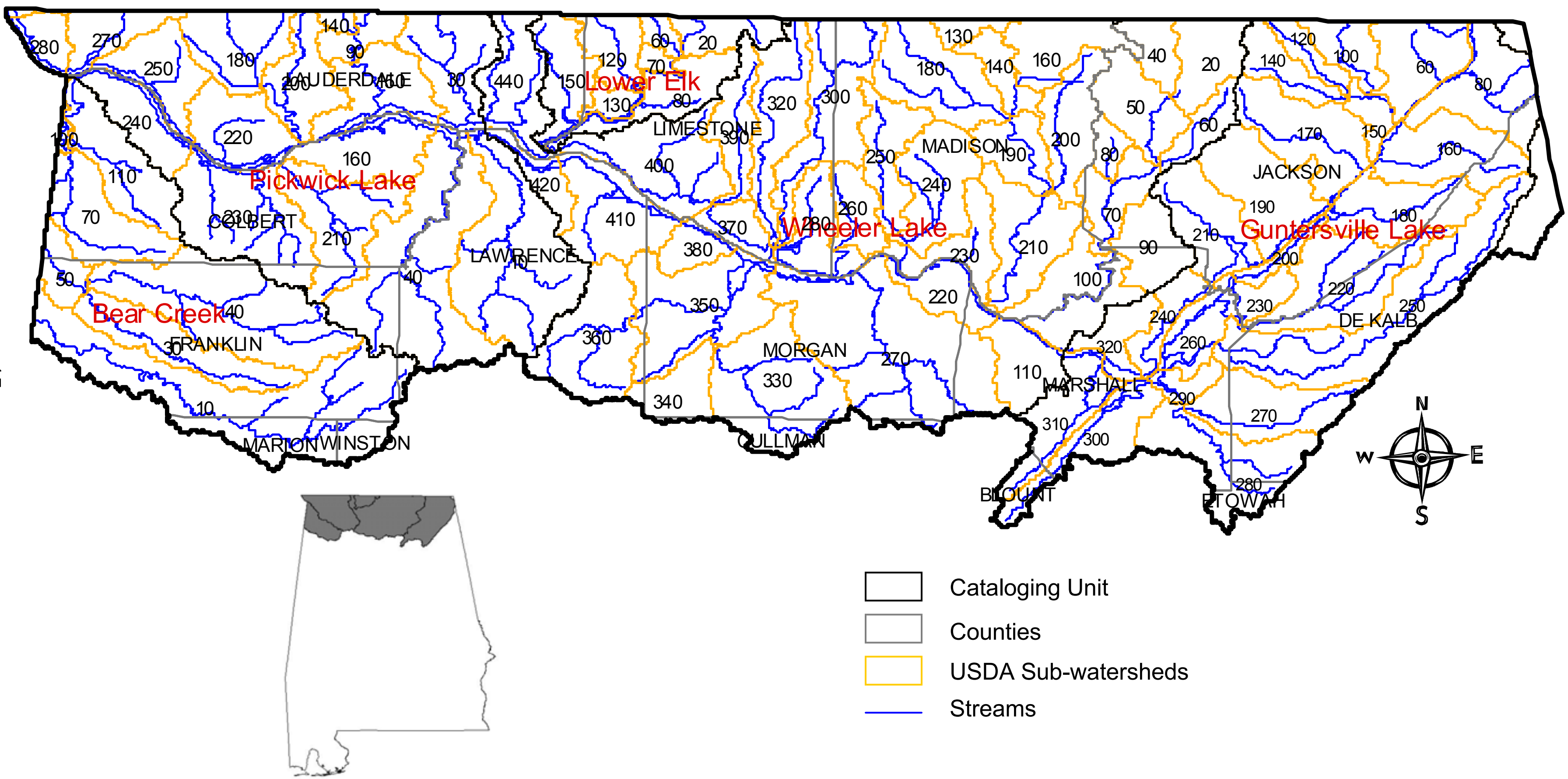

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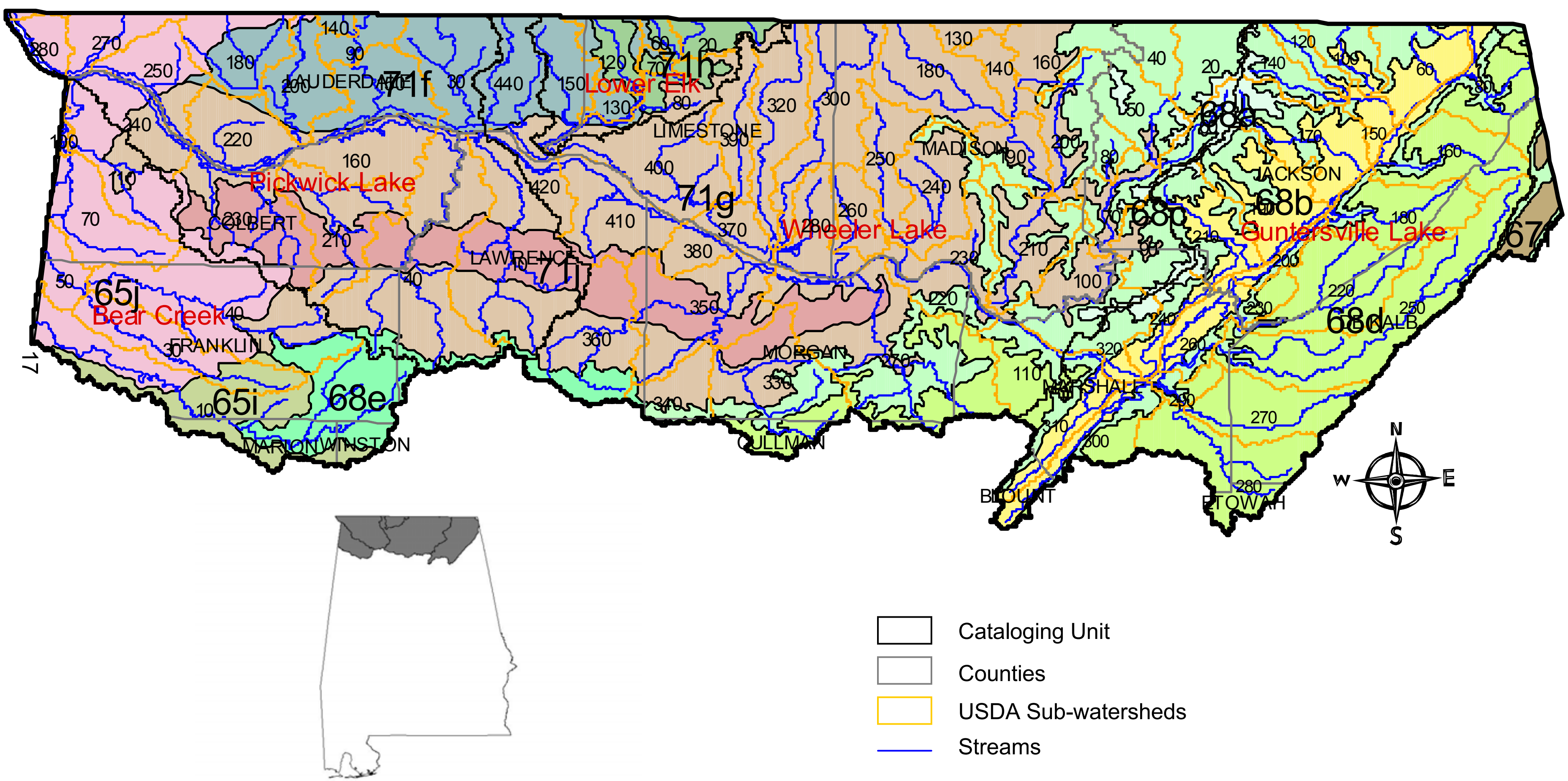
Fig. 2. Level IV Ecoregions in the Tennnessee River Basin



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REVIEW OF AVAILABLE DATA

The use of available data was an important component of the NPS screening assessment of the Tennessee Basin Group 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 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, it is important to understand the objectives of these projects.

During 2000, ADEM identified two levels of waterbody assessments: monitored and evaluated (ADEM 2000b). 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 judgment 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 Reach Program (Appendix O), CWA §303(d) Waterbody Monitoring Program (Appendix P), ADEM's Reservoir Monitoring Program, and the University Tributary Nutrient Loading Project (Appendix R). Evaluated assessments have been conducted in conjunction with ADEM's ALAMAP Program (Appendix S). A summary of 5 of these projects, 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 municipal, industrial, mining, and CAFO databases were reviewed to eliminate sub-watersheds primarily impacted by point sources or monitored in conjunction with NPDES permits (ADEM 2003g, 2003h). Biological and chemical data were also reviewed to focus screening-level assessments in areas that had not been recently assessed.

Landuse: To prioritize sub-watersheds for assessment and to evaluate potential sources of impairment, ADEM assigned each sub-watershed an NPS rating based on estimates of landuse percentages, animal populations, and sedimentation rates. These NPS ratings give an indication of overall potential for impairment within the sub-watershed, but are not specific to any one station. These estimates 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). Sub-watershed assessment information is available at www.swcc.state.al.us.

Additional landuse information was obtained from estimates of percent land cover for the entire southeastern U.S. published by EPA (EPA 1997b). These estimates were based on leaves-off Landsat TM data acquired in 1988, 1990, 1991, 1992, and 1993. Additionally, only the conservation assessment worksheets were used to evaluate potential for impairment from nonpoint sources to encourage partnerships between ADEM, the local

SWCD, and stakeholder groups. 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). The EPA Landsat data was provided in ADEM 1999a.

***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 3). 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 3. Current conversion factors found in ADEM Administrative Code Chapter 335-6-7 (CAFO Program Rules).

Animal Type (CAFO Definition)	Numbers of Animals	Animal Units (AU)
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 summed 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 estimated number of failing septic systems were used to identify sub-watersheds potentially impaired by urban landuses.

NPS Impairment Potential and Sub-watershed Ranking

NPS Impairment Potential: For each sub-watershed and CU, potential for NPS impairment was estimated for several categories: animal husbandry, row crops, pasture runoff, mining, forestry practices, and sedimentation. Each sub-watershed was assigned an impairment potential for each category. Table 8 shows the range of values used to define *low*, *moderate*, and *high* impairment potential for each category. These ranges were determined using the mean and standard deviation of Tennessee River basin data for each parameter. A value of 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.

For each sub-watershed and CU, the impairment potential for each category was converted from *low*, *moderate*, and *high* to scores of 1, 3, and 5, respectively. These values were summed to rate overall NPS impairment potential. Scores greater than or equal to the 90th percentile were rated as *high*; scores greater than the 50th percentile, but less than the 90th percentile were *moderate*; scores less than the 50th percentile were *low*.

Urban Impairment Potential: The "urban" and "other" NPS categories listed in Table 9 were used as indicators of potential problems in the watersheds but were not addressed in this project. Table 5 shows the range of values used to define *low*, *moderate*, and *high* impairment potential for each urban category. These ranges were determined using the mean and standard deviation of Tennessee River basin data for each parameter. A value of 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 urban impairment.

For each sub-watershed and CU, the urban impairment potential for each category was converted from low, moderate, and high to scores of 1, 3, and 5, respectively. These values were summed to rate overall NPS impairment potential. Scores greater than or equal to the 90th percentile were rated as *high*; scores greater than the 50th percentile, but less than the 90th percentile were *moderate*; scores less than the 50th percentile were *low*.

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.

Table 4. Range of values used to define "low", "moderate", and "high" potential for impairment for each nonpoint source category.

Category	**Impairment Potential**		
Rural NPS Categories	**Low**	**Moderate**	**High**
% Cropland	< 9	9 to 27	>27
% Pasture land	< 22.5	22.5 to 43.8	>43.8
% Mining	≤ 0.1	> 0.1 to ≤ 1.0	>1.0
% Forestry Activities	< 22.1	22.1 to 43.4	>43.4
Animal Units per Acre	≤ 0.12	> 0.12 to ≤ 0.36	>0.36
% Aquaculture (Acres/Acre)	< 0.01	≥ 0.01 to 0.02	>0.02
Sedimentation rate (tons/acre/yr)	≤ 1.94	>1.94 to ≤ 4.20	>4.20
Score with 7 categories	≤ 13	>13 to ≤ 19	>19
Score with 6 categories	≤ 10	>10 to ≤ 15	>15

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Fig. 3. CWA §303(d) list of impaired stream or reservoir segments in the TN River basin

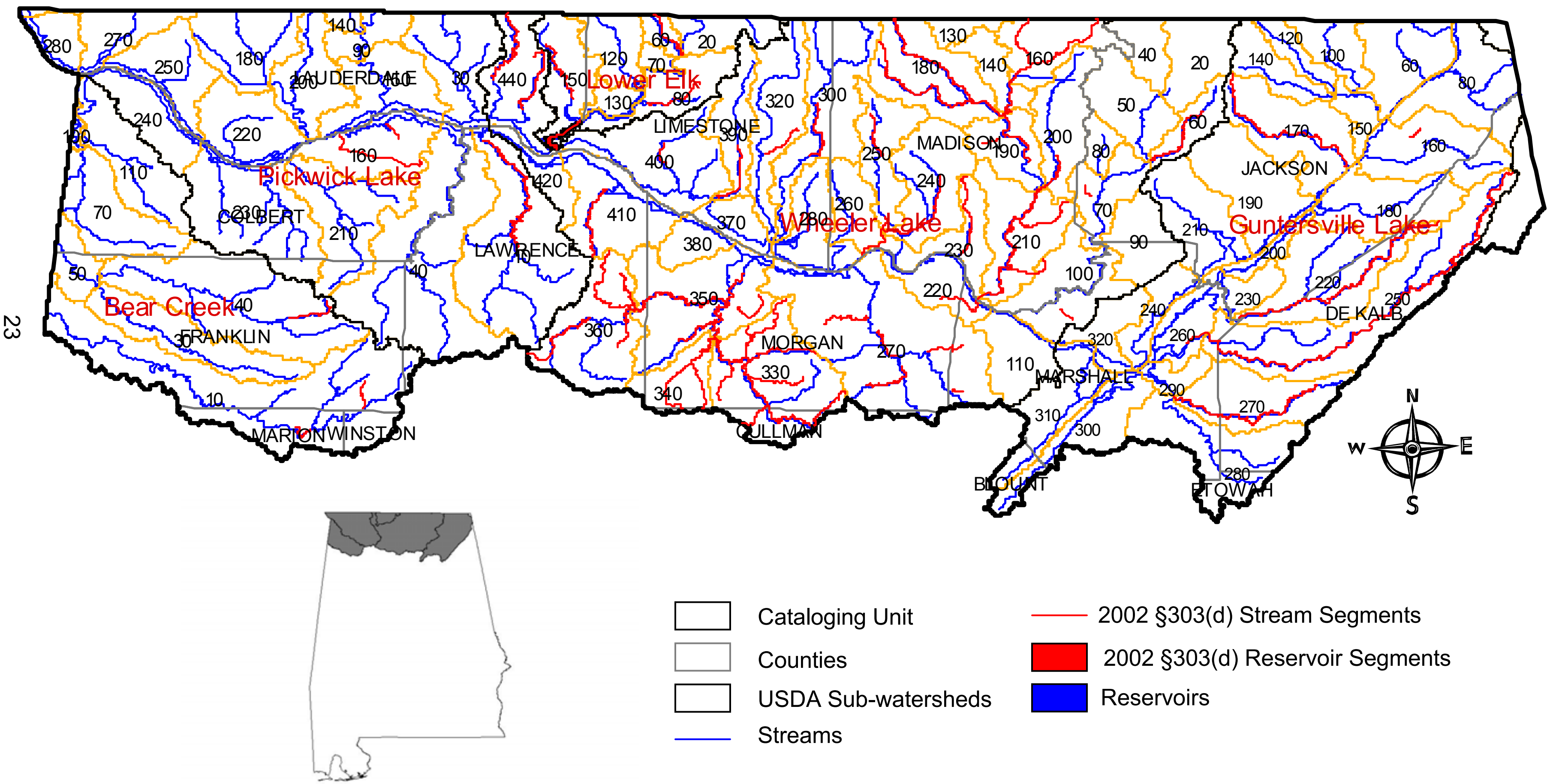

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Fig. 4. Estimated potential for impairment from rural nonpoint sources

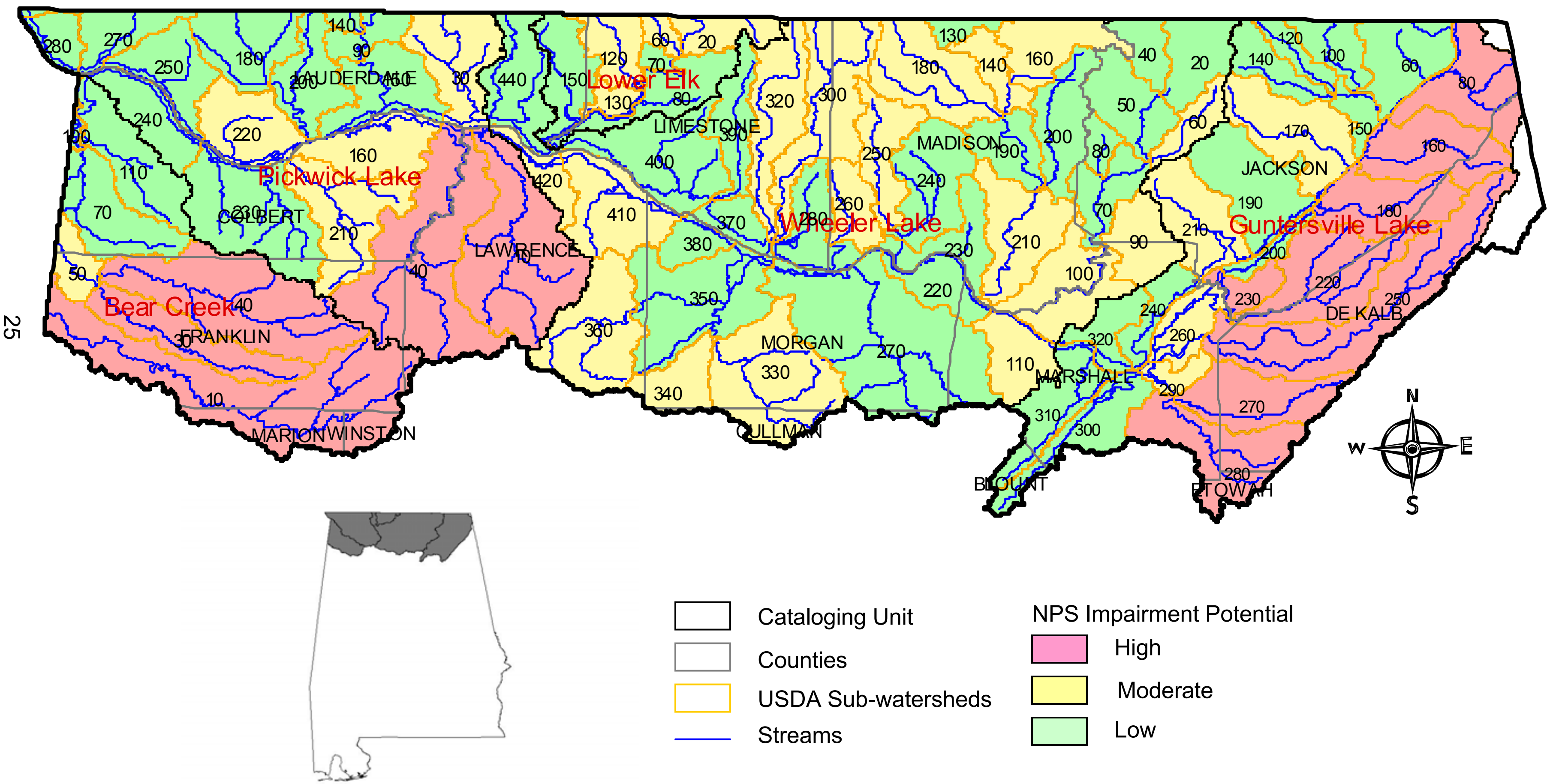

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Fig. 5. Estimated potential for impairment from forestry activities.

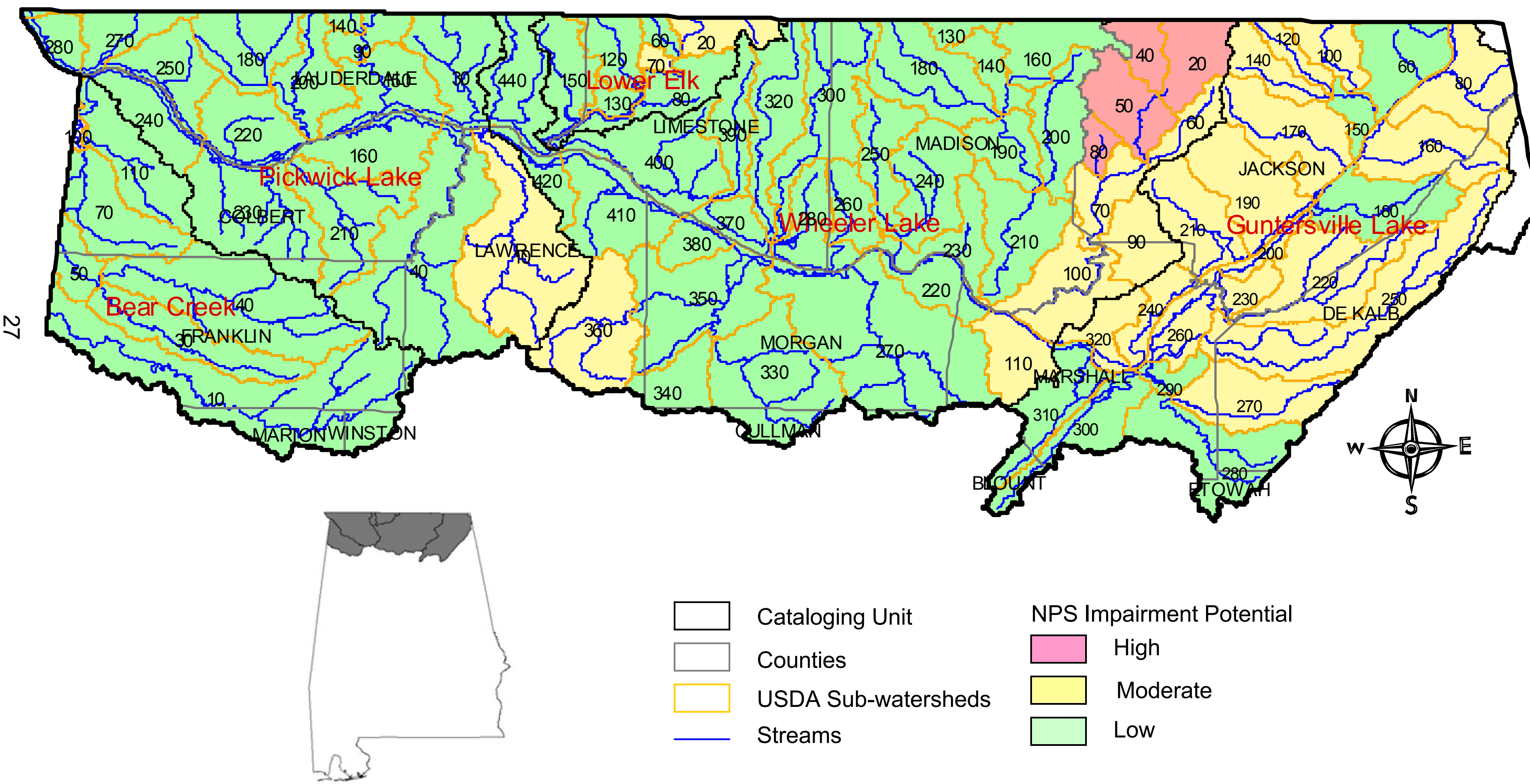

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Fig. 6. Estimated potential for impairment from sedimentation.

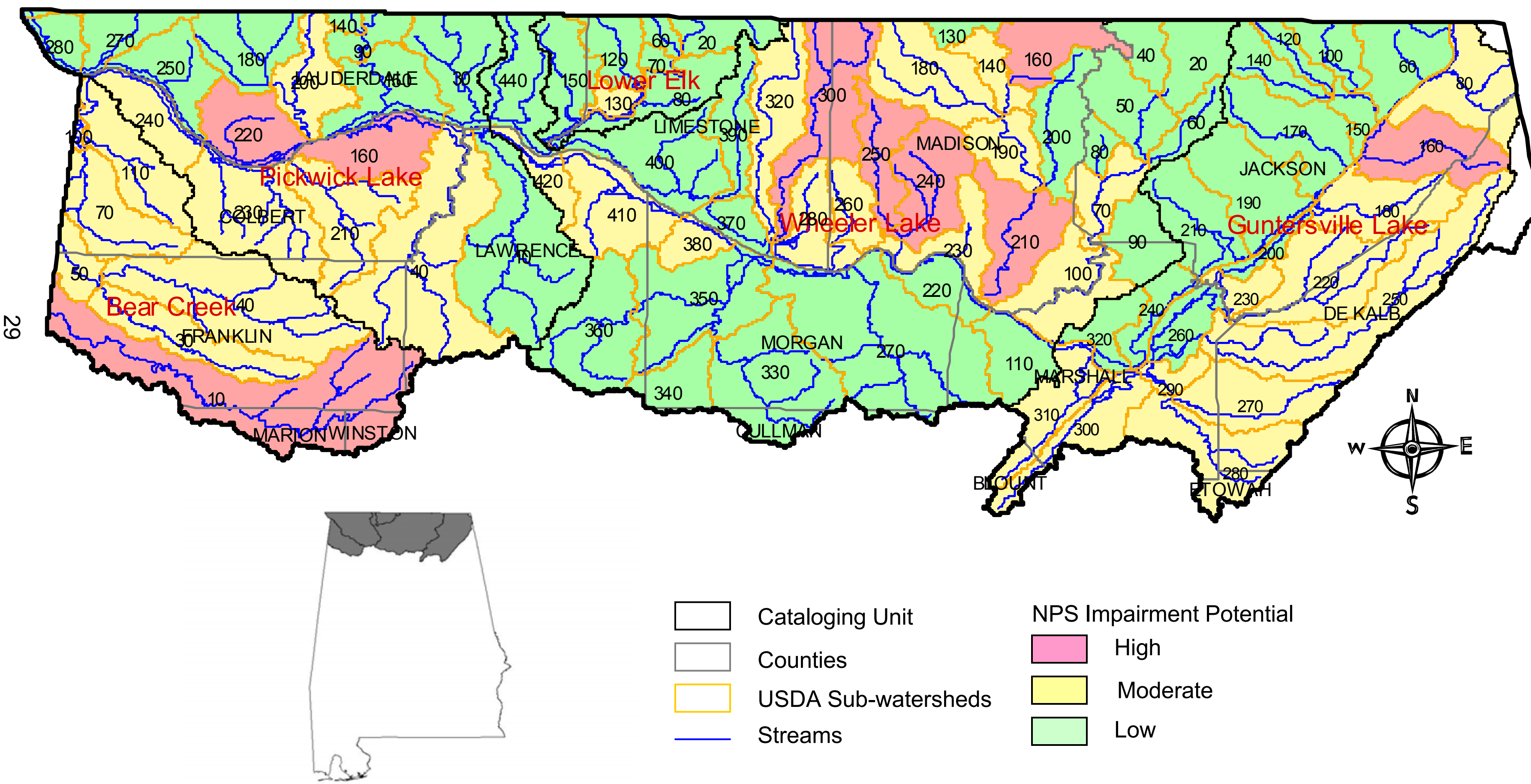

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Fig. 7. Estimated potential for impairment from animal husbandry.

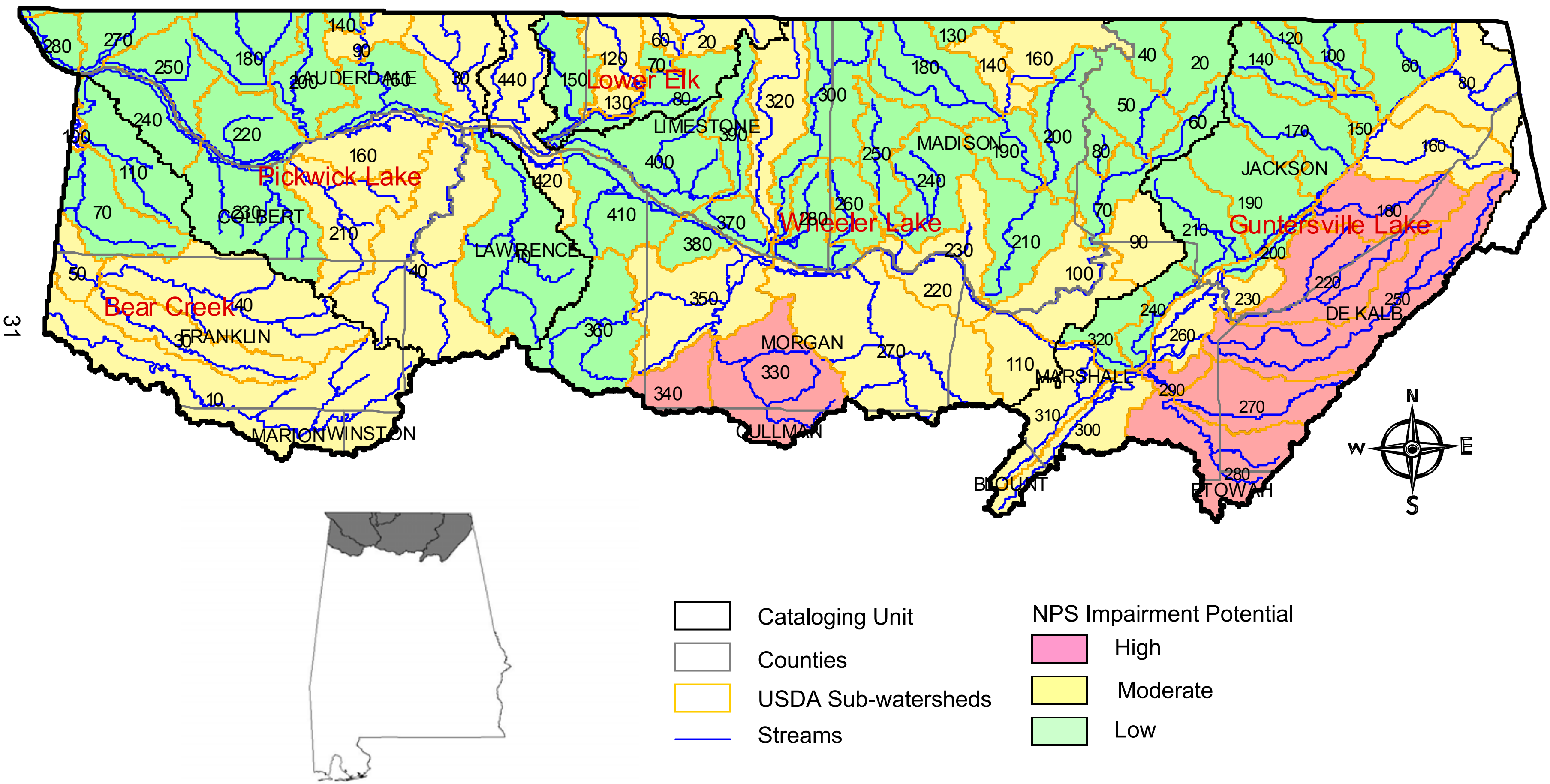

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Fig. 8. Estimated potential for impairment from pasture grazing.

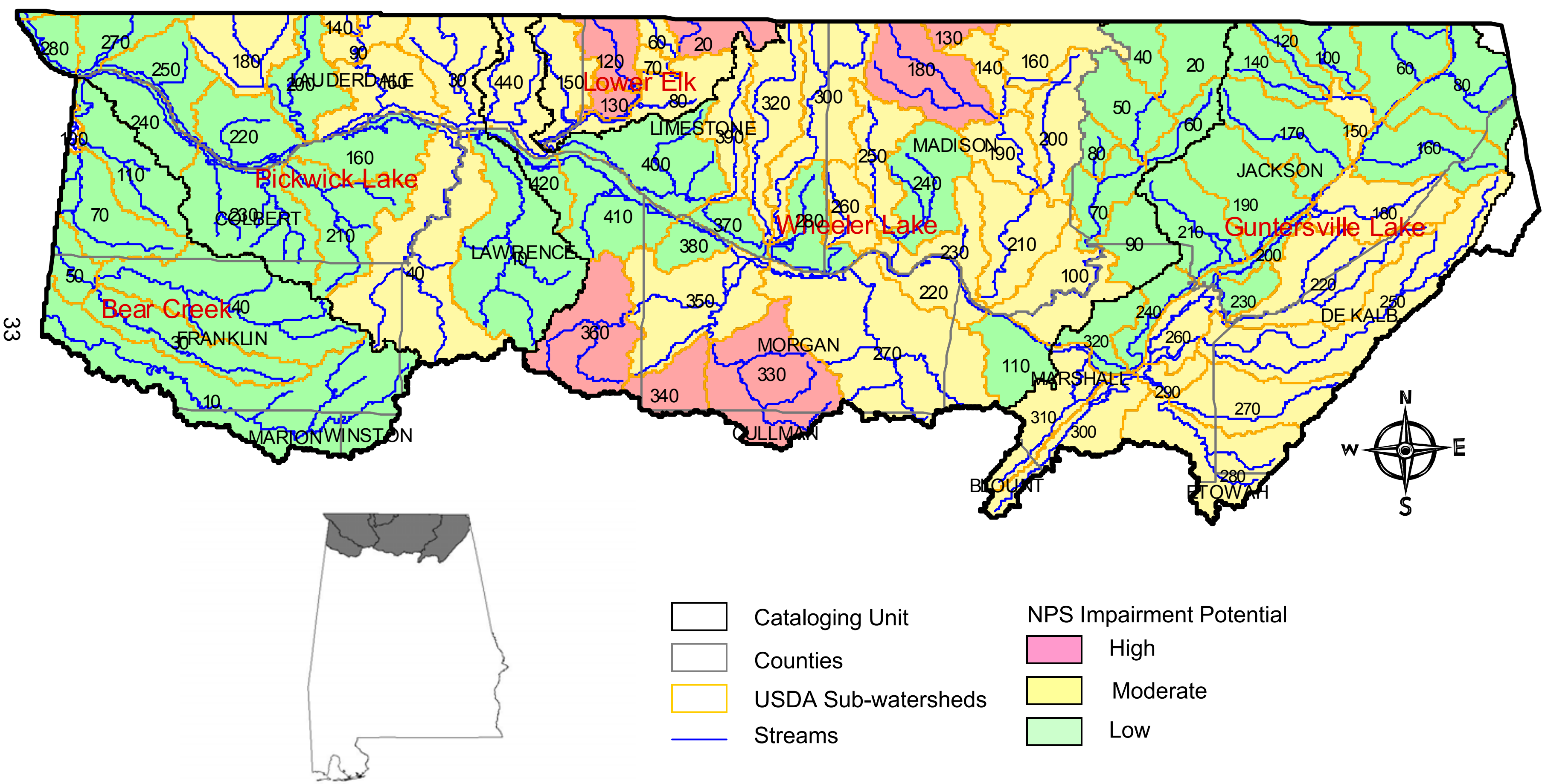

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Fig. 9. Estimated potential for impairment from crop runoff.

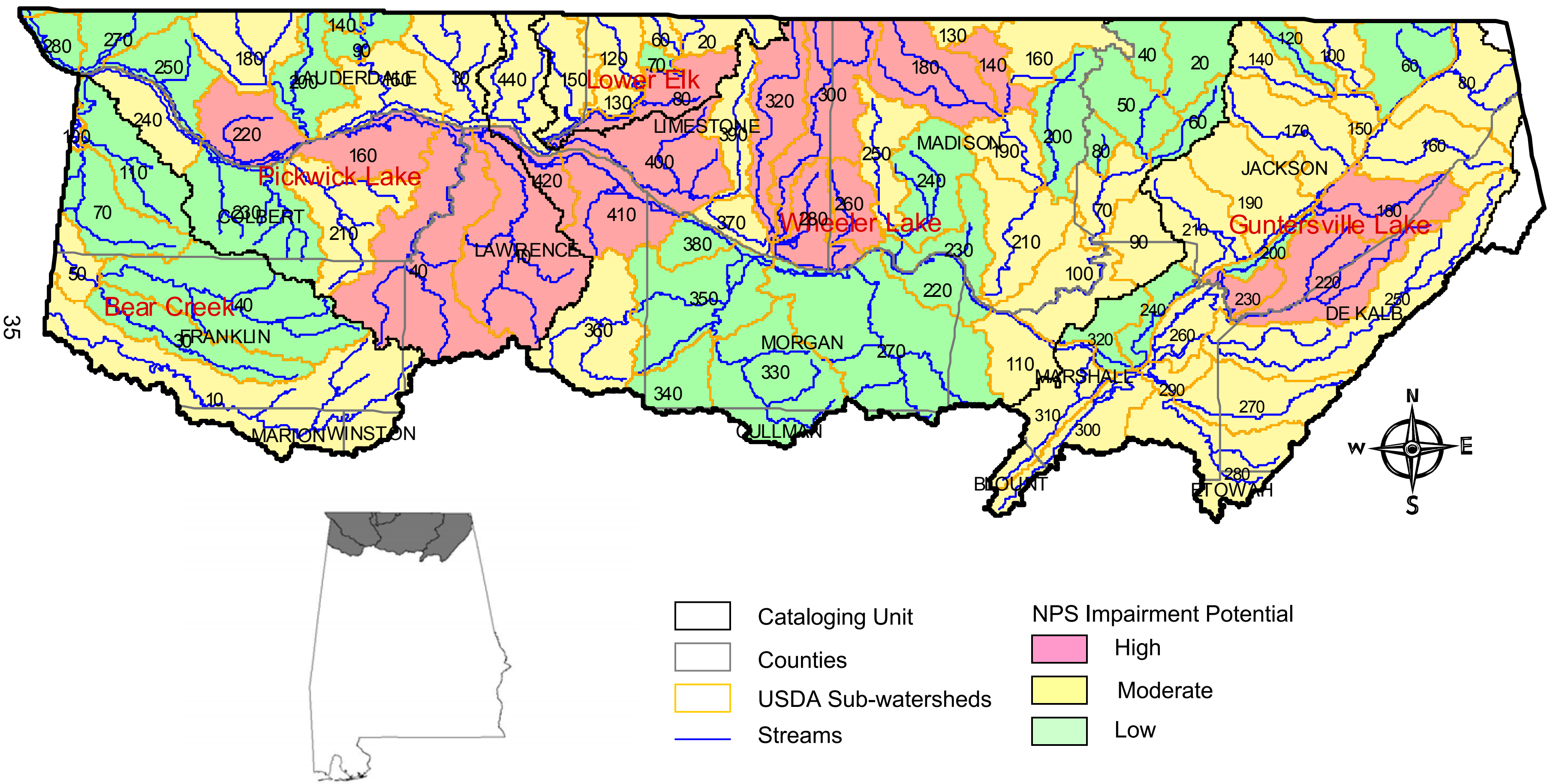

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Fig. 10. Estimated potential for impairment from mining.

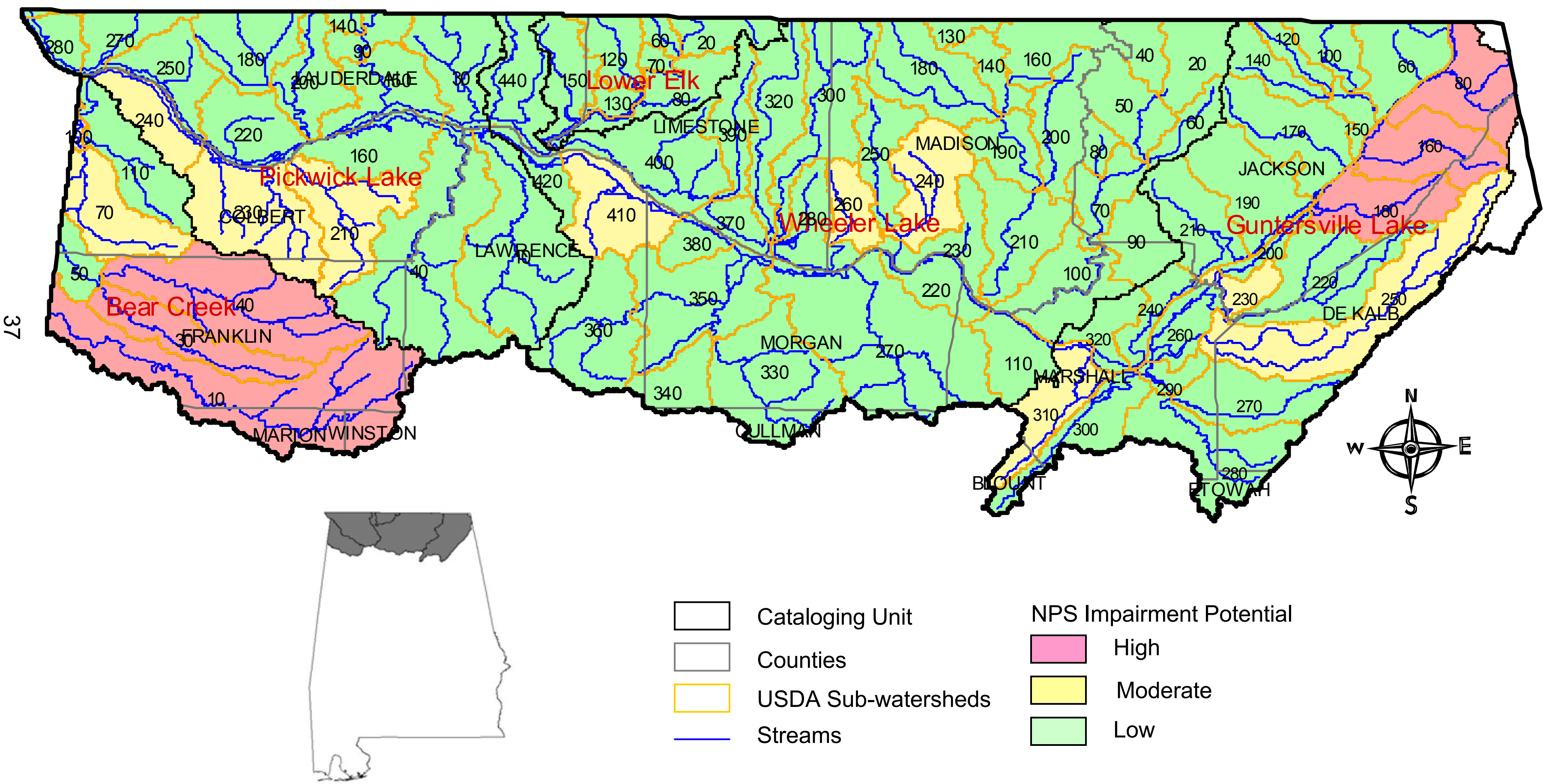

Fig. 11. Estimated potential for impairment from aquaculture.

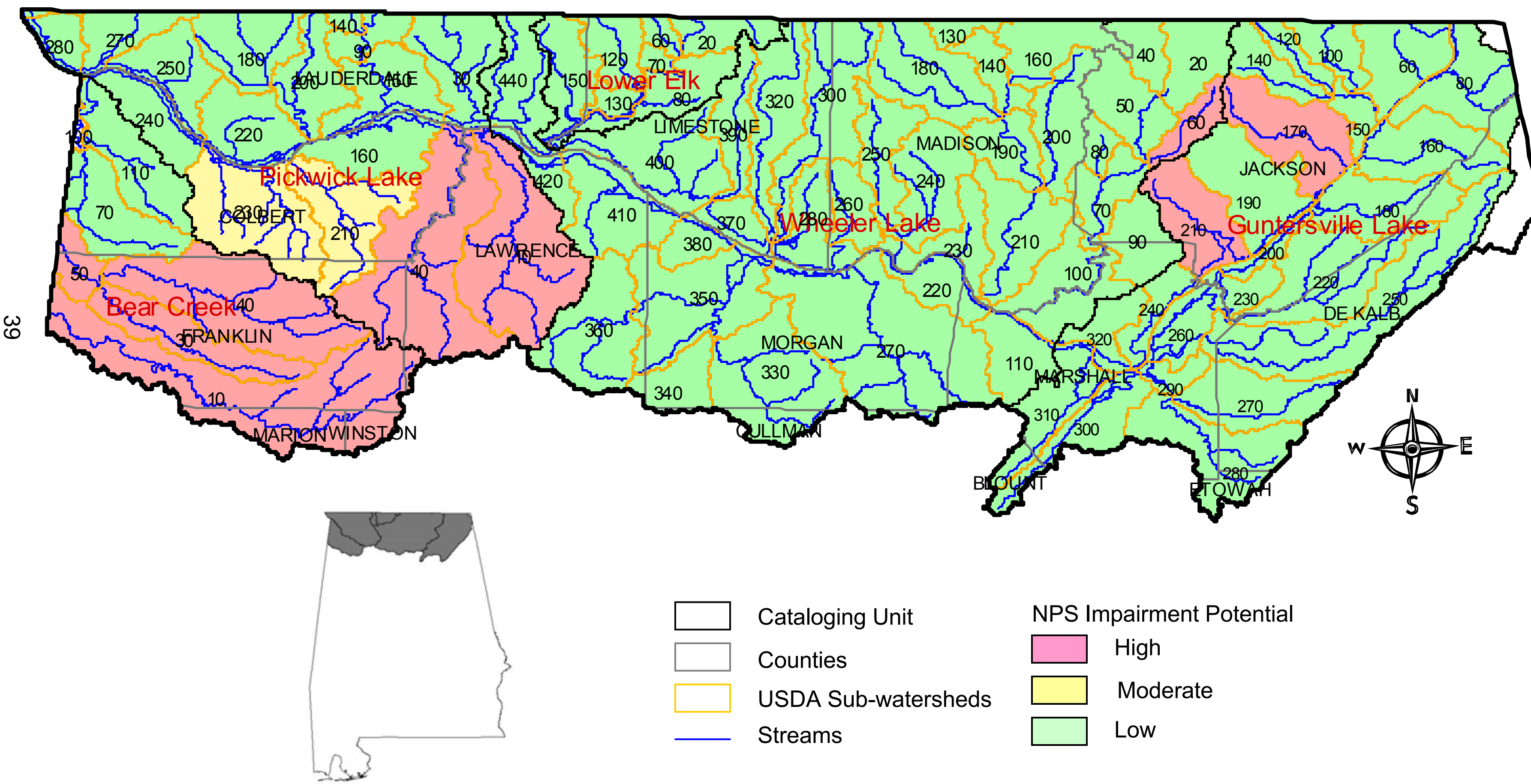

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Fig. 12. Estimated potential for impairment from urban sources.

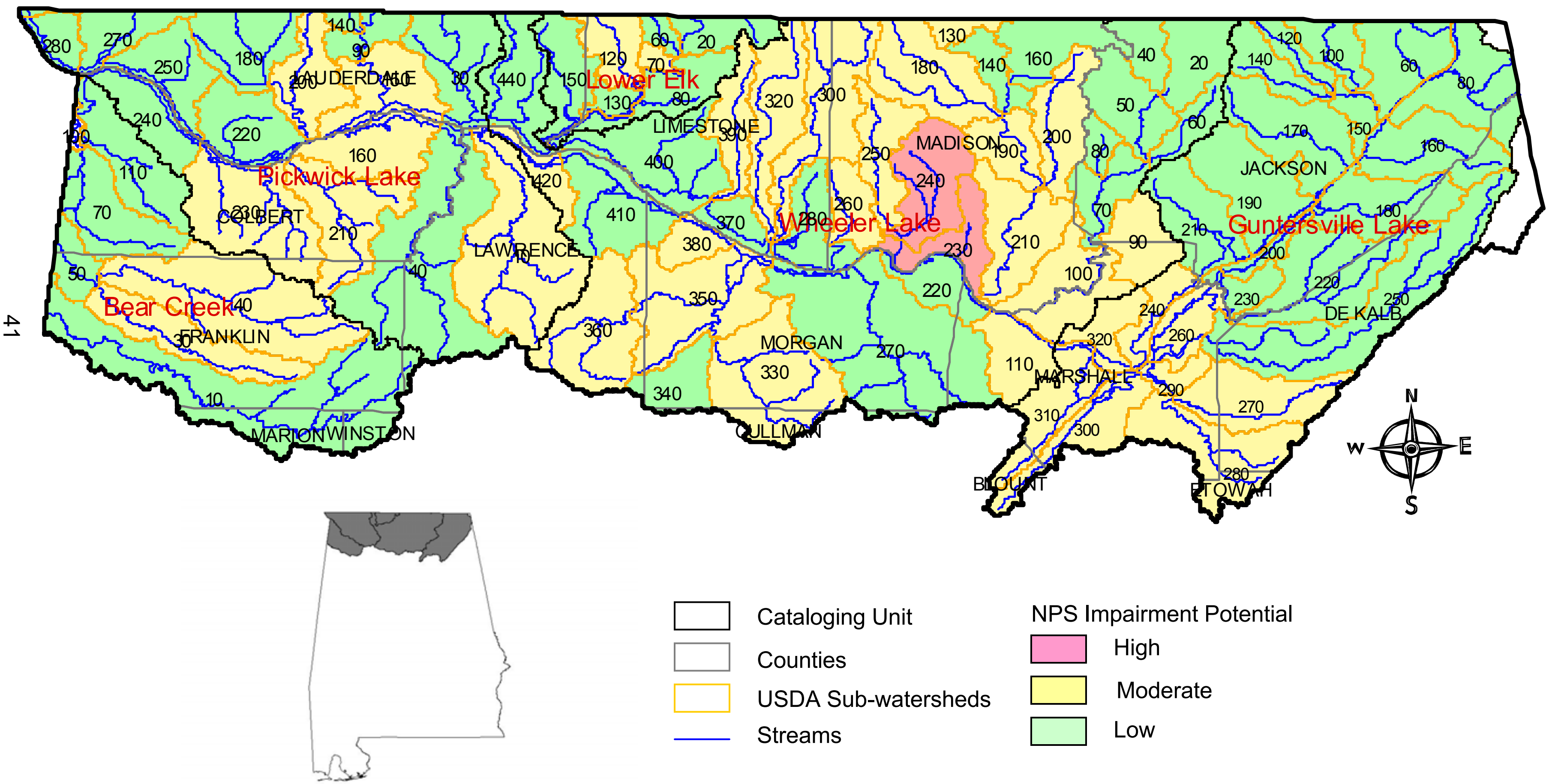

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Table 5. Range of values used to define "low', "moderate", and "high" potential for impairment from each urban or point source category.

Category	Impairment Potential		
Urban NPS Categories	**Low**	**Moderate**	**High**
Urban score	≤ 5	>5.0 to <11.0	≥ 11.9
% Urban	≤ 4%	>4% to <11.9%	≥ 11.9%
Development (highest rating)			
Total # permits, CSAs/acre of sub-watershed	≤ 0.0003	>0.0003 to ≤ 0.0008	>0.0008
# CSA/acre of sub-watershed	≤ 0.0001	>0.0001 to ≤ 0.0004	>0.0004
# of failing septic tanks/ac of sub-watershed	≤ 0.0076	>0.00762 to ≤ 0.0263	>0.0263

The estimates derived for the Tennessee Basin Group are specific to this basin and may not be applicable to water quality conditions and activities in other basins of Alabama. 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 first 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.

SITE SELECTION

NPS impairment potential estimates and Alabama's 2002 §303(d) list were used to rank the sub-watersheds within the Tennessee Basin Group. Existing water quality reports were used to identify sub-watersheds where recent data were unavailable. Additional review of municipal, industrial, and mining permit tracking databases were used to identify those sub-watersheds most impaired by point sources. Most of these areas were not assessed because the primary emphasis of basinwide screening projects is to assess streams in rural ares. A total of 128 stations were targeted to select candidate assessment sites and conduct field reconnaissance. Where possible, assessment sites were located in relatively small drainages to relate water quality to specific nonpoint sources and to compare results to ADEM's network of least-impaired reference sites. Appendix F lists the target sub-watersheds and the sites chosen for assessment.

HABITAT ASSESSMENT

In the absence of water quality impairment, the biological condition of fish and aquatic macroinvertebrate communities is generally correlated with the quality of available habitat. The presence of stable and diverse habitat generally supports a diverse and healthy aquatic fauna (Barbour and Stribling 1991, Barbour and Stribling 1994). Therefore, habitat quality was assessed at each site to evaluate stream condition and to assist in the interpretation of biological data. Primary, secondary, and tertiary habitat parameters were evaluated. 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, stability, and availability. Secondary habitat parameters evaluate channel morphology, which is 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 has published two versions of stream habitat assessment forms to evaluate primary, secondary, and tertiary habitat parameters (Plafkin et al. 1989, Barbour et al. 1999). ADEM used the original habitat assessment form from 1989 through 1996. The EPA published revised habitat assessment forms that evaluated riffle/run and glide/pool streams separately (EPA 1997b). The primary habitat parameters of the glide/pool habitat assessment emphasize characteristics important to this stream-type, primarily pool structure and variability. The ADEM began using the revised forms in 1996 because they assess habitat quality and degradation to the glide/pool streams of south Alabama more accurately (ADEM 1999b). In addition, because they measure impairment to habitat quality, the scores (converted into percent of maximum score) were comparable between stream types and can be used to evaluate streams throughout the basin. At each site, two field personnel completed a riffle/run or glide/pool habitat assessment. The scores were averaged to obtain a final habitat assessment score. One physical characterization sheet was filled out at each station. Field data sheets used by ADEM are provided in Appendix L.

AQUATIC MACROINVERTEBRATE ASSESSMENT:

Wadeable Multi-Habitat EPT Method (WMB-EPT)

ADEM's Wadeable Multihabitat EPT screening method was conducted at 72 sites within the Tennessee Basin Group (Appendix F). An in-depth description of the procedures used during a WMB-EPT assessment can be found in ADEM 2005. At each station, basic field parameters were measured and a stream flow was estimated using an abbreviated cross-section flow measurement technique of 6-10 measurements (ADEM 2000c). A Global

Positioning System (GPS) Unit was used to determine the latitude and longitude of each station (if possible).

The WMB-EPT method is an aquatic macroinvertebrate assessment technique used in watershed screening assessment studies, which entail assessments at multiple sites over a large area. The WMB-EPT decreases collection effort and analysis time 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 with the greatest potential for biological impairments caused by rural nonpoint sources. Once priority sub-watersheds are identified, more extensive monitoring efforts are needed to quantify the level of impairment, determine the causes and sources of that impairment, and to document and assess trends in water quality after BMP implementation.

Collect samples from multiple habitats: All available habitats were sampled at each site. Habitats routinely sampled using this method include riffles, leaf packs, rootbanks, snags/logs and rocks, and sand. The productive habitats at a site will differ naturally between streams above and below the Fall Line. Streams located in 65j, below the Fall Line, are usually low gradient, “glide-pool” streams, characterized by sandy substrates, a lack of riffle habitat, and meandering flows. Other streams in the TN basin are located above the Fall Line and are generally moderate-to-high gradient, “riffle-run” streams.

Process samples in the field: After each habitat was sampled, the organic material was elutriated from the inorganic material. The inorganic material was visually inspected for organisms (esp. Trichoptera in stone cases). The organic matter was washed down, and large debris was visually inspected and removed.

***Collect 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, and the initials of the team member who processed the sample. The organisms were identified to family level in the laboratory.

Field QA/QC procedures: At 10% of the field-picked stations, the debris remaining from each habitat was preserved in wide-mouth containers and returned to the laboratory to verify the removal of all EPT taxa and calculate the accuracy of the field-pick method.

Laboratory QA/QC procedures: Laboratory identifications for 10% of macroinvertebrate samples were verified by a second qualified biologist. All data entered in the aquatic macroinvertebrate mainframe Pace database are verified for accuracy.

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 reaches to evaluate the health of each stream reach. Each site was assessed as *excellent*, *good*, *fair*, or *poor* based on the number of pollution-sensitive EPT families collected (ADEM 2004a).

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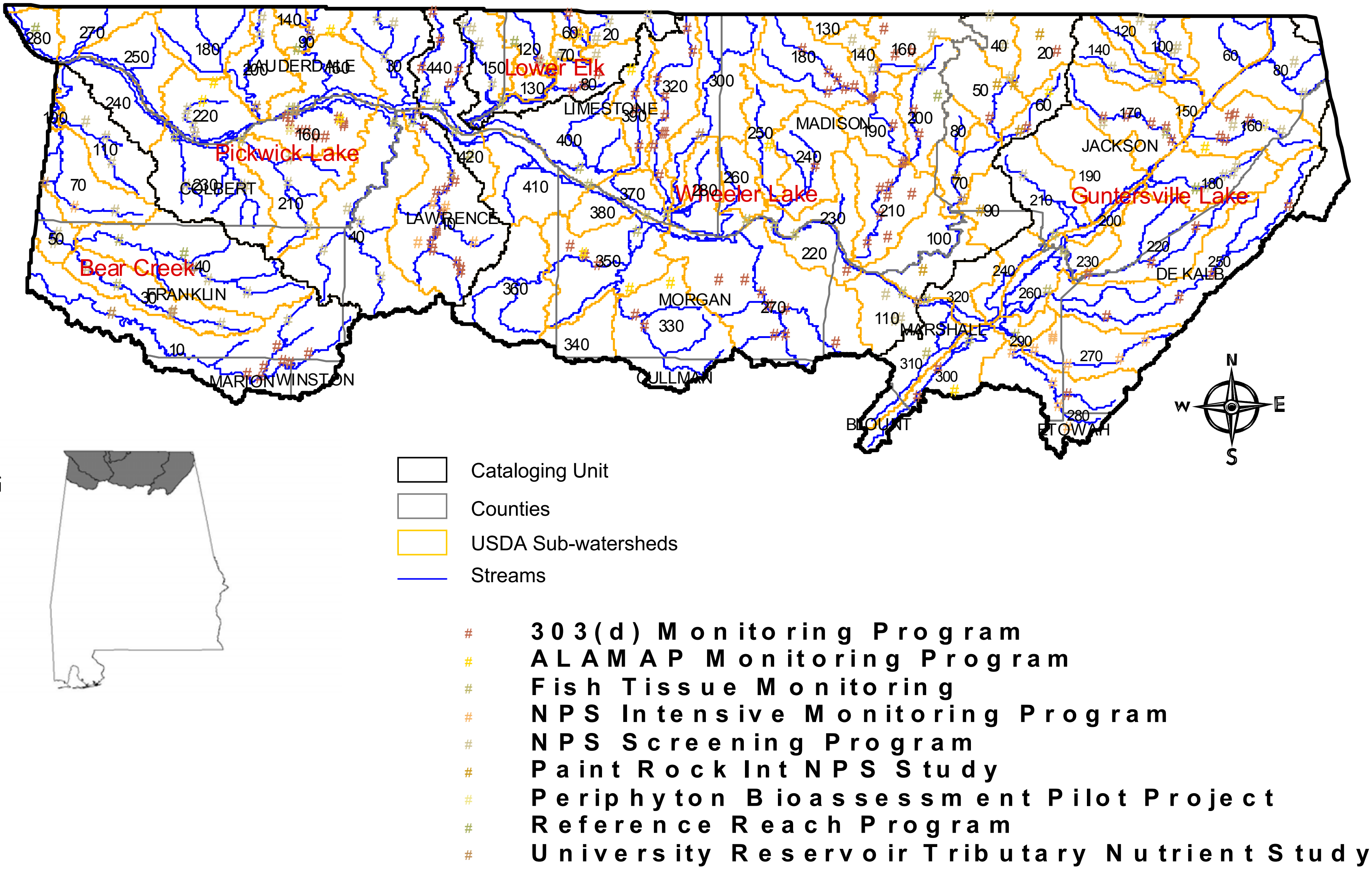
Fig. 13. Sampling Locations within the Tennessee River Basin, 1999-2003.



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CHEMICAL ASSESSMENT

Table 6 lists the analysis method and detection limits for parameters analyzed by ADEM in conjunction with its monitoring programs. ADEM's 2005 draft Listing and Assessment Methodolgy states that at least three water quality sampling events must be conducted to fully assess a waterbody. During the screening assessment of the Tennessee Basin, chemical parameters were collected one time and used as indicators of NPS impairment including sedimentation (total suspended solids, total dissolved solids), nutrient enrichment (total phosphorus, nitrate/nitrite-nitrogen, CBOD-5), and mining impacts (total iron, total manganese).

Chemical analyses of water samples were conducted by ADEM's Central Laboratory in Montgomery. Water quality samples for laboratory analysis were collected, preserved, and transported to ADEM's Laboratory as described in ADEM Field Operations Standard Operating Procedures and Quality Control Assurance Manual, Volume I - Physical/Chemical (ADEM 2000c). Laboratory analyses were conducted in accordance with ADEM's Quality Assurance Manual for the Alabama Department of Environmental Management Central Laboratory (ADEM 1999d).

Duplicate field parameters were collected during 10% of the sampling events. Duplicate water quality samples were collected during 5% of the sampling events.

Water quality samples and routine field parameters were collected in conjunction with several other projects conducted or funded by ADEM. These data and a description of each of the projects are provided in Appendix F.

Water quality parameters were assessed as *exceeding* or *not exceeding* background levels as defined by the 90th percentile of ADEM's current database of least-impaired ecoregional reference sites.

CHAIN OF CUSTODY

Sample handling and chain-of-custody procedures were used 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 (ADEM 1999b, 2000c).

FINAL ASSESSMENT AND RANKING OF SUB-WATERSHEDS

Although the phases of this project resulted in a fully integrated evaluation of the Tennessee basin, biological, habitat, and chemical assessments were used differently to prioritize sub-watersheds. Macroinvertebrate assessments of *fair* or *poor* identified priority sub-watersheds. Sub-watersheds meeting these criteria but affected primarily by point sources or urban runoff were not recommended as priority sub-watersheds for implementation of NPS controls.

Landuse patterns, habitat condition, chemical water quality measurements, and Conservation Assessment Worksheet data were used to evaluate potential cause(s) of impairment.

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Fig. 14. 2003 NPS priority sub-watersheds & 2002 303(d) list streams and reservoir segments. 2003 Bioassessment Results are also shown.

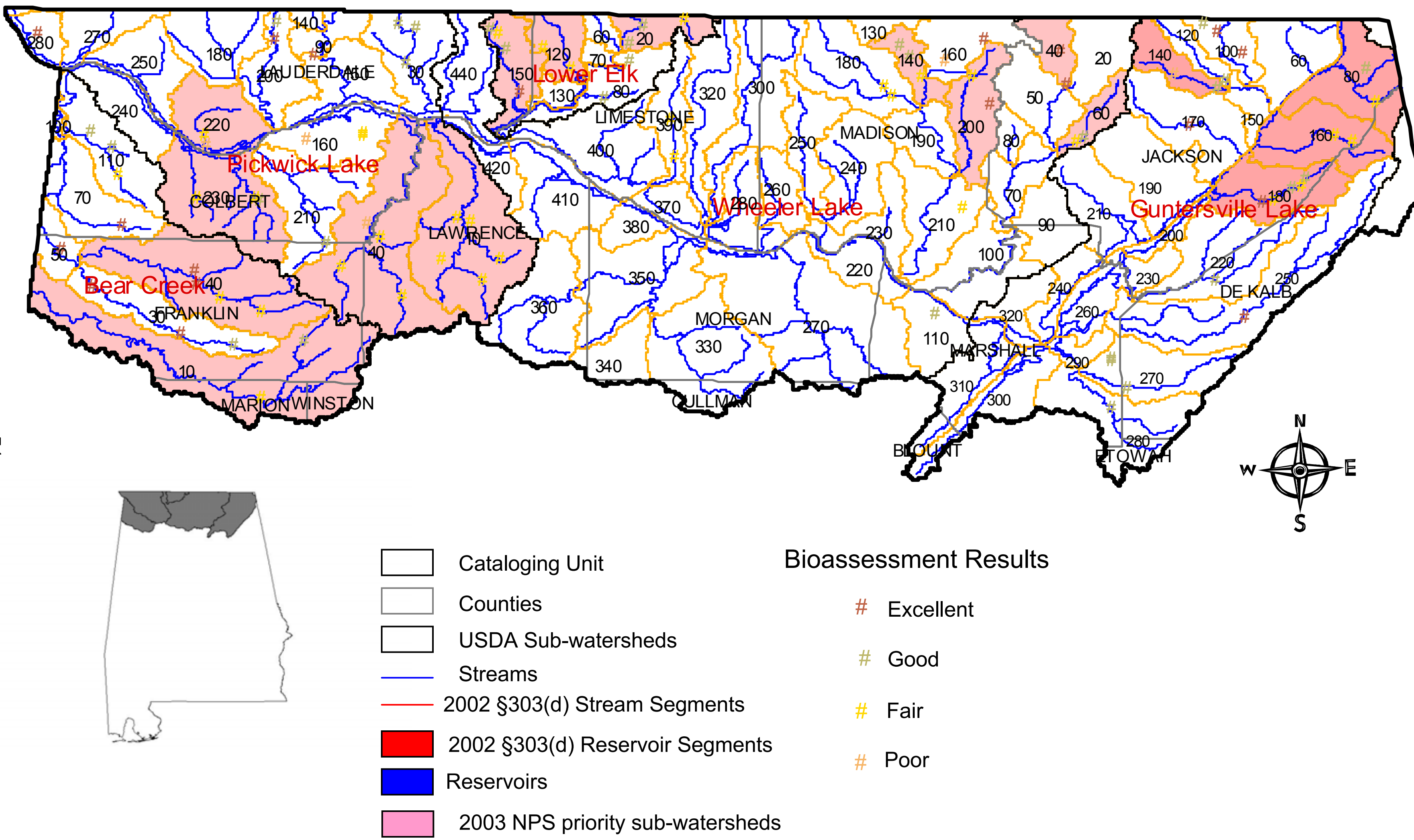

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Table 6. List of parameters analyzed by ADEM. Analysis method, reference, and detection limit are also listed.

Parameter	***Method***	***Reference***	***Detection Limit***
Air Temperature	Thermometer	ADEM SOP Vol. 1	1°C
Water Temperature	Thermometer/Thermistor	ADEM SOP Vol. 1	1°C
Dissolved Oxygen	Modified Winkler Membrane Electrode	ADEM SOP Vol. 1	0.1 mg/L
pH	Glass Electrode	ADEM SOP Vol. 1	0.1 su
Specific Conductance	Wheatstone Bridge	ADEM SOP Vol. 1	10 µmhos/cm @ 25°C
Turbidity	Nephelometer	APHA et al. 1998	0.1 NTU
Stream Flow	Modified Cross Sectional	ADEM SOP Vol. 1	0.1 cfs
5-day Biochemical Oxygen Demand (BOD-5)	EPA 405.1	EPA/600/4-79/020	0.1 mg/L
Alkalinity (Alk)	EPA 310.1	EPA/600/4-79/020	1 mg/L
Aluminum, Total (Al)	EPA 200.7	EPA/600/R-94/111	0.2 mg/L
Ammonia-nitrogen (NH_3-N)	EPA 350.1	EPA/600/R-93/100	0.015 mg/L
Arsenic, Total (As)	EPA 206.2	EPA/600/4-79/020	10 µg/L
Cadmium, Total (Cd)	EPA 200.7	EPA/600/R-94/111	0.003 mg/L
Carbonaceous BOD-5 (CBOD-5)	EPA 405.1	EPA/600/4-79/020	0.1 mg/L
Chloride (Cl)	EPA 300.A EPA 325.1	EPA/600/R-93/100 EPA/600/4-79/020	0.5 mg/L
Chlorophyll a (Chlor a)	SM 10200H	APHA et al. 1992	0.1 mg/m^3
Chromium, Total (Cr-T)	EPA 200.7	EPA/600/R-94/111	0.015 mg/L
Copper, Total (Cu)	EPA 200.7	EPA/600/R-94/111	0.02 mg/L
Fecal Coliform	Membrane Filter	ADEM SOP Vol. 6	---
Hardness	EPA 130.2 / SM2340B	EPA/600/4-79/020	1 mg/L
Hexavalent Chromium (Cr^{+6})	SM 3500CrB	APHA et al. 1998	0.02 mg/L
Iron, Total (Fe)	EPA 200.7	EPA/600/R-94/111	0.02 mg/L
Lead, Total (Pb)	EPA 239.2	EPA/600/4-79/020	2 µg/L
Magnesium, Total (Mg)	EPA 200.7 EPA 242.1	EPA/600/R-94/111 EPA/600/4-79/020	0.05 mg/L
Manganese, Total (Mn)	EPA 200.7	EPA/600/R-94/111	0.02 mg/L
Mercury, Total (Hg)	EPA 245.2 EPA 245.5	EPA/600/4-79/020 EPA/600/4-91/010	0.3 µg/L
Nickel, Total (Ni)	EPA 200.7	EPA/600/R-94/111	0.03 mg/L
Nitrate/nitrite-nitrogen (NO_3+NO_2-N)	EPA 353.2	EPA/600/R-93/100	0.003 mg/L
Organochlorine Pesticides	SW 8081A	EPA 1994	---
Organophosphorus Pesticides	SW 8141	EPA 1994	---
Ortho-Phosphorus (Ortho-P)	EPA 365.3	EPA/600/4-79/020	0.004 mg/L
Selenium, Total (Se)	EPA 270.2	EPA/600/4-79/020	10 µg/L
Silver, Total (Ag)	EPA 200.7	EPA/600/R-94/111	0.01 mg/L
Total Dissolved Solids (TDS)	EPA 160.1	EPA/600/4-79/020	1 mg/L
Total Kjeldahl Nitrogen (TKN)	EPA 351.2	EPA/600/R-93/100	0.15 mg/L
Total Organic Carbon (TOC)	EPA 415.2		0.5 mg/L
Total Organic Nitrogen (TON)	TKN+NH_3	EPA 1994	Calculated value
Total Phosphorus (Total P)	EPA 365.4	EPA/600/4-79/020	0.004 mg/L
Total Suspended Solids (TSS)	EPA 160.2	EPA/600/4-79/020	1 mg/L
Zinc, Total (Zn)	EPA 200.7	EPA/600/R-94/111	0.03 mg/L
Zinc, Dissolved (Dis-Zn)	EPA 289.2	EPA/600/4-79/020	0.03 mg/L

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2003 TENNESSEE BASIN ASSESSMENT RESULTS

Landuse: Landuse percentage estimates, 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.

Estimates of percent land cover for each CU are presented in Table 7. Percent forest ranged from 37% in the Lower Elk River CU to 77% in the Chickamauga CU. Percent land cover as row crop, pasture, and mining ranged from 6% in the Chickamauga CU to 19% in the Lower Elk River. Percent urban area was highest in the Wheeler Lake and Pickwick Lake CUs.

CWA §303(d)/TDML Status: Ninety-seven pollutants are currently listed on Alabama's 2002 §303(d) list of impaired waters as causing impairment in the Tennessee Basin (Appendix C-1). TMDL's have been approved for 53 pollutants, including pathogens (7), organic enrichment/dissolved oxygen (17), and ammonia/nutrients (6) (Appendix C-2). Siltation (19) accounted for 22% of the listed pollutants (Appendix C-1). Thirty-seven percent of the listed pollutants were nutrients (6), organic enrichment/dissolved oxygen (27), and ammonia (3). Metals (3), and pH (3), compose 6% of the listed pollutants. Pathogens (19), priority organics (2) and unknown toxicity (3) accounted for 25% of the listed causes of impairment.

Nonpoint source (NPS) impairment potential: The potential for NPS impairment was estimated for each sub-watershed in the Tennessee Basin using data compiled by the local Soil and Water Conservation Districts (SWCD) (ASWCC 1998) and information on the number of current construction stormwater authorizations (Tables 8 and 9). These estimates were used as a tool to target assessment efforts in areas with the greatest potential for NPS impairment.

Table 7. Estimates of percent land cover within the Tennessee River Basin (ASWCC 1998).

Cataloging Unit	Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
Chickamauga	77%	3%	16%	0%	1%	0%	2%
Guntersville Lake	50%	18%	22%	1%	2%	5%	2%
Wheeler Lake	43%	18%	28%	0%	7%	4%	0%
Lower Elk River	37%	22%	35%	0%	3%	3%	0%
Pickwick Lake	48%	23%	20%	0%	7%	1%	2%
Bear Creek	72%	6%	12%	2%	3%	3%	2%

Based on this information, 45 of 93 (48%) sub-watersheds showed a "moderate" or "high" potential for impairment from rural NPS (Fig. 4). Figures 5-12 illustrate the sources and locations with the greatest potential for impairment.

Table 8. Number of sub-watersheds with moderate or high ratings for each NPS category

Cataloging Unit	Total # sub-watersheds	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry Impaired (Reported)	Sediment
Chicamauga	2	---	0	0	1	0	0	2	0
Guntersville Lake	23	12	12	2	18	10	6	16	11
Wheeler Lake	36	17	14	1	22	21	3	10	17
Lower Elk River	7	4	4	0	7	7	0	2	1
Pickwick Lake	17	6	5	4	9	6	3	1	7
Bear Creek	7	5	4	4	2	0	4	0	6

Table 9. Number of sub-watersheds with moderate or high ratings for each point source or urban category

Category	Total # sub-watersheds	Overall Potential	% Urban	Development	Septic tank failure
Chicamauga	2	0	0	0	0
Guntersville Lake	23	8	5	9	9
Wheeler Lake	36	20	15	12	12
Lower Elk River	7	2	3	0	0
Pickwick Lake	17	6	6	2	2
Bear Creek	7	2	0	4	4

<u>Historical data/studies</u>: Nine water quality assessment projects and programs have been conducted since 1999 by ADEM, U.S. Geological Survey (USGS), and the Tennessee Valley Authority (TVA).

Data from these projects and programs include both monitored and evaluated assessments. Monitored assessments are based on chemical, physical, and/or biological data collected using commonly accepted and well-documented methods. Evaluated assessments are based on observed conditions, limited water quality data, water quality data older than 5 years, or estimated impacts from observed or suspected activities.

Results of monitored assessments were used in this report to assess habitat, biological, and chemical conditions within a sub-watershed. Monitored assessments were conducted during 5 projects and programs (Table 10). Evaluated assessments were conducted in conjunction with ADEM's ALAMAP Program (Appendix S). Recent data and a summary of ADEM's Ecoregional Reference Reach, §303(d) Monitoring, Ambient Monitoring, and ALAMAP Programs, ADEM's Periphyton Bioassessment Pilot Project, and the University Tributary Nutrient Loading Project are included in the appendices. Data from these programs and projects have not been published or reported in any other source. Summaries include lead agency, project objectives, data types collected, and applicable quality assurance manuals.

2003 NPS screening assessment: Forty sub-watersheds were selected for assessment during the screening assessment. Seventeen sub-watersheds containing CWA §303(d) stream segments were targeted for sampling to verify or document impaired biological conditions. Sub-watersheds were also targeted if the potential for impairment from nonpoint sources was estimated as *moderate* or *high* or if recent (1999-2003) monitoring data were not available. In addition, 10 sub-watersheds assessed as impaired during the 1998 basinwide screening assessments were monitored to evaluate trends in water quality, verify impairment, or to more accurately determine the source of impairment. Appendix F lists each of the sampling stations and sub-watersheds targeted during the 2003 NPS screening assessment.

Sub-watershed assessments: Current and historical monitoring data collected by multiple agencies were combined to provide a complete dataset of the Tennessee River basin. These data included bioassessments and intensive water quality data that met programmatic requirements, such as well-documented procedures for sample collection and processing, data interpretation, and an established quality assurance-quality control program. ADEM's assessment of habitat and biological conditions are based on long-term data from ADEM's Ecoregional Reference Reach Program (ADEM 1999, ADEM 2004). Tables and appendices referenced in the summaries are located at the end of report.

Priority sub-watersheds: A total of 17 priority sub-watersheds were identified within the TN Basin Group (Table 1). Four (24%) priority sub-watersheds were located within the Guntersville Lake CU . Wheeler Lake contained 4 (24%) priority sub-watersheds. Three (17%) priority sub-watersheds were located in the Lower Elk River CU. Pickwick Lake and Bear Creek contained 4 (24%) and 2 (11%) priority sub-watersheds, respectively.

Sub-watershed summaries: A summary of information available for each of the priority sub-watersheds is provided. The summaries are organized into 6 sections by CU. Each summary discusses landuse, NPS impairment potential, assessments conducted within the sub-watershed, and the NPS priority rating based on available data.

Table 10. Types of assessments conducted for projects that have generated monitored assessment information.

Project	**Assessment Type**
ADEM's Ecoregional Reference Reach Program	H, C, B
ADEM's §303(d) Waterbody Monitoring Program	H, C, B
ADEM's Reservoir Monitoring Program	C, B
ADEM's Fish Tissue Monitoring Program	C
ADEM's Ambient Monitoring Program	H, C, B
ADEM's Periphyton Bioassessment Pilot Study	H, C, B
TVA: University Tributary Nutrient Project	C
USGS: Water Quality of the Flint River Basin, Alabama and Tennessee, 1999-2000	H, C, B
USGS: Environmental Settings and Water Quality Issues in the Lower Tennessee River Basin, 1999	C

[a]H=habitat; C=chemical/physical; B=biological
[b]Data and summary of project included in Appendices

ASSESSMENT SUMMARIES OF PRIORITY SUB-WATERSHEDS

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GUNTERSVILLE LAKE CU (0603-0001)

The Guntersville Lake CU of the Tennessee River Basin contains 23 sub-watersheds draining approximately 1,645 mi^2 located primarily within Jackson, Dekalb, Marshall, Etowah and Blount Counties (ADEM 2003b). The CU is located in the Southwestern Appalachians Ecoregion (Subregions 68a – 68d) and drains soils in portions of the Limestone Valleys and Uplands, and the Appalachian Plateau soil areas (ACES 1997).

Landuse: Based on the conservation assessment worksheets completed (ASWCC 1998) by the local SWCDs, the primary land-uses throughout the Lake Guntersville CU are forestry and pasture lands (listed below). Approximately 388,000 acres of crop and pastureland (37% of total area) were treated with pesticides and/or herbicides. Animal production included poultry, dairy and beef cattle, and swine. Animal Unit (AU) concentration estimates are presented in Appendix H-1. The highest contributions to the sediment loading in the CU were estimated to be from mined lands and croplands (0.64 and 0.60 tons/acre/year, respectively).

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	**Row crop**	**Pasture**	**Mining**	**Urban**	**Open Water**	**Other**
50%	18%	22%	1%	2%	5%	2%

NPS impairment potential: There was a *high* or *moderate* potential for NPS impairment in 12 sub-watersheds. Pasture grazing, forestry, and row crops were the NPS concerns in the CU. There was a *moderate* potential for impairment from urban sources within 5 sub-watersheds. Sedimentation from land development was also a concern (Appendix I)

Number of sub-watersheds with (M)oderate or (H)igh ratings for each nonpoint source category (Appendix D).

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Moderate	4	8	0	16	12	2	18	5
High	8	6	2	3	4	2	1	0

Number of sub-watersheds with (M)oderate or (H)igh ratings for each point source category (Appendix D).

Category	**Overall Potential**	**% Urban**	**Development**	**Septic tank failure**
Moderate	5	5	12	3
High	0	0	0	6

Historical data/studies: The majority of assessments conducted within the Guntersville Lake CU were from the 9 projects and programs and listed below.

Types of assessments conducted for projects that have generated monitored assessment information.

Project	Assessment Type
ADEM's Ecoregional Reference Reach Program	H, C, B
ADEM's §303(d) Waterbody Monitoring Program	H, C, B
ADEM's Reservoir Monitoring Program	C, B
ADEM's Fish Tissue Monitoring Program	C
ADEM's Ambient Monitoring Program	H, C, B
ADEM's Periphyton Bioassessment Pilot Study	H, C, B
TVA: University Tributary Nutrient Project	C
USGS: Water Quality of the Flint River Basin, Alabama and Tennessee, 1999-2000	H, C, B
USGS: Environmental Settings and Water Quality Issues in the Lower Tennessee River Basin, 1999	C

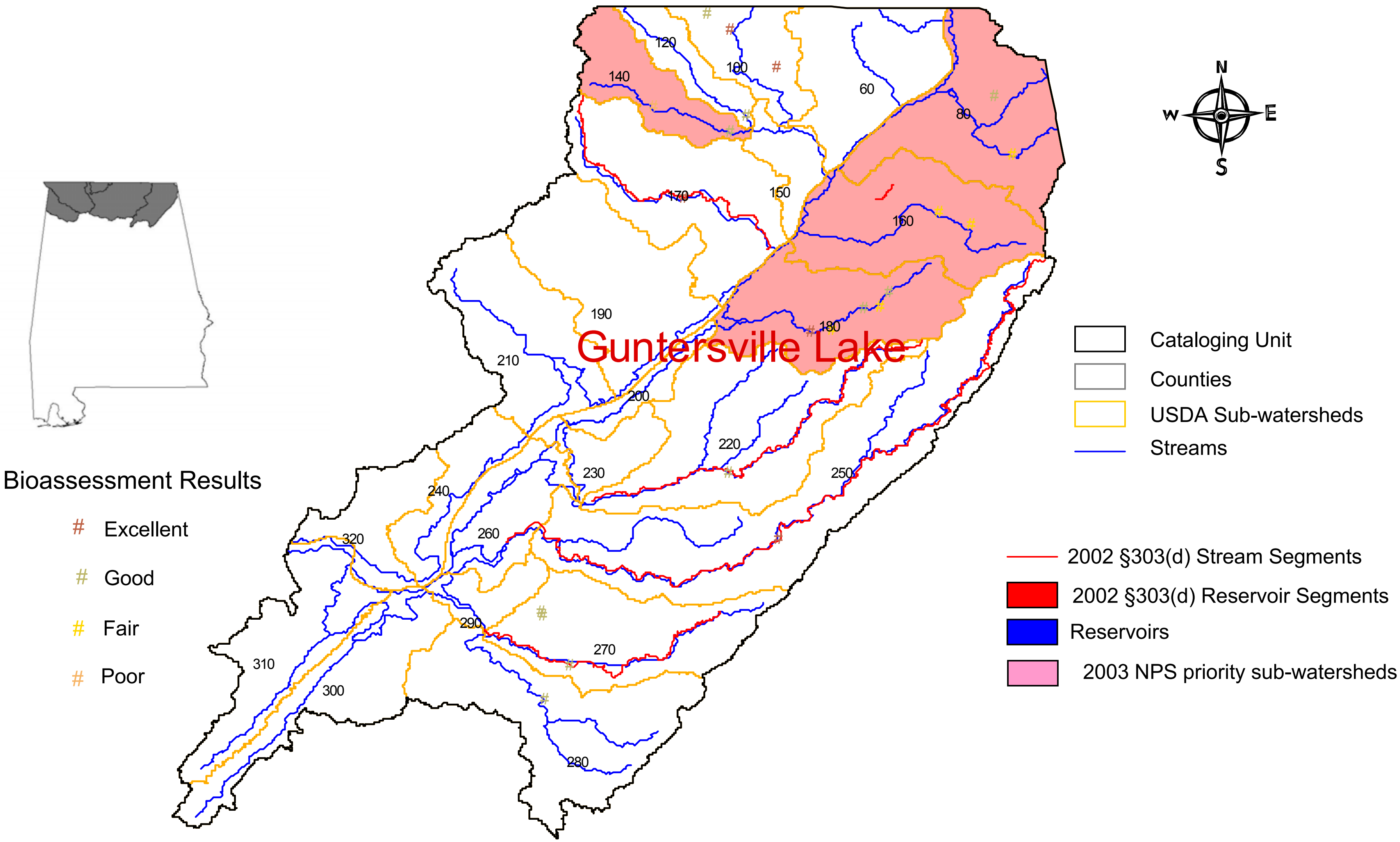
[a]H=habitat; C=chemical/physical; B=biological
[b]Data and summary of project included in Appendices

2003 NPS Assessments: Eight sub-watersheds were targeted for screening assessments and two sub-watersheds were targeted for intensive assessments during the 2003 NPS Screening Assessment because they were recommended as NPS priority sub-watersheds in 1997, had a *moderate* potential for impairment from nonpoint sources, were on ADEM's 2002 §303(d) list of impaired waters, or recent data were unavailable. Additionally, two sub-watersheds were monitored during 2003 to evaluate the effectiveness of implemented BMPs. Appendices F-1 & F-2 list the 29 stations assessed.

Sub-watershed assessments: Current and historical monitoring data were combined to provide a comprehensive evaluation. Habitat, chemical/physical, and biological indicators of water quality were collected in 11 sub-watersheds (Appendix G-1,2). Habitat quality was assessed as *excellent* or *good* at 21 stations and *fair* at 1 station. Macroinvertebrate assessments were conducted at 22 stations. Results of these assessments indicated the macroinvertebrate community to be in *excellent* or *good* condition at 16 (73%) stations and *fair* or *poor* at 6 stations (27%).

NPS priority sub-watersheds: Four sub-watersheds were identified as NPS priority sub-watersheds (Table 1). A summary of the information available for each of the 4 NPS priority sub-watersheds is provided in the following section. Each summary discusses land use, nonpoint source impairment potential, assessments conducted within the sub-watershed, and nonpoint source priority status based on available data. Appendices referenced in the summaries are located at the end of the report.

Fig. 15. 2003 NPS priority sub-watersheds & 2002 303(d) list streams and reservoir segments located within the Guntersville Lake CU. 2003 Bioassessment Results are also shown.



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Sub-Watershed: Long Island Creek NRCS Sub-Watershed Number 080

Landuse: The Long Island Creek sub-watershed drains approximately 97 mi^2 in Dekalb and Jackson Counties. Land cover was mainly forest, mixed with pasture lands and row crop areas. The water use classification of Long Island Creek is designated as Public Water Supply/Swimming/Fish & Wildlife. A total of 5 construction/stormwater authorizations, one mining, and 15 NPDES permits have been issued within the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
58%	15%	20%	3%	0%	3%	1%

NPS impairment potential: Pasture, animal husbandry and sedimentation were the main concerns within the sub-watershed (Appendix D). However, mining was also prevalent within the sub-watershed contributing 2.2 tons/ac/yr to the annual sediment load within the sub-watershed (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	19	0.28 AU/ac	0.00%	15%	20%	3%	58%	3.1 tons/ac/yr
NPS Potential	H	M	L	M	M	H	M	M
Appendix	D	H	H	A	A	A	I	I

Assessments: Long Island Creek was monitored during the 2003 NPS screening assessment (Appendix F). Appendix E summarizes the locations monitored and evaluated throughout the sub-watershed. Guest and Miller Creeks were monitored at one location each in conjunction with ADEM's NPS Screening Assessment Program.

Assessment stations located within the sub-watershed since 1999. Descriptions provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
GSTJ-1	Habitat, Biological, Chemical	2003	Guest Cr at Jackson CR 431.	~7	F&W
MILJ-2	Habitat, Biological, Chemical	2003	Miller Cr at Jackson CR 95.	~11	F&W

Guest Creek: At GSTJ-1, Guest Creek is a small, shaded riffle-run stream located in the Southern Table Plateaus (68d) subecoregion (Appendix J). Bottom substrates were a mixture of boulder, cobble, gravel, and sand. Habitat condition was assessed as *excellent* for this stream type. Eight EPT families were collected at the site, indicating the macroinvertebrate community to be in *good* condition (Appendix K). Results of water quality sampling conducted May-June of 2003 are provided in Appendix M.

Miller Creek: At MILJ-2, Miller Creek is a mostly open, glide-pool stream located in the Southern Table Plateaus (68d) subecoregion (Appendix J). Bottom substrates were largely comprised of bedrock (75%). Habitat condition was assessed as *good* for this stream type. Five EPT families were collected at the site, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Results of water quality sampling conducted May-June of 2003 are provided in Appendix M.

Sub-watershed status: The Long Island Creek sub-watershed was targeted for monitoring in 2003 because the macroinvertebrate community of Miller Creek at MILJ-2 was assessed *fair* (Appendix G). This identifies Long Island Creek as a priority NPS sub-watershed and indicates that further monitoring is warranted to assess the extent and causes of NPS impairment.

Sub-Watershed: Big Coon Creek NRCS Sub-Watershed Number 140

Landuse: The Big Coon Creek sub-watershed drains approximately 43 mi^2 in Jackson County. Land cover was mainly forest mixed with some pasture and crop lands. The entire length of the Big Coon Creek in this sub-watershed is designated as a Fish & Wildlife use classification (ADEM 2003e). No permits have been issued in the sub-watershed (Appendix B). During ADEM's 1998 TN basin NPS screening assessment, Big Coon Creek was identified as a priority sub-watershed due to biological, habitat, and chemical conditions within the watershed (ADEM 2000a).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
85%	9%	4%	0%	0%	0%	2%

NPS impairment potential: Based on information from the 1998 SWCD sub-watershed assessments, the main NPS concerns in the Big Coon Creek sub-watershed were runoff from crops and forestry practices (Appendix D). Concerns listed by the local SWCD included excessive erosion of cropland, roads and roadbanks, nutrients in surface waters, and access of livestock to streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	11	0.01 AU/ac	0.00%	9%	3%	0%	85%	0.3 tons/ac/yr
NPS Potential	L	L	L	M	L	L	M	L
Table	D	H	H	A	A	A	I	I

Assessments: Two sampling locations were assessed during ADEM's 2003 NPS screening assessment of the TN Basin Group (Appendix F).

Assessment stations located within the sub-watershed. Descriptions provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
BCNJ-1	Chemical, Habitat, Biological	2003	Big Coon Cr at Jackson CR 55.	50	F&W
BCNJ-2	Chemical, Habitat, Biological	2003	Big Coon Cr at Jackson CR 53	~34	F&W

<u>Big Coon Creek</u>: Located in the Sequatchie Valley (68b) subecoregion, Big Coon Creek at BCNJ-1 is a large glide-pool stream characterized by a predominately sand substrate (Appendix J). Sediment deposition was noted at the site. The macroinvertebrate community was assessed as *good* with five EPT families collected (Appendix K). Water quality data collected in May-June of 2003 are provided in Appendix M.

At BCNJ-2, Big Coon Creek is a small riffle-run stream characterized by cobble, gravel and sand substrates. This station is located in the Plateau Escarpment (68c) subecoregion, (Appendix J). Habitat quality was assessed as *fair* and sediment deposition, narrow buffer zones, and unstable banks were noted as problems. Two EPT families were collected during the macroinvertebrate assessment indicating *poor* biological conditions (Appendix K). Water quality data collected in May-June of 2003 are provided in Appendix M.

Sub-watershed status: Biological assessments conducted on Big Coon Creek at BCNJ-2 indicate that Big Coon Creek continues to be a priority sub-watershed. Screening level water quality data suggest that concentrations of total dissolved solids, alkalinity, and hardness may be higher than expected when compared to ADEM's least-impacted reference sites for this ecoregion. Further monitoring in this sub-watershed is warranted.

Sub-Watershed: Coon Creek NRCS Sub-Watershed Number 160

***Landuse**:* The Coon Creek sub-watershed drains approximately 96 mi^2 in Jackson and Dekalb Counties. Warren Smith Creek is included on the 2002 §303(d) list of impaired waters of Alabama for impairments caused by pH, and siltation (Appendix C-1). Land cover was mainly forest, pasture and row crop (Appendix A). Within this sub-watershed, the Coon Creek is designated as a Swimming/ Fish & Wildlife for its entire length (ADEM 2003e). Three current construction/stormwater authorization, three mining, and two NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
64%	11%	15%	6%	0%	2%	2%

NPS impairment potential: During ADEM's 1998 TN basin NPS screening assessment, Coon Creek was identified as a priority sub-watershed due to biological and chemical conditions. Based on the 1998 SWCD sub-watershed assessments, the main NPS concerns were mining, pasture and cropland runoff, forestry, and animal husbandry (Appendix D). Resource concerns of the local SWCD included excessive erosion of cropland and roads, overgrazed pastures, access of livestock to streams, and bacteria in surface waters (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	21	0.32 AU/ac	0%	11%	15%	6%	64%	5.3 tons/ac/yr
NPS Potential	H	H	L	M	M	H	M	H
Table	D	H	H	A	A	A	I	I

Assessments: Based on ADEM's 1998 NPS screening assessment and NPS information provided by the local SWCDs, Coon/Flat Rock Creek, Dry Creek, Hogue Creek, Rocky Branch and Warren Smith Creek were assessed during ADEM's §303(d) Monitoring Program (Appendix P). Additionally, Highfield Creek and Hogue Creek were assessed during the 2003 NPS screening assessment of the TN Basin Group (Appendix F). Hogue Creek was assessed during ADEM's 2002 periphyton bioassessment pilot project (Appendix Q).

Assessment stations located within the sub-watershed. Descriptions provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
CFRJ-160	Habitat, Biological, Chemical	2001-02	Coon/Flat Rock Cr just prior to confluence with Dry Cr	~42	S/F&W
CFRJ-161	Habitat, Biological, Chemical	2001-02	Coon/Flat Rock Cr at AL Hwy 117	28	S/F&W
CFRJ-162	Chemical	2001-02	Coon/Flat Rock Creek between CFRJ-160 and CFRJ-161	~35	S/F&W
DRYJ-160	Habitat, Biological, Chemical	2001-02	Dry Cr just upstream of confluence with Coon/ Flat Rock Cr.	~10	F&W
HFLJ-1	Habitat, Biological, Chemical	2003	Highfield Cr at Jackson CR 118.	~8	F&W
HGUJ-160	Habitat, Biological, Chemical	2001-03	Hogue Cr at AL Hwy 117.	4	F&W
RCBJ-160	Chemical	2001-02	Rocky Branch at CR just upstream of confluence with Warren Smith Cr.	~2	F&W
WSCJ-160	Habitat, Chemical	2001-02	Warren Smith Cr. at CR just upstream of confluence with Rocky Branch	~2	F&W

Coon Creek: Intensive water quality samples were collected monthly during November 2001 through June of 2002 at three locations on the Coon Creek in conjunction with ADEM's §303(d) Monitoring Program (Appendix P). Habitat quality was assessed on two of the stations as *excellent* during the assessment. The macroinvertebrate community at these two locations was generally in *good* condition (Appendix K).

Dry Creek: Intensive water quality samples were collected monthly during November 2001 through June of 2002 at one location on the Dry Creek in conjunction with ADEM's §303(d) Monitoring Program (Appendix P). Habitat quality was assessed as *excellent* during the assessment. The macroinvertebrate community was generally in *good* condition (Appendix P).

Highfield Creek: Located in the Southern Table Plateaus (68d) subecoregion, Highfield Creek at HFLJ-1 is a riffle-run stream characterized by predominately sand and gravel substrates (Appendix J). Habitat quality was assessed as *good* during the 2003 NPS screening assessment, however, sediment deposition was noted as a problem. The macroinvertebrate community was in *fair* condition with six EPT families collected at the site (Appendix K). Results of water quality sampling are provided in Appendix M.

Hogue Creek: Intensive water quality samples were collected monthly during November 2001 through June of 2002 at HGUJ-160 on Hogue Creek in conjunction with ADEM's §303(d) Monitoring Program (Appendix P). Habitat quality was assessed as *excellent* during the assessment. The macroinvertebrate community was generally in *good* condition (Appendix P).

Located in the Southern Table Plateaus (68d) subecoregion, Hogue Creek at HGUJ-160 is a glide-pool stream characterized by bedrock, boulder and cobble substrates (Appendix J). Habitat quality was assessed as *good* during the 2003 NPS screening assessment, however, instream habitat quality and sediment deposition were noted as potential problems. The macroinvertebrate community was in *fair* condition with four EPT families present (Appendix K). Results of water quality sampling are provided in Appendix M.

Rocky Branch: Intensive water quality samples were collected monthly during November 2001 through June of 2002 at one location on the Rocky Branch in conjunction with ADEM's §303(d) Monitoring Program (Appendix P).

Warren Smith Creek: Intensive water quality samples were collected monthly during November 2001 through June of 2002 at one location on the Warren Smith Creek in conjunction with ADEM's §303(d) Monitoring Program (Appendix P). Habitat quality was assessed as *good* during the assessment (Appendix P).

Sub-watershed status: The Coon Creek sub-watershed was targeted for assessment during 2003 because it was identified as a priority sub-watershed in 1998 and because SWCD landuse and NPS estimates indicated a potential for NPS impairment from pasture and cropland runoff, mining, forestry practices and animal husbandry. Macroinvertebrate assessments conducted at one station each on Hogue Creek and Highfield Creek in the Coon Creek sub-watershed indicate that this system continues to be a priority sub-watershed. Further monitoring in Hogue Creek and Highfield Creek is warranted.

Sub-Watershed: Jones Creek NRCS Sub-Watershed Number 180

***Landuse**:* The Jones Creek sub-watershed drains approximately 72 mi^2 in Jackson and Dekalb Counties. Land cover was mainly forest, pasture and row crop (Appendix A). The Jones Creek sub-watershed is designated as Fish & Wildlife for its entire length (ADEM 2003e). Four current construction/stormwater authorizations, two mining, and one semi-public/ private NPDES permit have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
43%	18%	29%	0%	3%	1%	5%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessments, the main NPS concerns were mining, pasture and cropland runoff, and animal husbandry (Appendix D). Resource concerns included excessive erosion of cropland and roads, overgrazed pastures, access of livestock to streams, and excessive animal waste applied to the land (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	21	0.37AU/ac	0%	21%	21%	0%	16%	3.4 tons/ac/yr
NPS Potential	H	H	L	H	M	L	L	M
Table	D	H	H	A	A	A	I	I

Assessments: Bryant Creek, Dickey Creek, and Spring Hill Creek were assessed during the 2003 NPS screening assessment of the TN Basin Group (Appendix F). A tributary to Rocky Branch was evaluated during ADEM's 2003 Upland ALAMAP probabilistic sampling (Appendix S). Bryant Creek was also assessed during ADEM's 2002 periphyton bioassessment pilot project (Appendix Q).

Assessment stations located within the sub-watershed. Descriptions provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
ALST03-45	Habitat, Chemical	2003	Tributary to Rocky Br east of Jackson CR 357	~1	F&W
BYTJ-1	Habitat, Biological, Chemical	1999-2003	Bryant Cr at AL Hwy 71	42	F&W
BYTJ-2	Habitat, biological, Chemical	2003	Bryant Cr at Jackson CR 260.	~13	F&W
BYTJ-3	Habitat, Biological, Chemical	2003	Bryant Cr at Jackson CR 83.	~24	F&W
DICJ-1	Habitat, Biological, Chemical	2003	Dickey Cr at Jackson CR 425.	5	F&W
SPHJ-1	Habitat, Biological, Chemical	2003	Spring Hill Cr at Jackson CR 351.	~5	F&W

Tributary to Rocky Branch: Water quality was evaluated during August of 2003 at one location on the tributary to Rocky Branch in conjunction with ADEM's 2003 Upland ALAMAP probabilistic sampling (Appendix S). Results of screening level habitat assessment and water quality sampling are provided in Appendix S-1 and S-2, respectively.

Bryant Creek: Water quality samples were collected in 1999 and 2002 and monthly from March 2003 through December of 2003 at BYTJ-1 in conjunction with ADEM's Ecoregional Reference Site Program (Appendix O). At BYTJ-1, Bryant Creek is a large riffle-run stream characterized by a predominately bedrock substrate. This station is located in the Southern Table Plateaus (68d) subecoregion, (Appendix J). The stream is mostly shaded and habitat quality has been assessed as *excellent* (Appendix O-1). The macroinvertebrate community was evaluated to be in *excellent* condition. Results of water quality sampling are provided in Appendix O-3, and O-4.

At BYTJ-2, Bryant Creek is a riffle-run stream characterized by cobble, gravel and sand substrates. BYTJ-2 is also located in the Southern Table Plateaus (68d) subecoregion, and was sampled in conjunction with ADEM's 2003 TN basin NPS Assessment Program. Habitat quality was assessed as *good*. Eight EPT families were collected during the macroinvertebrate assessment indicating that the community was in *good* condition (Appendix K). Water quality data collected in June of 2003 are provided in Appendix M.

Bryant Creek at BYTJ-3 was sampled in conjunction with ADEM's 2003 TN basin NPS Assessment Program. Like BYTJ-1 and 2, BYTJ-3 is located in the Southern Table Plateaus (68d) subecoregion. BYTJ-3 is a glide-pool stream characterized by a predominately sand substrate. Habitat quality was assessed as *good*. Seven EPT families were collected during the macroinvertebrate assessment indicating that the community was in *good* condition (Appendix K). Water quality data collected in June of 2003 are provided in Appendix M.

Dickey Creek: Located in the Southern Table Plateaus (68d) subecoregion, Dickey Creek at DICJ-1 is a small riffle-run stream characterized by bedrock, boulder, and sand substrates (Appendix J). Habitat quality was assessed as *good* during the 2003 TN basin

NPS screening assessment, however, sediment deposition and instream habitat quality were noted as problems. The macroinvertebrate community was in *fair* condition with six EPT families collected (Appendix K). Water quality data collected in June of 2003 are provided in Appendix M.

Spring Hill Creek: Located in the Southern Table Plateaus (68d) subecoregion, SPHJ-1 is a glide-pool stream characterized by bedrock, boulder and cobble substrates (Appendix J). Habitat quality was assessed as *good* during the 2003 NPS screening assessment. The macroinvertebrate community was in *fair* condition with four EPT families present (Appendix K). Water quality data are provided in Appendix M.

Sub-watershed status: Jones Creek was targeted for monitoring during 2003 because of the potential for impairment from animal husbandry and cropland runoff. The macroinvertebrate communities at Dickey Creek and Spring Hill Creek were assessed as *fair* identifying Jones Creek as a 2003 NPS priority sub-watershed.

WHEELER LAKE CU (0603-0002)

The Wheeler Lake CU drains thirty-six (36) sub-watersheds located within Jackson, Madison, Marshall, Morgan, Limestone, Cullman, Lawrence and Lauderdale Counties. The CU is located within the Cumberland Plateau (68a), Plateau Escarpment (68c), Southern Table Plateaus (68d), and Dissected Plateau (68e) subecoregions of the Ridge Southwestern Appalachian (68) Ecoregion (Griffith et al. 2001). It also includes portions of the Western Highland Rim (71f), Eastern Highland Rim (71g), and Little Mountain (71j) subecoregions of the Interior Plateau (71) Ecoregion.

Landuse: Based on the conservation assessment worksheets completed (1998) by the local SWCDs, the primary landuses throughout Wheeler Lake CU were forest, pasture, and row crops. Forty-eight waterbodies located in twenty-three sub-watersheds are currently on ADEM's 2002 §303(d) list of impaired waters.

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
43%	18%	28%	0%	7%	4%	0%

NPS impairment potential: There was a *moderate* or *high* potential for NPS impairment in 17 sub-watersheds. Forestry, poultry and cattle production, pasture grazing, sedimentation, and crop runoff were all NPS concerns in the CU. There was a *moderate* or *high* potential for impairment from urban sources within 15 sub-watersheds.

Number of sub-watersheds with (M)oderate or (H)igh ratings for each nonpoint source category (Appendix D).

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Moderate	17	12	0	13	15	0	11	8
High	0	2	1	9	12	0	0	0

Number of sub-watersheds with (M)oderate or (H)igh ratings for each point source category (Appendix D).

Category	Overall Potential	% Urban	Development	Septic tank failure
Moderate	9	9	14	8
High	6	4	8	4

Historical data/studies: The majority of assessments conducted within the Wheeler Lake CU were from 9 programs and projects conducted by the ADEM, the TVA, and the USGS. These programs produced monitored assessment data. Monitored assessments are based on chemical, physical, and/or biological data collected using commonly accepted and well-documented methods. Results of monitored assessments were used in this report to assess habitat, biological, and chemical conditions within a sub-watershed.

Evaluated assessments were conducted in conjunction with ADEM's ALAMAP Program (Appendix T). Evaluated assessments are based on observed conditions, limited water quality data, water quality data older than 5 years, or estimated impacts from observed or suspected activities.

Types of assessments and conducted for projects that have generated monitored assessment information.

Project	Assessment Type
ADEM's Ecoregional Reference Reach Program	H, C, B
ADEM's §303(d) Waterbody Monitoring Program	H, C, B
ADEM's Reservoir Monitoring Program	C, B
ADEM's Fish Tissue Monitoring Program	C
ADEM's Ambient Monitoring Program	H, C, B
ADEM's Periphyton Bioassessment Pilot Study	H, C, B
TVA: University Tributary Nutrient Project	C
USGS: Water Quality of the Flint River Basin, Alabama and Tennessee, 1999-2000	H, C, B
USGS: Environmental Settings and Water Quality Issues in the Lower Tennessee River Basin, 1999	C

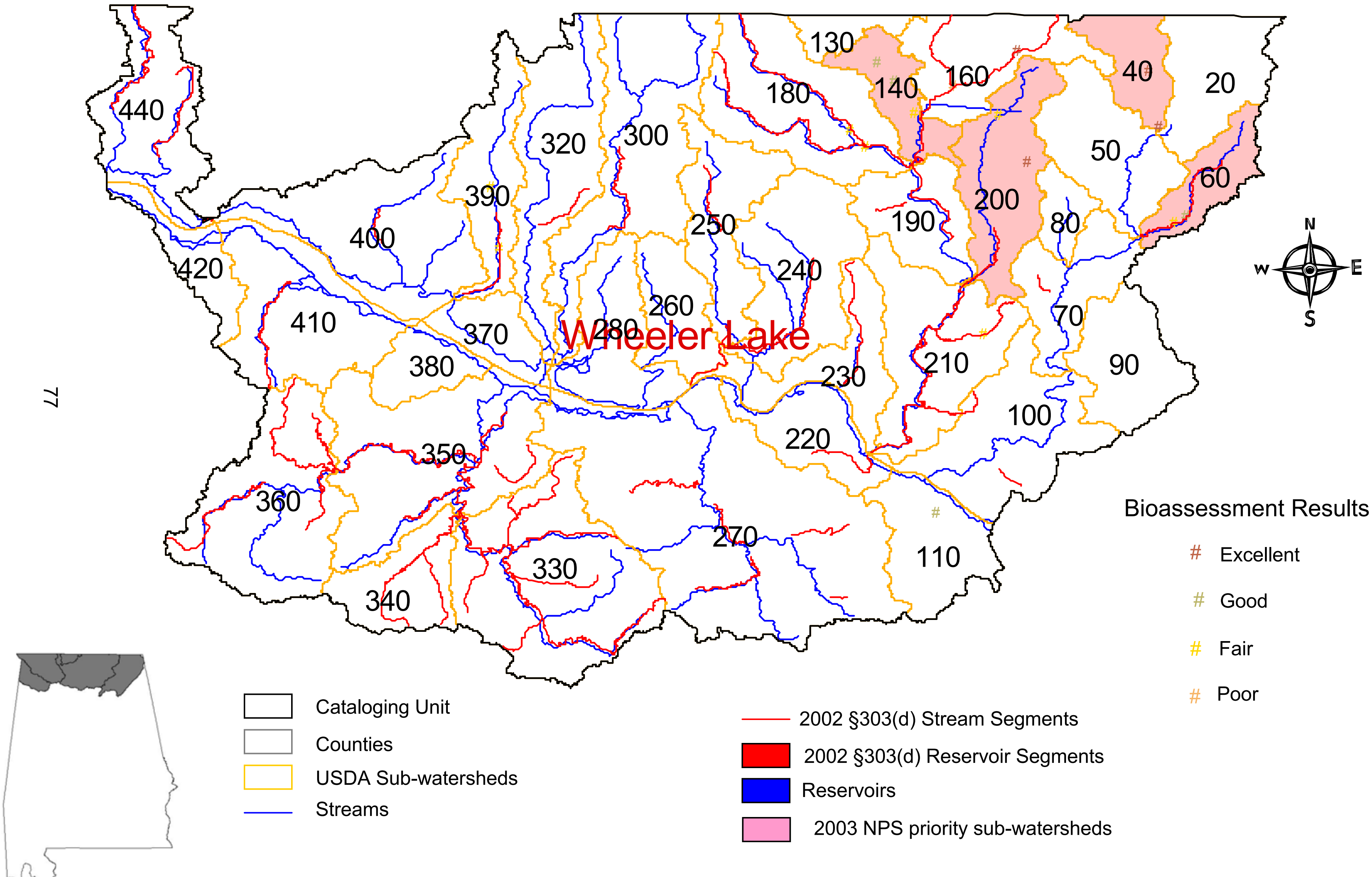
[a]H=habitat; C=chemical/physical; B=biological
[b]Data and summary of project included in Appendices

2003 NPS Screening Assessment: Eighteen stations in nine sub-watersheds were targeted for assessment during the 2003 NPS Screening Assessment because they were recommended as NPS priority sub-watersheds in 1998, had a *moderate* or *high* potential for impairment from nonpoint sources, were on ADEM's 2002 §303(d) list of impaired waters for NPS impairments, or recent data were unavailable. Appendix F lists the 18 stations assessed.

Sub-watershed assessments: Current and historical monitoring data were combined to provide the most assessment possible. Habitat, chemical/physical, and biological indicators of water quality were monitored in 9 sub-watersheds (Appendix G). Habitat quality was generally *excellent* or *good* throughout the sub-watershed. The macroinvertebrate community was assessed as *excellent* or *good* at 8 (44%) stations and *fair* or *poor* at 10 stations (56%).

NPS priority sub-watersheds: Four NPS priority sub-watersheds were identified as warranting further monitoring (Table 5). A summary of the information available for each of the sub-watersheds is provided in the following section. Each summary discusses land use, nonpoint source impairment potential, assessments conducted within the sub-watershed, and nonpoint source priority status based on available data. Appendices referenced in the summaries are located at the end of the report.

Fig. 16. 2003 NPS priority sub-watersheds & 2002 303(d) list streams and reservoir segments located within the Wheeler Lake CU. 2003 Bioassessment Results are also shown.



Sub-Watershed: Guess Creek NRCS Sub-Watershed Number 060

Landuse: The Guess Creek sub-watershed drains approximately 34 mi^2 in Jackson County. Land cover was estimated to be predominately forest with a small percentage of pasture (Appendix A). There is currently one construction/stormwater authorization that has been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
83%	2%	14%	0%	0%	0%	1%

NPS impairment potential: The overall potential for impairment from nonpoint sources was estimated as *moderate*. The potential for impairment from forestry practices and pasture runoff was estimated as *moderate*. The potential for impairment from urban sources was estimated as *low* (Appendix D).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	15	0.02 AU/ac	0.00%	8%	7%	0%	41%	0.2 tons/ac/yr
NPS Potential	M	L	L	L	M	L	M	L
Table	D	H	H	A	A	A	I	I

Assessments: Guess Creek was monitored at two locations during ADEM's 2003 §303(d) Monitoring Program (Appendix P). Guess Creek was monitored at one site during ADEM's 1999 Paint Rock NPS Monitoring project (Appendix T). A tributary to Guess Creek was evaluated during ADEM's 2003 ALAMAP monitoring program (Appendix S).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
ALST03-17	Habitat, Chemical	2003	Tributary to Guess Cr in Skyline Wildlife Refuge	~2	F&W
GUES-1	Habitat, Biological, Chemical	1999, 2003	Guess Cr at Jackson CR 20	~26	F&W
GUES-2	Habitat, Biological, Chemical	2003	Guess Cr at private ranch	~22	F&W

<u>Tributary to Guess Creek</u>: The tributary to Guess Creek is located in the Plateau Escarpment (68c) sub-ecoregion. During ADEM's 2003 ALAMAP Monitoring project, ALST03-17 was a glide-pool stream characterized by a largely boulder substrate. Habitat quality was assessed as *excellent* (Appendix S-1). Results of water quality sampling are

provided in Appendix S-2.

Guess Creek: Water quality, habitat, and aquatic macroinvertebrate assessments were conducted by ADEM at GUES-1 during the Paint Rock River NPS Watershed Project (Appendix T). Guess Creek, at the GUES-1 sampling reach, had a mostly-shaded canopy and was dominated by sand (~58%) with lesser amounts of detritus (~30%) and gravel (~10%) substrates. Habitat quality was assessed as *excellent* using the riffle/run assessment matrix. Sixteen EPT genera were collected indicating a *good* aquatic macroinvertebrate community (Appendix T-1). Water quality data collected from 1999 indicated intermittent elevated fecal coliform counts (ADEM 1999f). The dissolved oxygen level was documented below the 5 mg/L minimum required by the sub-watersheds use classification during one sampling event (Appendix S-2).

During the ADEM's 2003 §303(d) Monitoring Program (Appendix P), GUES-1 was a riffle-run stream characterized by a cobble, gravel, and sand substrate. Habitat quality was assessed as *fair* (Appendix P-1). Five EPT families were collected during the macroinvertebrate assessment indicating that the community was in *fair* condition (Appendix P-2). Results of water quality sampling are provided in Appendix P-3.

Guess Creek at GUES-2 is a riffle-run stream characterized by a cobble, gravel, and sand substrate. GUES-2 was also sampled in conjunction with ADEM's 2003 §303(d) Monitoring Program (Appendix P). Habitat quality was assessed as *excellent*. Nine EPT families were collected during the macroinvertebrate assessment indicating that the community was in *good* condition (Appendix P-2). Results of water quality sampling are provided in Appendix P-3.

Sub-watershed status: Biological conditions of Guess Creek were assessed as *fair* at GUES-1. Based on local SWCD sub-watershed assessments, the primary NPS concerns within the sub-watershed were runoff from crop and pasturelands, and roadbank erosion.

Sub-Watershed: Upper Flint River NRCS Sub-Watershed Number: 140

Landuse: The Upper Flint River sub-watershed drains approximately 35 mi^2 in Madison County. Pasture, forest, and crop land were the main land cover types within the sub-watershed. Six construction/stormwater authorizations, two semi-public/private NPDES permits, and three SID/Stormwater NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
33%	31%	34%	0%	1%	0%	0%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concerns within the sub-watershed was runoff from pasture, crop, and forestry lands. The overall potential for NPS impairment was estimated as *moderate*. There was an estimated *moderate* potential for impairment from urban development and a *high* potential for pasture and cropland runoff. Resource concerns of the local SWCDs included excessive erosion on cropland, nutrients, pesticides, and bacteria in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	17	0.13 AU/ac	0.00%	46%	17%	0%	ur	2.4 tons/ac/yr
NPS Potential	M	L	L	H	H	L	ur	M
Table	D	H	H	A	A	A	I	I

Assessments: Flint River was assessed at three locations during the 2003 NPS screening assessment (Appendix F). It was also assessed at one location during USGS's assessment of the TN basin from 1999-2001 (Appendix U).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
03575100	Chemical	1999-2001	Flint R near Brownsboro, AL	375	F&W
FLTM-1	Habitat, Chemical, Biological	2003	Flint R at Oscar Patterson Rd	~140	F&W
FLTM-2	Habitat, Chemical, Biological	2003	Flint R at Madison CR 100.	~130	F&W
FLTM-3	Habitat, Chemical, Biological	2003	Flint R at Joe Quick Rd.	~125	F&W

Flint River: From 1999-2001, USGS conducted water quality sampling events on the Flint River near Brownsboro, AL. Water quality results at station number 03575100 indicated elevated fecal coliform, total and dissolved reactive phosphorus, ammonia and TKN (Appendix U).

Flint River at FLTM-1 is a riffle-run stream characterized by bedrock, cobble, and gravel substrates. Located in the Eastern Highland Rim (71g) subecoregion, habitat quality was assessed as *excellent.* Seven EPT families were collected during the macroinvertebrate assessment indicating that the community was in *fair* condition (Appendix K). Water quality are provided in Appendix M, and N.

At FLTM-2, Flint River is also a riffle-run stream characterized by bedrock, boulder, cobble, and gravel substrates. Habitat quality was assessed as *excellent.* Nine EPT families were collected during the macroinvertebrate assessment indicating that the community was in *good* condition (Appendix K). Water quality data are provided in Appendix M.

Flint River at FLTM-3 is glide-pool stream characterized by bedrock, cobble, and gravel substrates. Habitat quality was assessed as *good.* Ten EPT families were collected during the macroinvertebrate assessment indicating that the community was in *good* condition (Appendix K). Water quality data are provided in Appendix M.

Sub-watershed status: The Upper Flint River was targeted for monitoring during 2003 because the macroinvertebrate assement conducted at FLTM-1 was assessed as *fair*. Further monitoring should be conducted to determine the cause of these results.

Sub-Watershed: Hurricane Creek **NRCS Sub-Watershed Number 200**

Landuse: The Hurricane Creek sub-watershed drains approximately 74 mi^2 in Jackson and Madison Counties. Land cover was predominately forest and pasture with a small percentage of crop land. Twenty current construction/stormwater authorizations, two municipal NPDES permits, and 3 SID/Stormwater NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
60%	8%	32%	0%	0%	0%	0%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concern within the sub-watershed was runoff from pasture lands. The overall potential for NPS impairment was estimated as *low*. There was a *moderate* potential for impairment from urban development and septic tank failure (Appendix D). Resource concerns of the local SWCDs included excessive erosion on cropland, nutrients, pesticides, and bacteria in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	11	0.09 AU/ac	0.00%	17%	14%	0%	ur	1.3 tons/ac/yr
NPS Potential	L	L	L	L	H	L	ur	L
Table	D	H	H	A	A	A	I	I

Assessments: One station on Hurricane Creek was assessed within the sub-watershed during the 2003 NPS screening assessment (Appendix F). Three locations were monitored during ADEM's §303(d) Monitoring Program (Appendix E, Appendix P). Hurricane Creek near Gurley, AL was also assessed during USGS's assessment of the TN basin from 1999-2001 (Appendix U).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
03575200	Chemical	2000	Hurricane Cr near Gurley, AL	64	F&W
HRCM-3	Habitat, Biological, Chemical	2003	Hurricane Cr at Sharps Hollow Rd	~15	F&W
HURM-1	Chemical	2003	Hurricane Cr at Little Cove Rd.	~72	F&W
HURM-2	Chemical	2003	Hurricane Cr at Gurkey Rd	~54	F&W
HURM-3	Chemical	2003	Hurricane Cr at Sharps Cove Rd	~37	F&W

Hurricane Creek: At HRCM-3, Hurricane Creek is a riffle-run stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Hurricane Creek was assessed within the sub-watershed during the 2003 NPS screening assessment (Appendix F). A habitat assessment conducted at the site found it to be characterized by cobble, gravel, and sand substrates. A macroinvertebrate assessment found the site to be in *fair* condition with six EPT families collected (Appendix K). Sedimentation, nutrient enrichment, and pathogens were noted as potential contributors to the water quality conditions (Appendix I).

Intensive water quality data were collected at 3 locations on Hurricane Creek from March of 2003 through November of 2003 (Appendix P-3) in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Sub-watershed status: The Hurricane Creek sub-watershed was targeted for monitoring for 2003 because it is currently on ADEM's §303(d) list for impairments caused by pathogens, siltation, and nutrients. Additionally, information from the local SWCD suggested that runoff from crop and pasture lands, and urban development were potential sources of NPS impairment within the sub-watershed. WMB-EPT results indicated the macroinvertebrate community of Hurricane Creek at HRCM-3 to be in *fair* condition. Intensive water quality sampling suggested sedimentation and nutrient enrichment as possible contributors to the water quality conditions.

Lower Elk River CU (0603-0004)

The Lower Elk River CU contains eight sub-watersheds located within Limestone and Lauderdale Counties. The entire CU drains approximately 247 square miles of the Limestone Valleys and Uplands soil areas and is primarily located within the Interior Plateau (71) Ecoregion (Fig. 5) (Griffith et al. 2001). The Elk River from AL Hwy 99 to the State Line is designated a Public Water Supply/ Fish & Wildlife (ADEM 2003e). The Elk River at Wheeler Reservoir is currently on ADEM's 2002 §303(d) list of impaired waters for pH and OE/DO (Appendix C).

Landuse: Based on the conservation assessment worksheets completed (1998) by the local SWCDs, the primary landuses throughout the Lower Elk River CU were forest, row crop and pasture.

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
37%	22%	35%	0%	3%	3%	0%

NPS impairment potential: Based on the 1998 sub-watershed assessments, the primary NPS concerns within the Lower Elk River CU were pasture grazing, animal husbandry, row crops, and forestry. Four sub-watersheds were estimated to have a *moderate* potential for impairment from nonpoint sources. Three sub-watersheds were estimated to have a *moderate* potential for impairment from urban sources.

Number of sub-watersheds with (M)oderate or (H)igh ratings for each nonpoint source category (Appendix D).

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Moderate	4	4	0	4	4	0	3	0
High	0	0	0	1	3	0	0	0

Number of sub-watersheds with (M)oderate or (H)igh ratings for each point source category (Appendix D).

Category	Overall Potential	Urban	Development	Septic tank failure
Moderate	3	1	6	0
High	0	0	0	0

Historical data/studies: The majority of assessments conducted within the Lower Elk River CU were from 5 programs and projects conducted by the ADEM that produced monitored assessment data, including chemical, physical, and/or biological data collected using commonly accepted and well-documented methods. Results from these programs were used in this report to assess habitat, biological, and chemical conditions within a sub-watershed.

Evaluated assessments were conducted in conjunction with ADEM's ALAMAP

Program (Appendix T). Evaluated assessments are based on observed conditions, limited water quality data, water quality data older than 5 years, or estimated impacts from observed or suspected activities.

Types of assessments conducted for projects that have generated monitored assessment information.

Project	Assessment Type
ADEM's Ecoregional Reference Reach Program	H, C, B
ADEM's §303(d) Waterbody Monitoring Program	H, C, B
ADEM's Reservoir Monitoring Program	C, B
ADEM's Fish Tissue Monitoring Program	C
ADEM's Ambient Monitoring Program	H, C, B

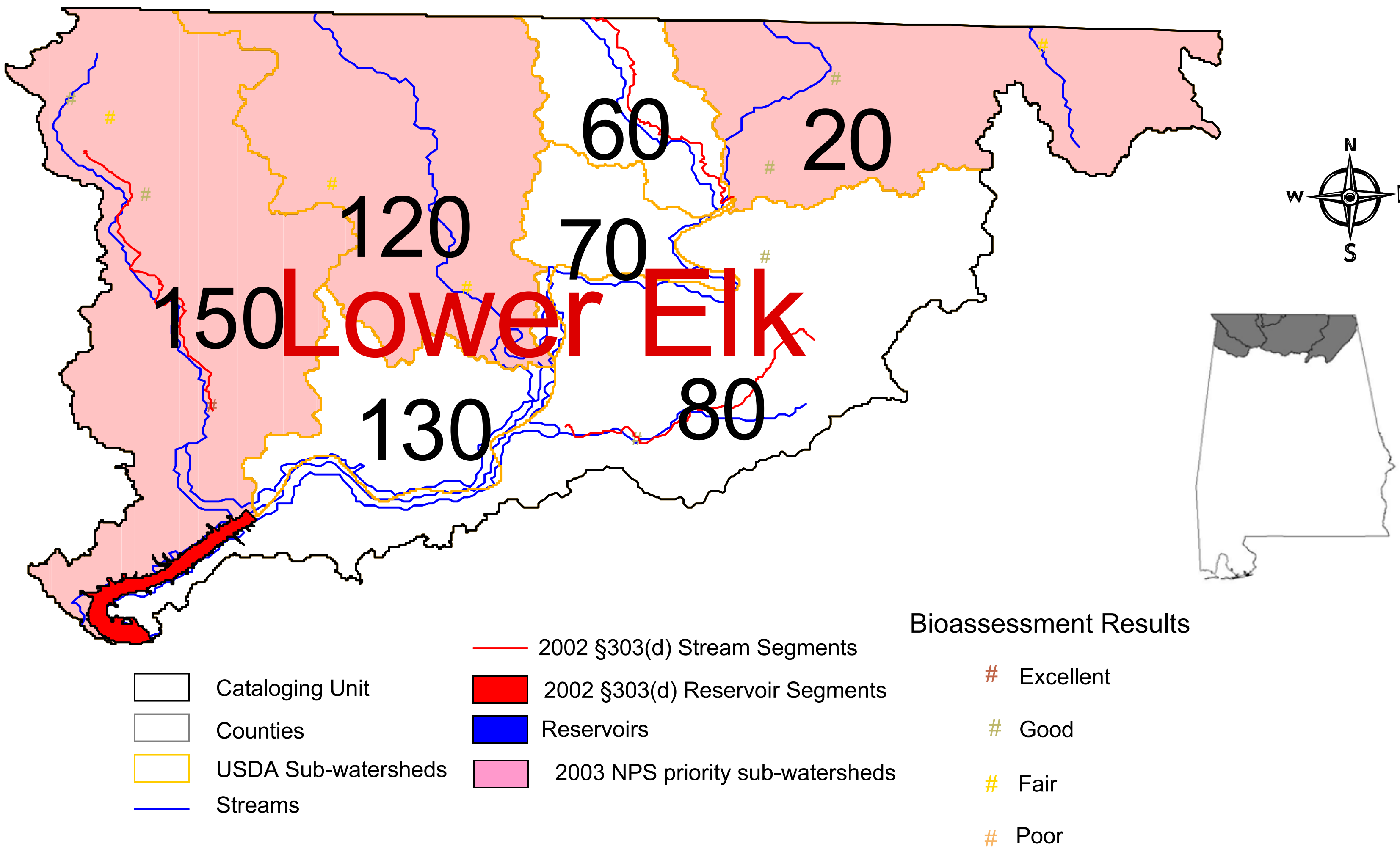
[a]H=habitat; C=chemical/physical; B=biological
[b]Data and summary of project included in Appendices

2003 NPS Screening Assessment: Six sub-watersheds were targeted for assessment during the 2003 NPS Screening Assessment because they were recommended as NPS priority sub-watersheds in 1998, had a *moderate* or *high* potential for impairment from nonpoint sources, or recent data were unavailable. Appendix F lists the 10 stations assessed.

Sub-watershed assessments: Current and historical monitoring data were combined to provide a comprehensive assessment. Habitat, chemical/physical, and biological indicators of water quality were monitored in 4 sub-watersheds (Appendix G). Habitat quality was assessed as *excellent* or *good* at all 11 stations assessed. Macroinvertebrate assessments were conducted at 11 stations. Results of these assessments indicated the macroinvertebrate community to be in *excellent* or *good* condition at 7 stations (64%) and *fair* at 4 stations (36%).

NPS priority sub-watersheds: Three sub-watersheds were identified as NPS priority sub-watersheds (Table 5). A summary of the information available for each of the NPS priority sub-watersheds is provided in the following section. Each summary discusses land use, nonpoint source impairment potential, assessments conducted within the sub-watershed, and nonpoint source priority status based on available data. Appendices referenced in the summaries are located at the end of the report.

Fig. 17. 2003 NPS priority sub-watersheds & 2002 303(d) list streams and reservoir segments located within the Lower Elk CU. 2003 Bioassessment Results are also shown.



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Sub-Watershed: North Elk River **NRCS Sub-Watershed Number 020**

Landuse: The North Elk River sub-watershed drains approximately 38 mi^2 in Limestone County. Land cover was predominately pasture and forest with a small percentage of crop land. Two current construction/stormwater authorizations and three NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
37%	14%	45%	0%	3%	2%	0%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concern within the sub-watershed was runoff from pasturelands, animal husbandry, and forestry practices. The overall potential for NPS impairment was estimated as *moderate*. There was a *moderate* potential for impairment from urban development (Appendix D). Resource concerns of the local SWCDs included excessive erosion on cropland, pesticides in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	17	0.17 AU/ac	0.00%	14%	21%	1%	21%	1.4 tons/ac/yr
NPS Potential	M	M	L	M	H	L	M	L
Table	D	H	H	A	A	A	I	I

Assessments: Three assessments were conducted during the 2003 NPS Screening Assessment (Appendix F).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
MILL-1	Habitat, Biological, Chemical	2003	Mill Cr near Limestone CR 49.	~7	F&W
RGDL-1	Habitat, Biological, Chemical	2003	Ragsdale Cr at Limestone CR 75.	6.5	F&W
TRKL-1	Habitat, Biological, Chemical	2003	Turkey Cr at Limestone CR 53	~2	F&W

Mill Creek: At MILL-1, Mill Creek is a riffle-run stream located in the Outer Nashville Basin (71h) subecoregion (Appendix J). Mill Creek was assessed within the sub-watershed during the 2003 NPS screening assessment (Appendix F). A habitat assessment conducted at the site found it to be characterized by bedrock, gravel, and sand substrates. A macroinvertebrate assessment found the site to be in *good* condition with ten EPT families collected (Appendix K). Water quality data are provided in Appendix M.

Ragsdale Creek: Ragsdale Creek at RGDL-1 is also a riffle-run stream located in the Outer Nashville Basin (71h) subecoregion (Appendix J). A habitat assessment conducted at the site found it to be characterized by cobble, gravel, and sand substrates. Seven EPT families were collected indicating the site to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M.

Turkey Creek: At TRKL-1, Turkey Creek is a riffle-run stream located in the Outer Nashville Basin (71h) subecoregion (Appendix J). TRKL-1 was assessed within the sub-watershed during the 2003 NPS screening assessment (Appendix F). A habitat assessment conducted at the site found it to be characterized by cobble, gravel, and sand substrates. A macroinvertebrate assessment found the site to be in *good* condition with nine EPT families collected (Appendix K). Water quality data are provided in Appendix M.

Sub-watershed status: The North Elk River sub-watershed was targeted for assessment in 2003 because of potential NPS impairment caused by runoff from crop and pasture lands, and accessibility of livestock to surface waters.Three biological assessments were conducted within the sub-watershed during FY-2003 (Appendix G). The macroinvertebrate community was assessed as *fair* at the Ragsdale Creek location identifying North Elk River as a NPS priority sub-watershed.

Sub-Watershed: Sugar Creek NRCS Sub-Watershed Number 120

Landuse: The Sugar Creek sub-watershed drains approximately 43 mi^2 in Lauderdale and Limestone Counties. Land cover was predominately pasture and forest with a small percentage of crop land. A total of one current construction/stormwater authorization and two NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
29%	11%	50%	0%	4%	6%	0%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concern within the sub-watershed was runoff from crop and pasturelands, and animal husbandry. The overall potential for NPS impairment was estimated as *moderate*. There was a *moderate* potential for impairment from urban development (Appendix D). Resource concerns of the local SWCDs included excessive erosion on cropland, pesticides in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	15	0.17 AU/ac	0.00%	13%	26%	0%	11%	1.5 tons/ac/yr
NPS Potential	M	M	L	M	H	L	L	L
Table	D	H	H	A	A	A	I	I

Assessments: One assessment was conducted in the Sugar Creek sub-watershed during the 2003 NPS Screening Assessment (Appendix F). A second assessment was conducted in the Sugar Creek sub-watershed during the 2000 ALAMAP Monitoring Program (Appendix S-1).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
SGRL-1	Habitat, Biological, Chemical	2003	Sugar Creek at Limestone CR 21.	~173	F&W
TE5U4-54	Habitat, Chemical	2000	Tributary to Sugar Cr nr Limestone CR 23.	~2	F&W

<u>Sugar Creek</u>: At SGRL-1, Sugar Creek is a glide-pool stream located in the Outer Nashville Basin (71h) subecoregion (Appendix J). Sugar Creek was assessed within the sub-watershed during the 2003 NPS screening assessment (Appendix F). A habitat assessment conducted at the site found it to be characterized by bedrock and sand substrates. Habitat quality was found to be *excellent* (Appendix J). Seven EPT families

were collected indicating the site to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M.

Tributary to Sugar Creek: The tributary to Sugar Creek at TE5U4-54 is a glide-pool stream located in the Outer Nashville Basin (71h) subecoregion (Appendix J). A habitat assessment conducted at the site found it to be characterized by bedrock and boulder substrates. Habitat quality was assessed as *excellent*. Water quality data are provided in Appendix S-2.

Sub-watershed status: The Sugar Creek sub-watershed was targeted for monitoring during 2003 because of potential from impairment from runoff from crop and pasture lands, and accessibility of livestock to surface waters. One biological assessment was conducted within the sub-watershed (Appendix G). The macroinvertebrate community was assessed as *fair* at this location. This system should be prioritized for further monitoring.

Sub-Watershed: Anderson Creek **NRCS Sub-Watershed Number 150**

Landuse: The Anderson Creek sub-watershed drains approximately 63 mi^2 in Lauderdale and Limestone Counties. Land cover was predominately forest, and pasture with a small percentage of crop land. Anderson Creek is included on the 2002 §303(d) list of impaired waters of Alabama due to siltation from pasture runoff. The Elk River, from Wheeler Reservoir to Anderson Creek, is also included on the list due to pH, organic enrichment and low dissolved oxygen from pasture grazing and non-irrigated crop production (Appendix C). A total of three construction/stormwater authorizations and three NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
65%	9%	23%	0%	2%	0%	1%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concern within the sub-watershed was runoff from crop and pasturelands. The overall potential for NPS impairment within the sub-watershed was estimated as *low*. There was a *moderate* potential for impairment from urban development (Appendix D). Resource concerns of the local SWCD included excessive erosion on cropland, pesticides in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	13	0.11 AU/ac	0.00%	22%	35%	0%	ur	1.9 tons/ac/yr
NPS Potential	L	L	L	M	M	L	ur	L
Table	D	H	H	A	A	A	I	I

Assessments: Dement Creek, East Fork of Anderson Creek, Middle Fork of Anderson Creek, and West Fork of Anderson Creek were monitored during the 2003 NPS Screening Assessment (Appendix F). The Elk River was monitored at two locations during ADEM's 2001-2002 §303(d) Monitoring Program (Appendix E, Appendix P).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
DMTL-1	Habitat, Biological, Chemical	2003	Dement Cr at Lauderdale CR 95.	~16	F&W
EFAL-1	Habitat, Biological, Chemical	2003	East Fork, Anderson Cr at Lauderdale CR 93.	~7	F&W
MFAL-1	Habitat, Biological, Chemical	2003	Middle Fork, Anderson Cr at Lauderdale CR 49.	~5	F&W
WFAL-1	Habitat, Biological, Chemical	2003	West Fork, Anderson Cr at Lauderdale CR 49.	~7	F&W

Dement Creek: At DMTL-1, Dement Creek is a cobble, gravel, and sand substrate, riffle-run stream located in the Western Highland Rim (71f) subecoregion (Appendix J). A habitat assessment performed at the site was *excellent*. Thirteen EPT families were collected, indicating the macroinvertebrate community to be in *excellent* condition (Appendix K). Water quality data are provided in Appendix M.

East Fork Anderson Creek: The East Fork of Anderson Creek at EFAL-1 is a riffle-run stream characterized by bedrock substrate. This station is located in the Western Highland Rim (71f) subecoregion (Appendix J). A habitat assessment performed at the site resulted in an *excellent* rating. Eleven EPT families were collected, indicating the macroinvertebrate community to be in *good* condition (Appendix K). Water quality data are provided in Appendix M.

Middle Fork Anderson Creek: At MFAL-1, the Middle Fork of Anderson Creek is a riffle-run stream, located in the Western Highland Rim (71f) subecoregion (Appendix J). Habitat quality was assessed as *excellent*. Seven EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M.

West Fork Anderson Creek: The West Fork of Anderson Creek at WFAL-1, is a riffle-run stream characterized by bedrock substrate. This station is located in the Western Highland Rim (71f) subecoregion (Appendix J). A habitat quality was assessed as *excellent*. Twelve EPT families were collected, indicating the macroinvertebrate community to be in *good* condition (Appendix K). Water quality data are provided in Appendix M.

Sub-watershed status: The Anderson Creek sub-watershed was targeted for monitoring during 2003 because of potential from impairment from runoff from crop and pasture lands, and accessibility of livestock to surface waters. Four biological assessments were conducted within the Anderson Creek sub-watershed (Appendix G). The macroinvertebrate community was assessed as *fair* at the Middle Fork location.

Pickwick Lake CU (0603-0005)

The Pickwick Lake CU drains seventeen sub-watersheds located within Lawrence, Lauderdale, Colbert, and Franklin counties. The CU drains approximately 1,414 square miles of primarily the Limestone Valleys and Uplands, and smaller amounts of the Coastal Plain. It is primarily located within the Interior Plateau Ecoregion with a portion of Northwest Lauderdale County in the Transition Hills Subregion of the Southeastern Plains (Fig. 5) (Griffith et al. 2001).

Landuse: Based on the conservation assessment worksheets completed (ASWCC 1998) by the local SWCDs, the primary landuses throughout Pickwick CU were forest, pasture, and row crop areas. Approximately 116,000 acres of crop and pastureland (~13% of total land area) were treated with pesticides and/or herbicides. The dominant areas of concern in the sub-watershed as indicated by the local conservation committees were the poor condition of, and excessive erosion/sediment from cropland, and common access of livestock to streams.

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	**Row crop**	**Pasture**	**Mining**	**Urban**	**Open Water**	**Other**
47%	23%	20%	0%	7%	1%	2%

NPS impairment potential: There was a *moderate* or *high* potential for NPS impairment in 6 sub-watersheds. Crop and pasture runoff, sedimentation, forestry, and animal husbandry were the primary NPS concerns in the CU. There was a *moderate* or *high* potential for impairment from urban sources within 6 sub-watersheds.

Number of sub-watersheds with (M)oderate or (H)igh ratings for each nonpoint source category (Appendix D).

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Moderate	4	5	2	5	9	0	1	2
High	2	0	2	4	1	0	0	0

Number of sub-watersheds with (M)oderate or (H)igh ratings for each point source category (Appendix D).

Category	**Overall Potential**	**% Urban**	**Development**	**Septic tank failure**
Moderate	2	2	7	1
High	4	3	2	1

Historical data/studies: The majority of assessments conducted within the Pickwick Lake CU were from 8 programs and projects conducted by the ADEM, the TVA and the USGS.

Monitored assessment data, including chemical, physical, and/or biological data, were practiced during these programs using commonly accepted and well-documented methods. Results of monitored assessments were used in this report to assess habitat, biological, and chemical conditions within a sub-watershed.

Evaluated assessments were conducted in conjunction with ADEM's ALAMAP Program (Appendix T). Evaluated assessments are based on observed conditions, limited water quality data, water quality data older than 5 years, or estimated impacts from observed or suspected activities.

Types of assessments conducted for projects that have generated monitored assessment information.

Project	Assessment Type
ADEM's Ecoregional Reference Reach Program	H, C, B
ADEM's §303(d) Waterbody Monitoring Program	H, C, B
ADEM's Reservoir Monitoring Program	C, B
ADEM's Fish Tissue Monitoring Program	C
ADEM's Ambient Monitoring Program	H, C, B
ADEM's Periphyton Bioassessment Pilot Study	H, C, B
TVA: University Tributary Nutrient Project	C
USGS: Environmental Settings and Water Quality Issues in the Lower Tennessee River Basin, 1999	C

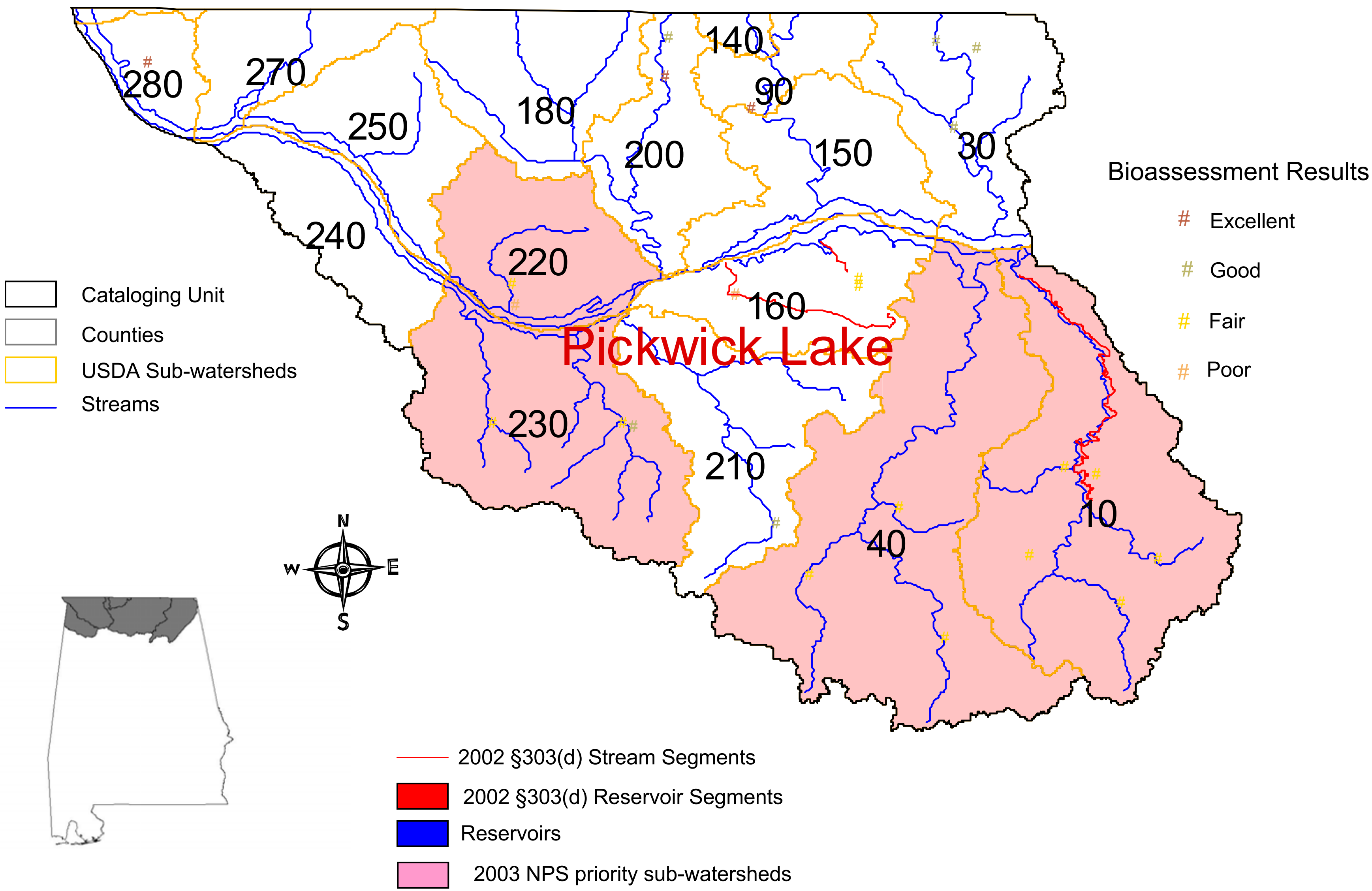
[a]H=habitat; C=chemical/physical; B=biological
[b]Data and summary of project included in Appendices

2003 NPS Screening Assessment: Eight sub-watersheds were targeted for assessment during the 2003 NPS Screening Assessment because they were recommended as NPS priority sub-watersheds in 1998, had a *moderate* potential for impairment from nonpoint sources, were on ADEM's 2002 §303(d) list of impaired waters, or recent data were unavailable. Appendix F lists the 22 stations assessed.

Sub-watershed assessments: Current and historical monitoring data were combined to provide an inventory of available data. Habitat, chemical/physical, and biological indicators of water quality were monitored in 8 sub-watersheds (Appendix G). Habitat quality was assessed as *excellent* or *good* at all stations. Macroinvertebrate assessments were conducted and results of these assessments indicated the macroinvertebrate community to be in *excellent* or *good* condition at 7 (32%) stations and *fair* or *poor* at 15 stations (68%).

NPS priority sub-watersheds: Based on the WMB-EPT macroinvertebrate assessment results, four sub-watersheds NPS priority sub-watersheds were identified (Table 5). A summary of the information available for each of these sub-watersheds is provided in the following section. Each summary discusses land use, nonpoint source impairment potential, assessments conducted within the sub-watershed, and nonpoint source priority status based on available data. Appendices referenced in the summaries are located at the end of the report.

Fig. 18. 2003 NPS priority sub-watersheds & 2002 303(d) list streams and reservoir segments located within the Pickwick Lake CU. 2003 Bioassessment Results are also shown.



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Sub-Watershed: Big Nance Creek **NRCS Sub-Watershed Number 010**

Landuse: The Big Nance Creek sub-watershed drains approximately 200 mi^2 in Lawrence County. Big Nance Creek is included on the 2002 §303(d) list of impaired waters of Alabama due to siltation from pasture grazing and non-irrigated crop production (Appendix C). The local SWCD estimated land cover to be primarily forest, row crop and pasture land. Nine construction/stormwater authorizations, fourteen NPDES permits, and nine CAFO registrations have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
39%	36%	20%	0%	4%	0%	0%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concerns within the sub-watershed were aquaculture, forestry practices and runoff from crop and pasturelands. The overall potential for NPS impairment was estimated as *high*. There was a *high* potential for impairment from septic tank failures (Appendix D). Resource concerns of the local SWCDs included excessive erosion on cropland, inadequate management of animal wastes, nutrients in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	19	0.09 AU/ac	0.00%	21%	27%	0%	57%	1.2 tons/ac/yr
NPS Potential	H	L	H	H	M	L	M	L
Table	D	H	H	A	A	A	I	I

Assessments: Four stations were assessed in the Big Nance Creek sub-watershed during the 2003 NPS Intensive Assessment (Appendix F) in an effort to document water quality improvement attributable to BMP's in the sub-watershed. Sixteen assessments were conducted in the sub-watershed during the ADEM's 1999, 2000, and 2003 §303(d) Monitoring Program (Appendix E, Appendix P). One assessment was conducted in the sub-watershed during the 1999 TVA: University Tributary Nutrient Project (Appendix R). Two assessments were conducted in the sub-watershed during 1999 by the USGS (Appendix U).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
BRDL-1	Habitat, Biological, Chemical	2003	Bridge Cr at Lawrence CR 42.	~5	F&W
CRKL-1	Habitat, Biological, Chemical	2003	Crooked Cr at Lawrence CR 27.	~19	F&W
RTFL-1	Habitat, Biological, Chemical	2003	Rutherford Cr at Lawrence CR 236.	~15	F&W
WDCL-1	Habitat, Biological, Chemical	2003	Wade Cr at Lawrence CR 241.	~9	F&W
BNCTVA01	Chemical	1999	Big Nance Cr at Lawrence CR 25.	~162	F&W
03586240	Chemical	1999	Muddy Fork at AL Hwy 157	71	A&I
03586400	Chemical	1999	Clear Fork at AL Hwy 33.	27	F&W

Bridge Creek: Bridge Creek was assessed during ADEM's TN basin 2003 NPS Intensive Survey (Appendix F-2). Bridge Creek at BRDL-1 is a glide-pool stream with a predominately sand substrate. This station is located in the Little Mountain (71j) subecoregion (Appendix J). A habitat assessment performed at the site documented, generally, *good* habitat conditions. However, bank stability was noted to be a concern. Five EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Crooked Creek: Crooked Creek was assessed during ADEM's TN basin 2003 NPS Intensive Survey (Appendix F-2). At CRKL-1, Crooked Creek is a predominately sand substrate, glide-pool stream. Like Bridge Creek, this station is located in the Little Mountain (71j) subecoregion (Appendix J). A habitat assessment performed at the site documented *good* habitat conditions. Bank stability, again, was noted to be a concern. Five EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Rutherford Creek: Rutherford Creek was assessed during ADEM's TN basin 2003 NPS Intensive Survey (Appendix F-2). Rutherford Creek at RTFL-1 is a riffle-run stream with a cobble, gravel, and sand substrate. This station is located in the Eastern Highland Rim (71g) subecoregion (Appendix J). A habitat assessment performed at the site indicated *good* habitat conditions. However, riparian zone measurements were noted to be a problem. Five EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Wade Creek: Wade Creek was assessed during ADEM's TN basin 2003 NPS Intensive Survey (Appendix F-2). At WDCL-1, Wade Creek is a glide-pool stream with a boulder, cobble, gravel, and sand substrate. This station is located in the Little Mountain (71j) subecoregion (Appendix J). A habitat assessment performed at the site documented *good* habitat conditions. Six EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Big Nance Creek: TVA assessed one station on Big Nance Creek in 1999 in conjunction with the University Reservoir Tributary Nutrient study (Appendix R). Water quality data are provided in Appendix R-1.

Muddy Fork: One station on Muddy Fork was assessed by USGS in 1999 (Appendix U). Water quality data are provided in Appendix U-2.

Clear Fork: USGS assessed one station on Clear Fork in 1999 (Appendix U). Water quality data are provided in Appendix U-2.

***Sub-watershed status*:** The Big Nance Creek Creek sub-watershed was targeted for monitoring during 2003 because of potential for impairment from runoff from crop and pasture lands, accessibility of livestock to surface waters and excessive land applied animal waste. Four biological assessments were conducted at stations within the Big Nance Creek sub-watershed. The macroinvertebrate community was assessed as *fair* at all locations. Big Nance Creek continues to be a priority sub-watershed due to biological and chemical conditions within the watershed.

Sub-Watershed: Town Creek NRCS Sub-Watershed Number 040

Landuse: The Town Creek sub-watershed drains approximately 250 mi^2 in Colbert, Franklin, and Lawrence Counties. Land cover was mainly crop and pasture lands mixed with some forested areas. Five current construction/stormwater authorizations, one mining, ten NPDES permits, and nineteen CAFO registrations have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
28%	33%	32%	0%	3%	1%	3%

NPS impairment potential: Based on the 1998 SWCD sub-watershed assessment information, the main NPS concerns within the sub-watershed were animal husbandry, aquaculture, and runoff from crop and pasture lands. The overall potential for NPS impairment was estimated as *high*. There was a *moderate* potential for impairment from septic tank failures (Appendix D). Resource concerns of the local SWCD included excessive erosion on cropland, inadequate management of animal wastes, nutrients and pesticides in surface waters, and livestock in streams (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	19	0.18 AU/ac	0.00%	24%	26%	0%	6%	2.1 tons/ac/yr
NPS Potential	H	M	H	H	M	L	L	M
Table	D	H	H	A	A	A	I	I

Assessments: During the 2003 NPS screening assessment, ADEM monitored Milam Creek, Masterson Creek, and Mud Creek within this sub-watershed. One assessment was conducted on Mud Creek during 1999 by the USGS (Appendix U).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
MLML-1	Habitat, Biological, Chemical	2003	Milam Cr at AL Hwy 24.	~13	F&W
MSTL-1	Habitat, Biological, Chemical	2003	Masterson Cr at Lawrence CR 136.	~8	F&W
MUDF-2	Habitat, Biological, Chemical	2003	Mud Cr at Franklin CR 80.	~17	F&W
03587378	Chemical	1999	Mud Cr near Moulton, AL	48	F&W

Milam Creek: Milam Creek at MLML-1 is a riffle-run stream with a predominately bedrock and sand substrate. This station is located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Habitat quality was assessed as *good*. However, bank stability was noted to be a concern. Seven EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M.

Masterson Creek: At MSTL-1, Masterson Creek is a gravel and sand substrate, riffle-run stream. Like Milam Creek, this station is located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Habitat quality was assessed as *good*. However, stream sinuosity was low and noted to be a concern. Six EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M and N.

Mud Creek: Mud Creek at MUDF-2 is a riffle-run stream with a predominately bedrock substrate. This station is located in the Eastern Highland Rim (71g) subecoregion (Appendix J). A habitat assessment performed at the site indicated *good* habitat conditions. Six EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M and N.

Mud Creek was also assessed at USGS station number 03587378 in 1999. Water quality data are provided in Appendix U.

Sub-watershed status: The Town Creek sub-watershed was targeted for monitoring during 2003 because of potential from impairment from runoff from crop and pasture lands, accessibility of livestock to surface waters and excessive land applied animal waste. Three biological assessments were conducted at stations within the Town Creek sub-watershed. The macroinvertebrate community was assessed as *fair* at all locations. Town Creek continues to be a priority sub-watershed and this system should be prioritized for further monitoring.

Sub-Watershed: Sinking Creek NRCS Sub-Watershed Number 220

Landuse: The Sinking Creek sub-watershed drains approximately 74 mi^2 in Lauderdale County. Land cover was predominately crop lands according to the 1998 SWCD land cover estimates. Nine construction/stormwater authorizations, and two NPDES permits have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
15%	76%	8%	0%	0%	0%	1%

NPS impairment potential: Based on local SWCD information, the overall potential for NPS impairment was evaluated as *moderate*. Row crop impairment potential was *high*. Resource concerns of the local SWCD are excessive erosion on cropland, and poor cropland soil conditions. (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	15	0.08 AU/ac	0.00%	42%	22%	0%	ur	4.7 tons/ac/yr
NPS Potential	M	L	L	H	L	L	L	H
Table	D	H	H	A	A	A	I	I

Assessments: Four stations on Sinking Creek were monitored during the 2003 NPS screening assessment of the TN basin group (Appendix F). Sinking Creek and McIntyre Ditch were evaluated during ADEM’s 2000 and 2003 ALAMAP Program (Appendix E). One assessment was conducted on Sinking Creek during 1999 by the USGS (Appendix U).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
SNKL-7	Habitat, Biological, Chemical	2003	Sinking Cr at unnamed ford off Lauderdale CR 4 near Woodland.	45	F&W
SNKL-8	Habitat, Biological, Chemical	2003	Sinking Cr at Lauderdale CR 188.	~42	F&W
SNKL-9	Chemical	2003	Sinking Cr at Lauderdale CR 2.	40	F&W
SNKL-10	Chemical	2003	Sinking Cr at Lauderdale CR 4.	~38	F&W
ALST03-05	Habitat, Chemical	2003	McIntyre Ditch approx ½ mile west of Lauderdale CR 137	~0.5	F&W
TE4U4-52	Habitat, Chemical	2000	Sinking Cr approx ¾ mile west of Lauderdale CR 15.	~34	F&W
03590646	Chemical	1999	Sinking Cr below Woodland, AL	45	F&W

Sinking Creek: At SNKL-7, Sinking Creek is a riffle-run stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Bottom substrate was a mixture of cobble, gravel, and sand. Habitat quality was assessed as *excellent* (Appendix J). Three EPT families were collected at the site indicating the macroinvertebrate community to be in *poor* condition (Appendix K). Water quality data are provided in Appendix M.

Sinking Creek at SNKL-8 is also a riffle-run stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Substrate was a mixture of cobble, gravel and sand. A habitat assessment performed at the site documented *good* habitat conditions (Appendix J). Bank and vegetative stability were points of concern due to entrenchment and scouring. Six EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M.

At SNKL-9, Sinking Creek is a glide-pool stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Water quality data are provided in Appendix M.

Sinking Creek at SNKL-10 is also a glide-pool stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Water quality data are provided in Appendix M.

At TE4U4-52, Sinking Creek is a glide-pool stream located in the Eastern Highland Rim (71g) subecoregion (Appendix S-1). Substrate was predominately clay and silt. Instream habitat quality was assessed as *fair* (Appendix S-1). Results of water quality sampling are provided in Appendix S-2.

Water quality was also collected at USGS station number 03590646 in 1999. This data is provided in Appendix U.

McIntyre Ditch: At ALST03-05, McIntyre Ditch is a glide-pool stream located in the Eastern Highland Rim (71g) subecoregion (Appendix S-1). Bottom substrate was predominately sand with organic silt present. Habitat quality at McIntyre Ditch was assessed *fair* (Appendix S-1). Sediment deposition, stream sinuosity, and riparian zone measurements were important areas of concern at this station. Results of water quality sampling are provided in Appendix S-2.

Sub-watershed status: The Town Creek sub-watershed was targeted for monitoring during 2003 because of potential from impairment from cropland runoff. Two biological assessments were conducted within the Sinking Creek sub-watershed. The macroinvertebrate community was assessed as *fair* or *poor* at these locations. Water quality sampling at all stations suggested nutrient enrichment as the possible source of the impairment. The Sinking Creek sub-watershed should be prioritized for further monitoring.

Sub-Watershed: Cane Creek **NRCS Sub-Watershed Number 230**

Landuse: The Cane Creek sub-watershed drains approximately 142 mi^2 in Colbert and Franklin Counties. Land cover was primarily forest and urban land according to the 1998 SWCD land cover estimates. Six current construction/ stormwater authorizations, two mining, ten NPDES permits, and one CAFO registration have been issued in the sub-watershed (Appendix B).

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
69%	0%	6%	0%	23%	0%	2%

NPS impairment potential: Based on local SWCD information, row crop and aquaculture impairment potential was *moderate*. The potential for impairment from urban sources was *moderate* (Appendix D). Access by livestock to streams is the resource concern listed for this sub-watershed (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	13	0.11 AU/ac	0.00%	6%	12%	0%	ur%	2.3 tons/ac/yr
NPS Potential	L	L	L	L	M	M	L	M
Table	D	H	H	A	A	A	I	I

Assessments: Dry Creek, Stinking Bear Creek, and Smith Creek were monitored during the 2003 NPS screening assessment (Appendix F).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
DRC1-1	Habitat, Biological, Chemical	2003	Dry Cr at Colbert CR 49.	~18	F&W
SBCC-1	Habitat, Biological, Chemical	2003	Stinking Bear Cr at Colbert CR 36.	~23	F&W
SMTC-1	Habitat, Biological, Chemical	2003	Smith Cr at Colbert CR 51.	~8	F&W

Dry Creek: At DRC1-1, Dry Creek is a riffle-run stream located in the Little Mountain (71j) subecoregion (Appendix J). Bottom substrate was a mixture of cobble, gravel, and sand. Habitat quality at Dry Creek was assessed *good* (Appendix J). Six EPT families were collected at the site indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Stinking Bear Creek: Stinking Bear Creek at SBCC-1 is also a riffle-run stream located in Little Mountain (71j) subecoregion (Appendix J). Substrate was a mixture of gravel, sand and clay. A habitat assessment performed at the site documented *good* habitat conditions. Eight EPT families were collected, indicating the macroinvertebrate community to be in *good* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Smith Creek: Smith Creek at SMTC-1 is also a riffle-run stream located in Little Mountain (71j) subecoregion (Appendix J). Substrate was a mixture of gravel and sand. A habitat assessment performed at the site documented *good* habitat conditions. Seven EPT families were collected indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M, and N.

Sub-watershed status: The Town Creek sub-watershed was targeted for monitoring during 2003 because of potential for impairment from forestry practices.Three biological assessments were detected within the Cane Creek sub-watershed. The macroinvertebrate community was assessed as *fair* at two locations, identifying Cane Creek as a priority NPS sub-watershed.

Bear Creek CU (0603-0006)

The Bear Creek CU contains seven sub-watersheds located within Franklin, Lawrence, Marion, Winston, and Colbert Counties. The CU drains approximately 797 square miles and is primarily located within the Southeastern Plains ecoregion with small areas in the Interior Plateau and Southwestern Appalachians ecoregions (Fig. 5) (Griffith et al. 2001).

Landuse: Based on the 1998 conservation assessment worksheets completed by the local SWCDs, the Bear Creek CU was mainly forest with some pasture and cropland areas. Three stream segments located within two sub-watersheds are currently on ADEM's 2002 CWA §303(d) list of impaired waters (Appendix C).

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
72%	6%	12%	2%	3%	3%	2%

NPS impairment potential: Animal husbandry, and aquaculture, were the primary NPS concern within the Bear Creek CU. Sedimentation from mining and developing urban areas, and septic tank failures were also concerns within the CU.

Number of sub-watersheds with (M)oderate or (H)igh ratings for each nonpoint source category (Appendix D).

Category	Overall Potential	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Moderate	1	4	0	2	2	2	0	6
High	3	0	4	0	0	1	0	0

Number of sub-watersheds with (M)oderate or (H)igh ratings for each point source category (Appendix D).

Category	Overall Potential	% Urban	Development	Septic tank failure
Moderate	0	0	4	4
High	0	0	0	0

Historical data/studies: The majority of assessments conducted within the Pickwick Lake CU were from 6 programs and projects conducted by the ADEM and the TVA. These data include both monitored and evaluated assessments. Monitored assessments are based on chemical, physical, and/or biological data collected using commonly accepted and well-documented methods. Evaluated assessments are based on observed conditions, limited water quality data, water quality data older than 5 years, or estimated impacts from observed or suspected activities.

Results of monitored assessments were used in this report to assess habitat, biological, and chemical conditions within a sub-watershed. Monitored assessments were conducted during 5 projects and programs. Evaluated assessments were conducted in conjunction with ADEM's ALAMAP Program (Appendix S).

Types of assessments conducted for projects that have generated monitored assessment information.

Project	Assessment Type
ADEM's Ecoregional Reference Reach Program	H, C, B
ADEM's §303(d) Waterbody Monitoring Program	H, C, B
ADEM's Reservoir Monitoring Program	C, B
ADEM's Fish Tissue Monitoring Program	C
ADEM's Ambient Monitoring Program	H, C, B
TVA: University Tributary Nutrient Project	C

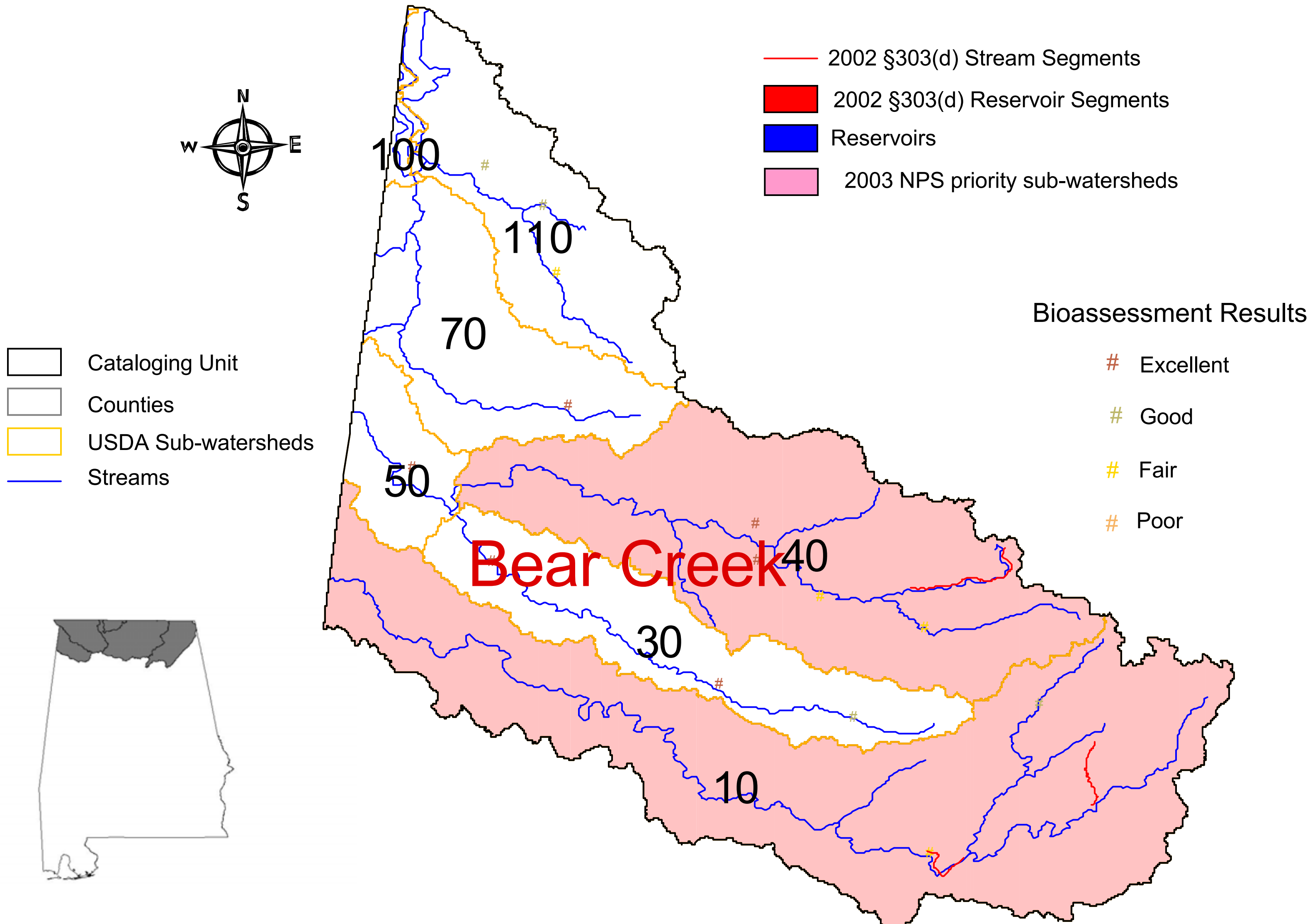
[a]H=habitat; C=chemical/physical; B=biological
[b]Data and summary of project included in Appendices

Assessments conducted during the 2003 NPS Screening Assessment: Six sub-watersheds were targeted for assessment during the 2003 NPS Screening Assessment because they were recommended as NPS priority sub-watersheds in 1998, were on the 2002 §303(d) list of impaired waters for nonpoint source impairments, or recent data were unavailable. Appendix F lists the fourteen stations assessed.

Sub-watershed assessments: Current and historical monitoring data were combined to provide the most complete assessment possible. Habitat, chemical/physical, and biological indicators of water quality were monitored in six sub-watersheds (Appendix G). Habitat quality was assessed as *excellent* or *good* at all fourteen stations. Macroinvertebrate assessments indicated the macroinvertebrate community to be *excellent* or *good* at 10 (71%) stations and *fair* at 4 (29%) stations.

NPS priority sub-watersheds: Based on results of ADEM's screening level macroinvertebrate assessments, two sub-watersheds were identified as NPS priority sub-watersheds (Table 5). A summary of the information available for each of the NPS priority sub-watersheds is provided in the following section. Each summary discusses land use, nonpoint source impairment potential, assessments conducted within the sub-watershed, and nonpoint source priority status based on available data. Appendices referenced in the summaries are located at the end of the report.

Fig. 19. 2003 NPS priority sub-watersheds & 2002 303(d) list streams and reservoir segments located within the Bear Creek CU. 2003 Bioassessment Results are also shown.



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Sub-Watershed: Upper Bear Creek NRCS Sub-Watershed Number 010

Landuse: The Upper Bear Creek sub-watershed drains approximately 291 mi^2 in Franklin, Marion, Winston, and Lawrence Counties. Land cover within the sub-watershed was primarily forest according to the 1998 SWCD land cover estimates. Three current stormwater authorizations, one mining and eighteen NPDES permits, and eighteen CAFO registrations have been issued in the sub-watershed (Appendix B). A 3 mile segment of Bear Creek is on ADEM's 2002 CWA §303(d) list of impaired waterbodies for not meeting its "Swimming" and "Fish and Wildlife" water use classifications (Appendix C-2). It is listed for high metals concentrations from abandoned surface mines.

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
73%	9%	11%	2%	3%	1%	1%

NPS impairment potential: The overall potential for impairment from rural nonpoint sources was estimated as *high* due to potential for impairment from animal husbandry, aquaculture, runoff from row crops, mining and sedimentation (Appendix D). The potential for impairment from sedimentation was estimated as *high*. The primary sediment sources were mining (4.9 tons/ac/yr), and woodlands (2.5 tons/ac/yr) (Appendix I).

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	19	0.23 AU/ac	0.00%	9%	16%	0%	1%	8.4 tons/ac/yr
NPS Potential	H	M	H	M	L	M	L	H
Table	D	H	H	A	A	A	I	I

Assessments: The Little Bear Creek sub-watershed was monitored at one station during the 2003 NPS screening assessment of the TN basin group (Appendix F). Bear Creek, Bethel Branch, Gas Branch, Little Dice Branch, Melton Branch and Pretty Branch have been previously assessed in conjunction with ADEM's §303(d) Monitoring Program (Appendix E). Bear Creek was evaluated at one station during TVA's 1999 University Reservoir Tributary Nutrient Study (Appendix R).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
BEA-1	Habitat, Chemical	2003	Bear Cr at outfall from Upper Bear Creek Reservoir dam	110	PWS/S/F&W
BEA-2	Habitat, Biological, Chemical	2003	Bear Cr at conjunction of AL Hwys 241 & 17	~120	S/F&W
BRCTVA01	Chemical	1999	Bear Cr at Bear Cr Dam tailrace	248	PWS/S/F&W
BLB-1	Chemical	1999	Bethel Br approx 0.2 mile upstream of confluence with Bear Creek	~2	F&W
GSB-1	Chemical	1999	Gas Br at edge of backwater from Upper Bear Creek Reservoir	~4	F&W
LBRF-1	Habitat, Biological, Chemical	2003	Little Bear Cr at AL Hwy 243.	~11	S/F&W
LDB-1	Chemical	1999	Little Dice Br at Franklin CR 85.	~5	F&W
MLB-1	Chemical	1999	Melton Br at Corner Rd.	~1	F&W
PYB-1	Chemical	1999	Pretty Br at Franklin CR 7.	~1	F&W

Bear Creek: Intensive water quality data were collected on Bear Creek at BEA-1 from March to October 2003 in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Intensive water quality data were collected on Bear Creek at BEA-2 from March to October 2003 in conjunction with ADEM's §303(d) Monitoring Program. Bear Creek at this location is a riffle-run stream located in Dissected Plateau (68e) subecoregion (Appendix P-1). Substrate was predominately bedrock with lesser amounts of boulder, cobble and gravel. Habitat assessments performed at the site documented *excellent* habitat conditions (Appendix P-1). Four EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix P-2). Water quality data are provided in Appendix P-3 and P-4.

Water quality data collected at BRCTVA01 in 1999 by the TVA in conjunction with the University Tributary Nutrient Loading Project are provided in Appendix R-1.

Bethel Branch: Intensive water quality data were collected on Bethel Branch at BLB-1 from June to September 1999 in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Gas Branch: Intensive water quality data were collected on Gas Branch at GSB-1 from May to July 1999 in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Little Bear Creek: Little Bear Creek was monitored at one station during the 2003 NPS screening assessment of the TN basin group (Appendix F). Little Bear Creek at LBRF-1 is a riffle-run stream located in Dissected Plateau (68e) subecoregion (Appendix J). Substrate was predominately sand with a slight percentage of bedrock, boulder, cobble and gravel present. A habitat assessment performed at the site documented *good* habitat conditions. Sediment deposition was noted at the site. Seven EPT families were collected, indicating the macroinvertebrate community to be in *good* condition (Appendix K). Water quality data are provided in Appendix M and N.

Little Dice Branch: Intensive water quality data were collected on Little Dice Branch at LDB-1 from May to September 1999 in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Melton Branch: Intensive water quality data were collected on Melton Branch at MLB-1 from June to September 1999 in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Pretty Branch: Intensive water quality data were collected on Pretty Branch at PYB-1 from June to July 1999 in conjunction with ADEM's §303(d) Monitoring Program. Water quality data are provided in Appendix P-3 and P-4.

Sub-watershed status: The Upper Bear Creek sub-watershed was targeted for monitoring during 2003 due to its §303(d) listing of metals contamination from abandoned surface mines. Additionally, information from the local SWCD indicated potential for impairment from sand and gravel pits and mining. Two biological assessments were conducted within the Upper Bear Creek sub-watershed. The macroinvertebrate community was assessed as *fair* at the BEA-2 location, indicating that the sub-watershed continues to be a NPS priority sub-watershed.

Sub-Watershed: Upper Cedar Creek NRCS Sub-Watershed Number 040

Landuse: The Upper Cedar Creek sub-watershed drains approximately 200 mi^2 in Colbert and Franklin Counties. Land cover within the sub-watershed was primarily forest according to the 1998 SWCD land cover estimates. Thirteen current stormwater authorizations, four mining and seventeen NPDES permits, and two CAFO registrations have been issued in the sub-watershed (Appendix B). A 6 mile segment of Harris Creek is on ADEM's 2002 CWA §303(d) list of impaired waterbodies for not meeting its "Fish and Wildlife" water use classifications (Appendix C-2). It is listed for siltation from pasture grazing.

Percent land cover estimated by local SWCD (Appendix A, ASWCC 1998)

Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
70%	4%	14%	2%	3%	5%	1%

NPS impairment potential: The overall potential for impairment from rural nonpoint sources was estimated as *high* (Appendix D). The potential for impairment from aquaculture and mining was estimated as *high*. Sedimentation, animal husbandry, and pasture runoff impairment potential was estimated as *moderate*. The primary sediment sources were mining (2.2 tons/ac/yr), and woodlands (0.9 tons/ac/yr) (Appendix I). Urban impairment potential was evaluated as *moderate* for development and septic tank failure.

NPS ratings for each NPS category based on values estimated during the SWCD sub-watershed assessment.

Category	NPS Score	Animal husbandry	Aqua-culture	Row crop	Pasture	Mining	Forestry	Sediment
Value	21	0.23 AU/ac	0.00%	3%	11%	0%	ur	3.8 tons/ac/yr
NPS Potential	H	M	H	L	M	H	ur	M
Table	D	H	H	A	A	A	I	I

Assessments: Cedar Creek, Chisholm Creek, and Hamilton Creek were monitored at one station each during the 2003 NPS screening assessment of the TN basin group (Appendix F). Cedar Creek was evaluated at one station during TVA's 1999 University Reservoir Tributary Nutrient Study (Appendix R).

Assessment stations located within the sub-watershed. Descriptions are provided in Appendix E-1.

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
CDRF-1	Habitat, Biological, Chemical	2003	Cedar Cr at Franklin CR 63.	~27	F&W
CHSF-1	Habitat, Biological, Chemical	2003	Chisolm Cr at Franklin CR 36.	~8	F&W
HAMF-1	Habitat, Biological, Chemical	2003	Hamilton Cr at Franklin CR 36.	~6	F&W
CECTVA01	Chemical	1999	Cedar Cr at AL Hwy 24.	85	F&W

Cedar Creek: At CDRF-1, Cedar Creek is a glide-pool stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Substrate was predominately sand with some boulder, and gravel present. A habitat assessment performed at the site documented *good* habitat conditions. Seven EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M and N.

Water quality data collected on Cedar Creek at CECTVA01 in 1999 by the TVA in conjunction with the University Tributary Nutrient Loading Project are provided in Appendix R-1.

Chisolm Creek: Chisolm Creek at CHSF-1 is a riffle-run stream located in the Transition Hills (65j) subecoregion (Appendix J). Substrate was predominately gravel with some cobble present. A habitat assessment performed at the site documented *excellent* habitat conditions. Thirteen EPT families were collected, indicating the macroinvertebrate community to be in *excellent* condition (Appendix K). Water quality data are provided in Appendix M and N.

Hamilton Creek: At HAMF-1, Hamilton Creek is a riffle-run stream located in the Eastern Highland Rim (71g) subecoregion (Appendix J). Substrate was a roughly even mixture of bedrock, cobble, and gravel. Habitat quality was assessed as *excellent*. Seven EPT families were collected, indicating the macroinvertebrate community to be in *fair* condition (Appendix K). Water quality data are provided in Appendix M and N.

Sub-watershed status: The Upper Cedar Creek sub-watershed was targeted for monitoring during 2003 due to its 303(d) listing of siltation from abandoned surface mines. Additionally, information from the local SWCD indicated potential for impairment from mining. Three biological assessments were conducted within the Upper Cedar Creek sub-watershed. The macroinvertebrate community was assessed as *fair* at two of these locations. This sub-watershed should be prioritized for further monitoring.

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APPENDICES

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Appendix A-1a. Land use percentages for the Middle Tennessee-Chicamauga (0602-0001) Guntersville Lake cataloging unit (0603-0001) from EPA landuse subcategory data (EPA 1997).

	Percent Total Landuse (Category and Subcategory)													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
Subwatershed	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Middle Tennessee/Chicamauga (0602-0001)														
290				1		1	52	12	21	8	4			
350							55	8	20	9	8			
Guntersville Lake (0603-0001)														
60	5	1		2			36	7	17	14	13		4	1
80	4					1	39	9	22	13	9		2	
100	1						58	4	14	4	14		5	
120							76	3	14	3	4			
140						1	80	2	9	3	5			
150	11			1			25	7	16	11	17		11	2
160	3					2	33	16	24	10	8		2	
170	6					1	40	6	14	11	15		6	1
180	3					1	26	8	19	21	21			
190	6	2		1			37	9	18	12	12		1	
200	38						30	10	13	5	2			
210	10						42	6	15	11	12		3	
220							17	8	18	27	26		3	
230	16					1	21	13	18	18	14			
240	22						34	14	16	7	5			

Appendix A-1a, cont. Land Use Percentages for Guntersville Lake Cataloging Unit (0603-0001) from EPA landuse subcategory data (EPA 1997).

Subwatershed	***Percent Total Landuse (Category and Subcategory)***													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Guntersville Lake (0603-000, Cont.														
250							20	10	21	29	19		1	
260	32						25	12	17	8	5			
270							14	11	20	33	21			
280		2		1			13	11	18	37	17	1		
290	8						22	15	19	19	16			
300	6	1		1		1	28	11	19	20	12			
310	18						29	10	17	16	9		1	
320	21						35	11	17	8	6			

Appendix A-1b. Land use percentages for Wheeler Lake cataloging unit (0603-0002) from EPA landuse subcategory data (EPA 1997).

	Percent Total Landuse (Category and Subcategory)													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
Subwatershed	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Wheeler Lake (0603-0002)														
20						1	81	2	9	4	3			
40							85	3	8	3	2			
50							81	2	8	4	5		1	
60							77	2	6	7	8			
70				1		1	54	3	10	13	16		2	
80							83	1	6	8	2			
90							55	5	17	11	9			
100	2						39	6	16	15	18		2	
110	1						34	8	18	19	16		2	
130							12	1	6	23	45		12	
140							16	3	9	17	46		7	
160							43	1	7	16	31		1	
180		1					10	3	6	22	48		9	
190	1			1			30	4	10	18	35	1	2	
200							54	3	10	14	17			
210	1					1	38	5	13	13	21		6	1
220	4					1	40	10	17	9	13		4	
230	6	8	3	2		1	29	7	11	7	10	2	12	1
240	2	18	8	9	1	1	14	8	9	5	11	5	9	1

Appendix A-1b, cont. Land use percentages for Wheeler Lake cataloging unit (0603-0002) from EPA landuse subcategory data (EPA 1997).

	Percent Total Landuse (Category and Subcategory)													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
Subwatershed	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Wheeler Lake (0603-0002), cont.														
250	1	1		2			17	7	11	16	36	2	7	
260	4	3	2	3			7	3	4	7	40	5	22	1
270	2						31	11	19	19	13		4	
280	10						5	2	4	7	53	1	18	1
300	1						13	3	6	23	47		6	
320	1			1			17	2	5	30	32		10	1
330		1		1			28	9	19	25	13		2	1
340							25	5	12	34	13		9	1
350	4	3	1	2			23	7	13	24	13	1	9	1
360						1	24	7	12	31	16		8	
370	39			1			6	1	2	5	23	1	19	2
380	7	12	5	7	1		16	1	4	17	16	5	7	
390		4	1	2			22	4	9	24	27	2	4	
400	16						20	1	4	20	33		4	
410	15				1		19	2	4	11	29		18	1
420	28			1	1		12	6	4	7	36		4	
440	9						29	3	8	28	22			

Appendix A-1c. Land use percentages for Lower Elk River cataloging unit (0603-0004) from EPA landuse subcategory data (EPA 1997).

	Percent Total Landuse (Category and Subcategory)													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
Subwatershed	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Lower Elk River (0603-0004)														
20	1						51	2	10	21	14			
60	1						55	3	11	20	10			
70	5					1	50	1	10	21	9		2	
80	5						37	3	9	24	21			
120	1					1	47	1	9	26	13		1	
130	11					1	44	4	11	22	7			
150	3						30	2	7	35	22			

Appendix A-1d. Land use percentages for Pickwick Lake cataloging unit (0603-0005) from EPA landuse subcategory data (EPA 1997).

Subwatershed	*Percent Total Landuse (Category and Subcategory)*													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Pickwick Lake (0603-0005)														
10	1			1			27	3	11	27	21	1	6	
30	4						36	1	8	33	18			
40	2					1	26	4	13	26	24		4	
90	1					1	60	1	12	17	8			
140				1			71	3	11	10	4			
150	13	4	1	2			34	3	11	22	9	2	1	
160	12	3	1	4			20	1	7	17	29	3	3	
180							37	2	11	29	18		1	
200	1	5	1	1		1	42	2	11	21	13	2	1	
210	1	2		1		2	30	5	15	19	23	1	2	
220	9						15	1	4	22	42		6	1
230	2					5	47	7	19	12	6			
240	10					5	34	7	14	10	20			
250	16					1	52	4	11	9	7			
270	5					6	58	7	14	6	2		1	
280	23					1	39	14	18	2			1	
320	36						23	19	19	2				

Appendix A-1e. Land use percentages for the Bear Creek cataloging unit (0603-0006) from EPA landuse subcategory data (EPA 1997).

	Percent Total Landuse (Category and Subcategory)													
	Open Water	Urban			Mining	Forest				Pasture/ Hay	Row Crops	Other		
Subwatershed	Open Water	Low Intensity Residential	High Intensity Residential	High Intensity Commercial/ Industrial/ Transportation	Quarries/ Strip Mines/ Gravel Pits	Transitional Forest	Deciduous Forest	Evergreen Forest	Mixed Forest	Pasture/ Hay	Row Crops	Other Grasses	Woody Wetlands	Herbaceous Wetlands
Bear Creek (0603-0006)														
10	2					2	40	11	20	16	9			
30	3					4	49	10	17	12	5			
40	3	1				4	42	12	21	11	3			
50						2	30	35	20	10	2		1	
70	1					6	44	19	17	7	4		2	
100	48			1			27	5	11	3	4		1	
110	6					5	41	15	20	8	4		1	

APPENDIX A-2

EROS Land Cover Data Set

--South-Central Portion of EPA Region IV--

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 mosaicing 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 mosaicing, mosaiced 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 that 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 that 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

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

Perennial Ice/Snow - all areas characterized by yearlong 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).

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.

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.

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.

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

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

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

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

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

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

<u>Mixed Forest</u> - 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.

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

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

<u>Mixed Shrubland</u> - Areas dominated by shrubs where neither deciduous nor 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.

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.

Grassland/Herbaceous - A class of vegetation dominated by natural upland grasslands, i.e. neither planted nor cultivated by humans, as well as other non-woody plants known as herbs (graminoids, Forbes, 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.

Pasture / Hay - Grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops.

Row Crops - All areas used for the production of crops, such as corn, soybeans, vegetables, tobacco, and cotton.

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.

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.

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].

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].

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 desirable. 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

[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 C-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 C-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*
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. Number of current construction/stormwater authorizations, noncoal mining (<5 acres)/stormwater authorizations, NPDES permits, and CAFO registrations issued within sub-watersheds of the Tennessee River Basin.

Cataloging Unit	Sub-watershed	# of Authorizations / #NPDES permits										
		Total # Permits and Authorizations	Construction/ Stormwater Authorizations (a)	<5 Acres / Stormwater Authorizations (a)	Mining NPDES (a)	Municipal NPDES (b)	Semi Public/ Private NPDES (b)	Industrial Process Wastewater - NPDES Majors (b)	Process Wastewater NPDES Minors (b)	Industrial SW/ Treated GW (b)	SID Stormwater NPDES (b)	CAFOs (a)
0602-0001	290	7		1			1				4	1
	350	0										
0603-0001	060	21	5		1	2	1	1	2		9	
	080	9	5		1						1	2
	100	0										
	120	1	1									
	140	0										
	150	0										
	160	19	3		3	1	1					11
	170	4	1		1	1		1				
	180	12	4		2		1				3	2
	190	33	12		1	1			2		17	
	200	3	2			1						
	210	11	1		1	2	1		1		5	
	220	26	6			2	4				6	8
	230	1	1									
	240	13	5		1	1	4				2	
	250	39	13	1	1		1		1		7	15
	260	2	1									1
	270	15	2				3					10
	280	41	12	1		2	1				20	5
	290	6	2			1	1				1	1
	300	38	10	1	1	2			2		21	1
	310	12	1		3							8
	320	6	3				1				2	
0603-0002	020	2	2									
	040	0										
	050	2		1							1	
	060	1	1									
	070	6	4								1	1
	080	0										

(a) from ADEM Mining and NPS Unit, Field Operations, database retrieval (10/27/04); (b) from ADEM Water Division, NPDES database retrieval (9/26/03)

Appendix B. Number of current construction/stormwater authorizations, noncoal mining (<5 acres)/stormwater authorizations, NPDES permits, and CAFO registrations issued within sub-watersheds of the Tennessee River Basin.

		# of Authorizations / #NPDES permits										
Cataloging Unit	Sub-watershed	Total Number of Permits and Authorizations	Construction/ Stormwater Authorizations (a)	<5 Acres / Stormwater Authorizations (a)	Mining NPDES (a)	Municipal NPDES (b)	Semi Public/ Private NPDES (b)	Industrial Process Wastewater - NPDES Majors (b)	Process Wastewater- NPDES Minors (b)	Industrial SW/ Treated GW	SID Stormwater NPDES (b)	CAFOs (a)
0603-0002	090	4	1	1		1					1	
	100	4	1		1	1						1
	110	16	4		1		1		1		1	8
	130	1									1	
	140	11	6				2				3	
	160	8	5				1				2	
	180	32	21				2		1		8	
	190	50	35	1		1	2		1		10	
	200	11	7		1	2					1	
	210	25	19	1		2					3	
	220	12	5				1				6	
	230	22	15		1	1			1		4	
	240	94	54	2	2	1			3		31	1
	250	96	79	2			4	1	2		8	
	260	65	53						2		10	
	270	28	6	1		2	3		1		6	9
	280	25	12		1	2					10	
	300	53	31	1			7				14	
	320	24	15			2	1				5	1
	330	41	12	1	3	2	1		1		17	4
	340	4	2									2
	350	36	22	2	1		2		1		7	1
	360	13	7				2				3	1
	370	12	8								4	
	380	80	31		1	1		3	7		36	1
	390	42	20			1	2		3		16	
	400	20	8		1	1	2	1	1		5	1
	410	26	4	2	2			2	1		15	
	420	3						1			2	
	440	10	4			1	1				3	1

(a) from ADEM Mining and NPS Unit, Field Operations, database retrieval (10/27/04); (b) from ADEM Water Division, NPDES database retrieval (9/26/03)

Appendix B. Number of current construction/stormwater authorizations, noncoal mining (<5 acres)/stormwater authorizations, NPDES permits, and CAFO registrations issued within sub-watersheds of the Tennessee River Basin.

Cataloging Unit	Sub-water shed	# of Authorizations / #NPDES permits										
		Total Number of Permits and Authorizations	Construction/ Stormwater Authorizations (a)	<5 Acres / Stormwater Authorizations (a)	Mining NPDES (a)	Municipal NPDES (b)	Semi Public/ Private NPDES (b)	Industrial Process Wastewater - NPDES Majors (b)	Process Wastewater NPDES Minors (b)	Industrial SW/ Treated GW	SID Stormwater NPDES (b)	CAFOs (a)
0603-0003	120	0										
0603-0004	020	5	2						1		2	
	060	0										
	070	0										
	080	7	1		1		2		2		1	
	120	3	1				1				1	
	130	0										
	150	8	3	1			2				1	1
0603-0005	010	32	9		1	2	2				9	9
	030	9	4				1				3	1
	040	35	5	1	1	3	1				5	19
	090	6	2				2				2	
	140	0										
	150	38	14				3		2		19	
	160	61	24			2		2	5		24	4
	180	6	3				2				1	
	200	34	13			1			1		18	1
	210	44	8	1	2	1			4		24	4
	220	13	9	2							2	
	230	19	6		2	1	1	1	1		6	1
	240	7	1		1	1			3		1	
	250	0										
	270	1					1					
	280	0										
	320	0										
0603-0006	010	44	3		1	2	2				18	18
	030	9	1	5	2							1
	040	36	13		4	1			3		13	2
	050	2										2
	070	5	2		1				1		1	
	100	1										1
	110	1		1								

(a) from ADEM Mining and NPS Unit, Field Operations, database retrieval (10/27/04); (b) from ADEM Water Division, NPDES database retrieval (9/26/03)

Appendix C-1. Waterbodies on Alabama's 2002 CWA §303(d) list.

WaterbodyID	Waterbody Name	Support Status	Type of Water	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	1996 303(d)?	Draft TMDL Date
AL/06030001-160_03	Warren Smith Creek	Non	R	H	Tennessee	Jackson	Fish & Wildlife	Siltation	Surface mining-abandoned	1986 1987	3.0 miles	Dry Creek / Ross Branch	No	2004
AL/06030001-170_01	Mud Creek	Partial	R	L	Tennessee	Jackson	Fish & Wildlife	OE/DO	Nonirrigated crop prod. Pasture grazing	1988 1991	18 miles	Tennessee River / Its Source	Yes	2003
AL/06030001-220_01	South Sauty Creek	Partial	R	L	Tennessee	DeKalb	Fish & Wildlife	pH	Unknown source	1988-98	32 miles	Lake Guntersville/ Its Source	Yes	2003
AL/06030001-250_01	Town Creek	Partial	R	L	Tennessee	DeKalb	Fish & Wildlife	pH	Unknown	1988-98	63.3 miles	Lake Guntersville/ Its Source	Yes	2003
AL/06030001-270_01	Scarham Creek	Non	R	H	Tennessee	Marshall	Fish & Wildlife	Siltation	Nonirrigated crop prod. Pasture grazing	1991 1993-95	24 miles	Short Creek / Its Source	Yes	2001
AL/06030002-060_01	Guess Creek	Non	R	H	Tennessee	Jackson	Fish & Wildlife	Unknown toxicity OE/DO Pathogens	Unknown source Pasture grazing	1997	10.8 miles	Paint Rock River / Bee Branch	No	2004
AL/06030002-070_01	Cole Spring Branch	Partial	R	L	Tennessee	Jackson	Fish & Wildlife	Siltation	Pasture grazing	1994-95	2.1 miles	Bridge at Jones Farm / Jeep Trail Crossing	Yes	2001
AL/06030002-100_01	L. Paint Rock Creek	Partial	R	L	Tennessee	Marshall	Fish & Wildlife	Siltation	Pasture grazing	1994-95	2.0 miles	Merrill Road Bridge / Jeep Trail Crossing	Yes	2001
AL/06030002-160_01	Mountain Fork	Non	R	H	Tennessee	Madison	Fish & Wildlife	Pathogens	Pasture grazing Onsite wastewater systems	1994-95 1997	14.5 miles	Flint River / Its Source	No	2004
AL/06030002-160_02	Hester Creek	Partial	R	M	Tennessee	Madison	Fish & Wildlife	Nutrients Pathogens	Pasture grazing	1994-95	7.2 miles	Mountain Fork / AL/TN stateline	No	2004
AL/06030002-180_01	Brier Fork	Partial	R	L	Tennessee	Madison	Fish & Wildlife	Unknown toxicity Siltation	Nonirrigated crop prod. Land development	1994-95	3.9 miles	Flint River / AL/TN stateline	Yes	2003
AL/06030002-180_02	Beaverdam Creek	Partial	R	M	Tennessee	Madison	Fish & Wildlife	Siltation	Nonirrigated crop prod. Land development	1994-95	19 miles	Brier Fork Its Source	No	2003
AL/06030002-190_01	Chase Creek	Partial	R	L	Tennessee	Madison	Fish & Wildlife	Siltation	Agriculture Urban runoff/Storm sewers	1994-95	2.2 miles	Acuff Spring / Hwy. 72	Yes	2001
AL/06030002-210_01	Goose Creek	Non	R	H	Tennessee	Madison	Fish & Wildlife	Unknown toxicity OE/DO	Agriculture	1997	8.5 miles	Flint River / Its Source	No	2002
AL/06030002-210_02	Yellow Bank Creek	Partial	R	M	Tennessee	Madison	Fish & Wildlife	OE/DO	Agriculture Urban runoff	1994-95	5.6 miles	Flint River / Its Source	No	2002
AL/06030002-210_03	Flint River	Partial	R	M	Tennessee	Madison	Public Water Supply Fish & Wildlife	OE/DO	Agriculture Urban runoff	1994-95	21.5 miles	Tennessee River / Hurricane Creek	No	2004
AL/06030002-190_02	Flint River	Partial	R	M	Tennessee	Madison	Fish & Wildlife	Pathogens	Pasture grazing	1999	13.7 miles	Hwy. 72/ Mountain Fork	No	2004
AL/06030002-200_01	Hurricane Creek	Non	R	H	Tennessee	Madison	Fish & Wildlife	Pathogens	Pasture grazing	1997	7.8 miles	Flint River / Gurley Pike Road	No	2004
AL/06030002-220_01	Cane Creek	Non	R	L	Tennessee	Marshall	Fish & Wildlife	Siltation Nutrients*	Agriculture	1994-95	5.1 miles	Tennessee River / Gooch Creek	Yes Yes	2001 2003*
AL/06030002-230_01	Aldridge Creek	Partial	R	L	Tennessee	Madison	Fish & Wildlife	Siltation	Urban runoff/Storm sewers	1994-95	11 miles	Tennessee River / Its Source	Yes	2001
AL/06030002-240_01	Huntsville Spring Br.	Non	R	L	Tennessee	Madison	Fish & Wildlife	Priority Organics	Contaminated sediments	1993	10.4 miles	Indian Creek / Johnson Rd. (Huntsville Field)	Yes	2003
AL/06030002-240_02	Huntsville Spring Br.	Partial	R	L	Tennessee	Madison	Fish & Wildlife	Metals	Urban runoff/Storm sewers	1994-95	4.4 miles	Johnson Rd. / Hwy. 431	Yes	2003
AL/06030002-250_01	Indian Creek	Non	R	L	Tennessee	Madison	Fish & Wildlife	Priority Organics	Contaminated sediments	1991-91 1993	7.2 miles	Tennessee River / Martin Rd. (Redstone Arsenal)	Yes	2003
AL/06030002-250_02	Indian Creek	Partial	R	L	Tennessee	Madison	Fish & Wildlife	Siltation	Nonirrigated crop prod. Land development Urban runoff/Storm sewers	1994-95	6.9 miles	AL Hwy. 72 / Its Source	Yes	2001
AL/06030002-270_01	Town Creek	Non	R	H	Tennessee	Morgan	Fish & Wildlife	OE/DO	Agriculture	1997	8.4 miles	Cotaco Creek / Its Source	No	2004
AL/06030002-270_02	Cotaco Creek	Non	R	H	Tennessee	Morgan	Fish & Wildlife	Pathogens	Agriculture	1997	5.1 miles	Guyer Branch / W. Fork Cotaco Cr.	No	2004
AL/06030002-270_03	West Fork Cotaco Cr.	Partial	R	M	Tennessee	Morgan	Fish & Wildlife	Pathogens Siltation	Agriculture	1997	7.5 miles	AL Hwy.67 / Frost Creek	No	2004
AL/06030002-270_04	Mill Pond Creek	Non	R	H	Tennessee	Marshall	Fish & Wildlife	Siltation Pathogens	Agriculture	1994-95	1.3 miles	Hog Jaw Creek / Perkins Creek	No	2004

Appendix C-1. Waterbodies on Alabama's 2002 CWA §303(d) list.

WaterbodyID	Waterbody Name	Support Status	Type of Water	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	1996 303(d)?	Draft TMDL Date
AL/06030002-270_05	Hughes Creek	Partial	R	M	Tennessee	Morgan	Fish & Wildlife	Siltation	Agriculture	1995	2.9 miles	Cotaco Creek / Its Source	No	2004
AL/06030002-300_01	Limestone Creek	Non	R	L	Tennessee	Limestone	Fish & Wildlife	Siltation	Nonirrigated crop prod. Pasture grazing	1994-95	9.3 miles	AL Hwy.72 / Leslie Creek	Yes	2001
AL/06030002-320_02	French Mill Creek	Non	R	H	Tennessee	Limestone	Fish & Wildlife	Pathogens	Pasture grazing	1997	4.9 miles	Piney Creek / UT in Pine Swamp	No	2004
AL/06030002-330_01	Flint Creek	Non	R	H	Tennessee	Morgan	Public Water Supply Fish & Wildlife Limited Warmwater Fishery	Siltation OE/DO Pathogens Nutrients	Municipal Nonirrigated crop prod. Pasture grazing Int. animal feeding oper. Urban runoff/Storm sewers	1992-95 1997	40.0 miles	Alabama Hwy. 67 / Its Source	Yes	2001
AL/06030002-330_02	Shoal Creek	Non	R	L	Tennessee	Morgan	Fish & Wildlife	OE/DO Pathogens	Urban runoff/Storm sewers Agriculture	1994-95 1997	10.9 miles	Flint Creek / Its Source	Yes	2001
AL/06030002-330_03	Town Branch	Non	R	L	Tennessee	Morgan	Fish & Wildlife	OE/DO	Urban runoff/Storm sewers	1994-95	1.9 miles	Shoal Creek / Its Source	Yes	2001
AL/06030002-330_04	Mack Creek	Partial	R	L	Tennessee	Morgan	Fish & Wildlife	Siltation OE/DO	Pasture grazing	1994-95	5.4 miles	Flint Creek / Its Source	Yes	2001
AL/06030002-330_05	Robinson Creek	Non	R	L	Tennessee	Morgan	Fish & Wildlife	Siltation OE/DO	Agriculture	1994-95 1997	6.3 miles	Flint Creek / Its Source	Yes	2001
AL/06030002-330_06	Cedar Creek	Non	R	H	Tennessee	Morgan	Fish & Wildlife	OE/DO Pathogens	Agriculture	1997	8.7 miles	Flint Creek / Its Source	No	2001
AL/06030002-330_07	East Fork Flint Creek	Partial	R	M	Tennessee	Cullman	Fish & Wildlife	OE/DO Pathogens	Pasture grazing	1994-95	14.9 miles	Flint Creek / Its Source	No	2001
AL/06030002-330_09	Indian Creek	Partial	R	M	Tennessee	Morgan Cullman	Fish & Wildlife	OE/DO	Pasture grazing	1994-95	4.2 miles	Flint Creek / Its Source	No	2001
AL/06030002-340_01	Crowdabout Creek	Non	R	H	Tennessee	Morgan	Fish & Wildlife	Siltation Pathogens OE/DO	Nonirrigated crop prod. Pasture grazing Int. animal feeding oper.	1992-95 1997	15.0 miles	Flint Creek / Its Source	Yes	2001
AL/06030002-340_02	Herrin Creek	Non	R	M	Tennessee	Morgan	Fish & Wildlife	Ammonia Nutrients Siltation OE/DO	Pasture grazing	1994-95	6.3 miles	Crowdabout Creek / Its Source	No	2001
AL/06030002-350_01	No Business Creek	Non	R	L	Tennessee	Morgan	Fish & Wildlife	OE/DO Pathogens	Nonirrigated crop prod. Pasture grazing	1994-95 1997	6.3 miles	Flint Creek / Johnson Chapel Creek	Yes	2001
AL/06030002-350_02	West Flint Creek	Partial	R	M	Tennessee	Morgan	Fish & Wildlife	Siltation Pathogens OE/DO*	Nonirrigated crop prod. Pasture grazing Int. animal feeding oper.	1993-95 1997	19.4 miles	Flint Creek / McDaniel Creek	No No	2001 2004*
AL/06030002-350_03	Village Branch	Partial	R	L	Tennessee	Morgan	Fish & Wildlife	Siltation OE/DO	Agriculture	1994-95	5.7 miles	Moss Spring Branch / Its Source	Yes	2001
AL/06030002-360_01	Big Shoal Creek	Partial	R	M	Tennessee	Lawrence	Fish & Wildlife	OE/DO	Pasture grazing	1996-97	13.3 miles	West Flint Creek / Its Source	No	2004
AL/06030002-360_02	McDaniel Creek	Partial	R	L	Tennessee	Lawrence	Fish & Wildlife	Siltation OE/DO	Agriculture	1994-95	3.9 miles	West Flint Creek / AL Hwy. 36 bridge	Yes	2001
AL/06030002-360_03	Flat Creek	Non	R	H	Tennessee	Lawrence	Fish & Wildlife	Ammonia Nutrients OE/DO Siltation	Pasture grazing	1997	7.3 miles	West Flint Creek / Its Source	No	2004
AL/06030002-360_04	Elam Creek	Partial	R	M	Tennessee	Lawrence	Fish & Wildlife	OE/DO	Pasture grazing	1994-95	11.9 miles	Rocky Branch / Its Source	No	2004
AL/06030002-390_01	Swan Creek	Non	R	L	Tennessee	Limestone	Agri. & Ind. Fish & Wildlife	Siltation	Nonirrigated crop prod. Urban runoff/Storm sewers Pasture grazing	1994-95	7.9 miles	Wheeler Lake/ Town Creek	Yes	2001
AL/06030002-400_01	Round Island Creek	Partial	R	L	Tennessee	Limestone	Fish & Wildlife	Siltation	Nonirrigated crop prod. Pasture grazing	1994-95	3.6 miles	Browns Ferry Road / Beauchamp Branch	Yes	2001
AL/06030002-410_01	Mallard Creek	Partial	R	L	Tennessee	Lawrence	Fish & Wildlife	Siltation	Agriculture	1994-95	10.2 miles	Wheeler Lake / Its Source	Yes	2001

Appendix C-1. Waterbodies on Alabama's 2002 CWA §303(d) list.

WaterbodyID	Waterbody Name	Support Status	Type of Water	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	1996 303(d)?	Draft TMDL Date
AL/06030002-440_01	Second Creek	Non	R	H	Tennessee	Lauderdale	Fish & Wildlife	Pathogens	Pasture grazing	1997	11.6 miles	Lauderdale Co. Rd. 76 / AL/TN State Line	No	2004
AL/06030002-440_02	First Creek	Non	R	H	Tennessee	Lauderdale	Swimming Fish & Wildlife	Pathogens	Pasture grazing	1997	10.0 miles	AL Hwy. 72 / Its Source	No	2004
AL/06030004-060_01	Shoal Creek	Non	R	H	Tennessee	Limestone	Fish & Wildlife	Pathogens	Pasture grazing	1997	7.0 miles	Elk River / AL/TN State Line	No	2004
AL/06030004-080_01	Big Creek	Partial	R	M	Tennessee	Limestone	Fish & Wildlife	OE/DO	Pasture grazing	1994-95	7.7 miles	Elk River / Its Source	No	2004
AL/Wheeler Res_02	Elk River	Partial	R	L	Tennessee	Limestone	Swimming Fish & Wildlife	pH OE/DO	Pasture grazing Nonirrigated crop prod.	1990-91	6.0 miles	Wheeler Lake / Anderson Creek	Yes	2003
AL/06030004-150_01	Anderson Creek	Partial	R	M	Tennessee	Lauderdale	Fish & Wildlife	Siltation	Pasture grazing Nonirrigated crop prod.	1994-95	9.0 miles	Snake Road bridge / Its Source	No	2004
AL/06030005-010_01	Big Nance Creek	Non	R	H	Tennessee	Lawrence	Fish & Wildlife	Siltation	Nonirrigated crop prod. Pasture grazing	1991 1995	24.0 miles	Wilson Lake / Its Source	Yes	2001
AL/06030005-160_01	Pond Creek	Non	R	L	Tennessee	Colbert	Agri. & Ind.	OE/DO Metals	Nonirrigated crop prod. Urban runoff/Storm sewers Natural sources	1991	12.0 miles	Tennessee River / Its Source	Yes	2003
AL/06030005-160_02	McKiernan Creek	Non	R	H	Tennessee	Colbert	Fish & Wildlife	Ammonia Nutrients Siltation OE/DO	Agriculture	1988	2.2 miles	Tennessee River / Shegog Creek	No	2004
AL/06030006-010_02	Bear Creek	Non	R	H	Tennessee	Marion	Swimming Fish & Wildlife	Metals (Al)	Surface mining-abandoned	1992-96	3.0 miles	Mill Creek / U. Bear Creek Dam	No	2004
AL/06030006-010_01	Little Dice Branch	Partial	R	M	Tennessee	Franklin	Fish & Wildlife	Siltation	Surface mining-abandoned	1982 1996	3.6 miles	Bear Creek / Its Source	No	2004
AL/06030006-040_02	Harris Creek	Non	R	H	Tennessee	Franklin	Fish & Wildlife	Siltation	Pasture grazing	1995	5.9 miles	Mud Creek / Its Source	Yes	2001

Appendix C-2. Waterbodies on Alabama's 2002 CWA §303(d) list with an approved TMDL.

Waterbody Name	Sub-watershed	Miles Impaired	Uses	Support Status	Sources	Causes
0603-0001 Guntersville Lake						
Scarham Creek	270	24	F&W	Non	Nonirrigated crop prod. Pasture grazing	Siltation
0603-0002 Wheeler Lake						
Cole Spring Branch	070	2.1	F&W	Partial	Pasture grazing	Siltation
L. Paint Rock Creek	100	2	F&W	Partial	Pasture grazing	Siltation
Chase Creek	190	2.2	F&W	Partial	Agriculture Urban runoff/Storm sewers	Siltation
Cane Creek	220	5.1	F&W	Non	Agriculture	Siltation Nutrients*
Aldridge Creek	230	11	F&W	Partial	Urban runoff/Storm sewers	Siltation
Indian Creek	250	7.2	F&W	Non	Contaminated sediments	Priority Organics
Indian Creek	250	6.9	F&W	Partial	Nonirrigated crop prod. Land development Urban runoff/Storm sewers	Siltation
Limestone Creek	300	9.3	F&W	Non	Nonirrigated crop prod. Pasture grazing	Siltation
Flint Creek	330	40	PWS F&W LWF	Non	Municipal Nonirrigated crop prod. Pasture grazing Int. animal feeding oper. Urban runoff/Storm sewers	Siltation OE/DO Pathogens Nutrients
Shoal Creek	330	10.9	F&W	Non	Urban runoff/Storm sewers Agriculture	OE/DO Pathogens
Town Branch	330	1.9	F&W	Non	Urban runoff/Storm sewers	OE/DO
Mack Creek	330	5.4	F&W	Partial	Pasture grazing	Siltation OE/DO
Robinson Creek	330	6.3	F&W	Non	Agriculture	Siltation OE/DO
Cedar Creek	330	8.7	F&W	Non	Agriculture	OE/DO Pathogens
East Fork Flint Creek	330	14.9	F&W	Partial	Pasture grazing	OE/DO Pathogens
Indian Creek	330	4.2	F&W	Partial	Pasture grazing	OE/DO
Crowdabout Creek	340	15	F&W	Non	Nonirrigated crop prod. Pasture grazing Int. animal feeding oper.	Siltation Pathogens OE/DO
Herrin Creek	340	6.3	F&W	Non	Pasture grazing	Ammonia Nutrients Siltation OE/DO
No Business Creek	350	6.3	F&W	Non	Nonirrigated crop prod. Pasture grazing	OE/DO Pathogens

Appendix C-2. Waterbodies on Alabama's 2002 CWA §303(d) list with an approved TMDL.

Waterbody Name	Sub-watershed	Miles Impaired	Uses	Support Status	Sources	Causes
0603-0002 Wheeler Lake						
West Flint Creek	350	19.4	F&W	Partial	Nonirrigated crop prod. Pasture grazing Int. animal feeding oper.	Siltation Pathogens OE/DO*
Village Branch	350	5.7	F&W	Partial	Agriculture	Siltation OE/DO
Big Shoal Creek	360	13.3	F&W	Partial	Pasture grazing	OE/DO
McDaniel Creek	360	3.9	F&W	Partial	Agriculture	Siltation OE/DO
Flat Creek	360	7.3	F&W	Non	Pasture grazing	Ammonia Nutrients OE/DO Siltation
Elam Creek	360	11.9	F&W	Partial	Pasture grazing	OE/DO
Swan Creek	390	7.9	A&I F&W	Non	Nonirrigated crop prod. Urban runoff/Storm sewers Pasture grazing	Siltation
Round Island Creek	400	3.6	F&W	Partial	Nonirrigated crop prod. Pasture grazing	Siltation
Mallard Creek	410	10.2	F&W	Partial	Agriculture	Siltation
0603-0005 Pickwick Lake						
Big Nance Creek	010	24	F&W	Non	Nonirrigated crop prod. Pasture grazing	Siltation
0603-0006 Bear Creek						
Harris Creek	040	5.9	F&W	Non	Pasture grazing	Siltation

Appendix D. Estimates of (H)igh, (M)oderate, or (L)ow NPS impairment potential for sub-watersheds in the TN Basin Group. 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 sub-watershed raised the sub-watershed to the top of the prioritization ranking.

CU	Sub-watershed	Overall NPS Impairment Score	Potential NPS Impairment	Potential Sources of Impairment										
				Rural Landuses*							Urban / Suburban / Residential Landuses			
				Animal Husbandry	Aquaculture	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure	Urban Impairment Potential
Raw Data Appendix				H	H	A	A	A	I	I	A	B	I	
0602-0001	290	15	M	L	L	L	M	L	H	L	L	M	L	L
	350	11	L	L	L	M	L	L	M	L	L	L	L	L
0603-0001	60	9	L	L	L	L	M	L	L	L	L	M	L	L
	80	19	H	M	L	M	M	H	M	L	L	L	L	L
	100	11	L	L	L	M	L	L	M	L	L	L	L	L
	120	9	L	L	L	L	L	L	M	L	L	L	L	L
	140	11	L	L	L	M	L	L	M	L	L	L	L	L
	150	13	L	L	L	M	M	L	L	L	L	L	L	L
	160	21	H	M	L	M	M	H	M	M	L	L	L	L
	170	17	M	L	H	M	M	L	M	L	L	L	L	L
	180	21	H	H	L	H	M	M	L	M	L	L	L	L
	190	11	L	L	L	M	L	L	M	L	L	L	L	L
	200	9	L	L	L	L	L	L	M	L	L	L	L	L
	210	15	M	L	H	M	L	L	M	L	L	M	L	L
	220	21	H	H	L	H	H	L	M	L	L	M	L	L
	230	19	H	M	L	H	M	M	M	L	L	M	L	L
	240	9	L	L	L	L	L	L	M	L	L	M	H	L
	250	21	H	H	L	M	H	L	M	M	L	L	M	L
	260	15	M	M	L	M	M	L	M	L	M	M	H	M
	270	21	H	H	L	M	H	L	M	M	L	M	M	L
	280	19	H	H	L	M	H	L	M	L	L	M	M	L
	290	17	M	H	L	M	M	L	L	M	M	M	H	M
	300	13	L	M	L	M	M	L	L	L	M	M	H	M
	310	13	L	M	L	M	M	L	L	L	M	M	H	M
	320	9	L	L	L	L	L	L	M	L	M	M	H	M
0603-0002	20	9	L	L	L	L	L	L	M	L	L	L	L	L
	40	9	L	L	L	L	L	L	M	L	L	L	L	L
	50	9	L	L	L	L	L	L	M	L	L	L	L	L
	60	15	M	L	H	L	M	L	M	L	L	L	L	L

Appendix D. Estimates of (H)igh, (M)oderate, or (L)ow NPS impairment potential for sub-watersheds in the TN Basin Group. 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 sub-watershed raised the sub-watershed to the top of the prioritization ranking.

CU	Sub-watershed	Overall NPS Impairment Score	Potential NPS Impairment	Potential Sources of Impairment										
				Rural Landuses							Urban / Suburban / Residential Landuses			
				Animal Husbandry	Aquaculture	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure	Urban Impairment Potential
Raw Data Appendix				H	H	A	A	A	I	I	A	B	I	
0603-0002	70	11	L	L	L	M	L	L	M	L	L	L	L	L
	80	9	L	L	L	L	L	L	M	L	L	L	L	L
	90	15	M	M	L	M	M	L	M	L	L	M	H	L
	100	15	M	M	L	M	M	L	M	L	L	M	H	L
	110	15	M	M	L	M	M	L	M	L	M	L	M	M
	130	13	L	L	L	M	H	L	L	L	M	M	L	M
	140	17	M	M	L	H	H	L	L	L	L	M	L	L
	160	15	M	M	L	M	M	L	L	M	L	M	L	L
	180	17	M	L	L	H	H	L	L	M	M	H	L	M
	190	13	L	L	L	M	H	L	L	L	L	M	M	L
	200	11	L	L	L	L	H	L	L	L	L	M	M	L
	210	15	M	L	L	M	M	L	L	M	M	H	M	M
	220	11	L	M	L	L	M	L	L	L	L	L	L	L
	230	13	L	M	L	L	M	L	L	M	M	H	M	H
	240	11	L	L	L	L	M	L	L	M	H	H	M	H
	250	15	M	L	L	M	H	L	L	M	M	H	L	H
	260	15	M	L	L	H	M	L	L	M	H	H	L	H
	270	11	L	M	L	L	M	L	L	L	L	L	L	L
	280	11	L	L	L	H	L	L	L	L	L	M	L	L
	300	17	M	L	L	H	H	L	L	M	M	H	L	M
	320	15	M	M	L	H	M	L	L	L	L	M	L	M
	330	15	M	H	L	L	H	L	L	L	L	M	L	M
	340	15	M	H	L	L	H	L	L	L	L	L	L	L
	350	13	L	M	L	L	H	L	L	L	M	M	L	M
	360	15	M	L	L	M	H	L	M	L	L	M	H	L
	370	9	L	L	L	M	L	L	L	L	L	L	L	L
	380	11	L	L	L	L	M	L	L	L	H	H	L	H
	390	13	L	L	L	M	H	L	L	L	H	M	M	H
	400	11	L	L	L	H	L	L	L	L	M	L	L	M

Appendix D. Estimates of (H)igh, (M)oderate, or (L)ow NPS impairment potential for sub-watersheds in the TN Basin Group. 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 sub-watershed raised the sub-watershed to the top of the prioritization ranking.

CU	Sub-watershed	Overall NPS Impairment Score	Potential NPS Impairment	Potential Sources of Impairment										
				Rural Landuses*							Urban / Suburban / Residential Landuses			
				Animal Husbandry	Aquaculture	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure	Urban Impairment Potential
Raw Data Appendix				H	H	A	A	A	I	I	A	B	I	
0603-0002	410	15	M	L	L	H	M	L	M	L	L	L	M	L
	420	15	M	M	L	H	L	L	L	L	L	L	H	L
	440	13	L	M	L	M	M	L	L	L	L	M	L	L
0603-0003	120	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur
0603-0004	20	17	M	M	L	M	H	L	M	L	L	M	L	L
	60	17	M	M	L	M	H	L	M	L	L	L	L	M
	70	11	L	L	L	L	M	L	M	L	M	M	L	M
	80	13	L	L	L	H	M	L	L	L	L	M	L	L
	120	15	M	M	L	M	H	L	L	L	L	M	L	M
	130	15	M	M	L	M	H	L	L	L	L	M	L	L
	150	13	L	L	L	M	M	L	L	L	L	M	L	L
0603-0005	10	19	H	L	H	H	M	L	M	L	L	L	H	M
	30	17	M	M	L	M	H	L	L	L	L	M	L	L
	40	19	H	M	H	H	M	L	L	L	L	L	M	L
	90	11	L	M	L	L	M	L	L	L	L	L	L	L
	140	9	L	L	L	L	M	L	L	L	L	L	L	L
	150	11	L	L	L	M	M	L	L	L	M	M	L	H
	160	15	M	M	L	H	L	L	L	M	H	H	L	H
	180	13	L	L	L	M	M	L	L	L	L	M	L	L
	200	9	L	L	L	L	L	L	L	L	H	H	L	H
	210	15	M	M	M	M	M	L	L	L	H	M	L	H
	220	15	M	L	L	H	M	L	L	M	L	M	L	L
	230	13	L	L	M	L	M	L	L	L	M	M	L	M
	240	9	L	L	L	M	L	L	L	L	L	M	L	L
	250	7	L	L	L	L	L	L	L	L	L	L	L	L
	270	7	L	L	L	L	L	L	L	L	L	L	L	L
	280	7	L	L	L	L	L	L	L	L	L	L	L	L
	320	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur
0603-0006	10	19	H	M	H	M	L	M	L	M	L	L	M	L

ur= unreported

Appendix D. Estimates of (H)igh, (M)oderate, or (L)ow NPS impairment potential for sub-watersheds in the TN Basin Group. 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 sub-watershed raised the sub-watershed to the top of the prioritization ranking.

CU	Sub-watershed	Overall NPS Impairment Score	Potential NPS Impairment	Potential Sources of Impairment										
				Rural Landuses*							Urban / Suburban / Residential Landuses			
				Animal Husbandry	Aquaculture	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure	Urban Impairment Potential
Raw Data Appendix				H	H	A	A	A	I	I	A	B	I	
0603-0006	30	19	H	M	H	L	M	M	L	M	L	M	M	L
	40	21	H	M	H	L	M	H	L	M	L	M	M	L
	50	17	M	M	H	M	L	L	L	M	L	L	M	L
	70	9	L	L	L	L	L	L	L	M	L	M	L	L
	100	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur	ur
	110	9	L	L	L	L	L	L	L	M	L	M	L	L

ur= unreported

Appendix E. Location descriptions for data collected within the Tennessee Basin.

Basin	CU	Sub	County	Station	Stream	Station Description	Related_Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0005	220	Lauderdale	ALST03-05	McIntyre Ditch		ALAMAP Monitoring Program	2003	2S/12W/27			34.8537	-87.7854
0603	0002	060	Jackson	ALST03-17	Guess Cr, UT to		ALAMAP Monitoring Program	2003	2S/4E/35			34.8349	-86.1332
0603	0002	350	Morgan	ALST03-21	Shoal Cr		ALAMAP Monitoring Program	2003	7S/3W/6			34.4578	-86.8827
0603	0002	350	Morgan	ALST03-25	Tavern Cr, UT to		ALAMAP Monitoring Program	2003	6S/5W/16			34.5175	-87.0560
0603	0001	180	Jackson	ALST03-45	Rocky Br, UT to		ALAMAP Monitoring Program	2003	3S/8E/32			34.7258	-85.8248
0603	0001	140	Jackson	BCNJ-1	Big Coon Cr	@ Jackson Co. Rd. 55.	NPS Screening Program	2003	2S/7E/20	68b		34.8566	-85.9268
0603	0001	140	Jackson	BCNJ-2	Big Coon Cr	@ Jackson Co. Rd. 53.	NPS Screening Program	2003	2S/6E/8	68c		34.8830	-86.0077
0603	0006	010	Marion	BEA-1	Bear Cr	Outfall from Upper Bear Creek Reservoir Dam	303(d) Monitoring Program	2003	9S11W16	68e		34.2717	-87.6950
0603	0006	010	Marion	BEA-2	Bear Cr	Bear Creek @ conjunction of AL Hwys 241 & 17	303(d) Monitoring Program	2003	9S/11W/17	68e		34.2769	-87.7186
0603	0006	010	Franklin	BEAR1	Bear Cr Reservoir	Dam Forebay Area.	Fish Tissue Monitoring	1999, 2003	8S/14W/2	68		34.3988	-87.9872
0603	0002	180	Madison	BFFM-1	Brier Fk	Unnamed Cty Rd. near Hazel Green & Shiloh Ch. (SW 1/4, Sec 27, T1S,R1W)	303(d) Monitoring Program	2001-03	1S/1W/27	71g		34.9195	-86.6219
0603	0002	180	Madison	BFFM-2	Brier Fk	AL. HWY 231/431 Bridge (SW 1/4, Sec 7, T2S R1E)	303(d) Monitoring Program	2001-02	2S/1E/7	71g		34.8759	-86.5704
0603	0002	180	Madison	BFFM-3a	Brier Fk	Meridianville Bottom Rd. (NE 1/4, Sec 20, T2S, R1E)	303(d) Monitoring Program	2001-03	2S/1E/20	71g	50	34.8633	-86.5516
0603	0002	180	Madison	BFFM-4	Brier Fk	Madison Co. Rd.. 53 Moores Mill Rd. (SE 1/4, Sec 21, T2S, R1E)	303(d) Monitoring Program	2001-02	2S/1E/21	71g		34.8457	-86.5176
0603	0002	180	Madison	BFFM-5	Brier Fk	Unnamed Cty Rd. just u/s of Flint River Confluence	303(d) Monitoring Program	2001-03	2S/1E/35	71g		34.8228	-86.4856
0603	0005	010	Lawrence	BGNL-32	Big Nance Cr	Next to Lawrence Co Rd 150 just south of Courtland.	303(d) Monitoring Program	2000		71g		34.6602	-87.3095
0603	0005	010	Lawrence	BGNL-33	Big Nance Cr	@ Lawrence Co Rd 151.	303(d) Monitoring Program	2000		71g		34.5990	-87.3357
0603	0005	010	Lawrence	BGNL-34	Big Nance Cr	next to Lawrence Co Rd 150 near Harmony Church.	303(d) Monitoring Program	2000		71g		34.6375	-87.3440
0603	0005	010	Lawrence	BGNL-35	Big Nance Cr	@ Lawrence Co Rd 150.	303(d) Monitoring Program	2000		71g		34.6447	-87.3257
0603	0005	010	Lawrence	BGNL-37	Big Nance Cr	@ Lawrence Co Rd 314.	303(d) Monitoring Program	2000		71g		34.7665	-87.3711
0603	0004	080	Limestone	BIGL-14	Big Cr	Townsend Ford Road Bridge	303(d) Monitoring Program	2003	2S/5W/29	71h		34.8404	-87.0780
0603	0004	080	Limestone	BIGL-15	Big Cr	Big Creek @ Tillman Mill Rd	303(d) Monitoring Program	2003	T2S_R5W_SE1/4-S21			34.8514	-87.0536
0603	0004	080	Limestone	BIGL-16	Big Cr	Big Creek @ Fort Hampton Rd	303(d) Monitoring Program	2003	T2S_R5W_Sec14			34.8714	-87.0270
0603	0006	010	Marion	BLB-1	Bethel Br	Bethel Branch @ edge of backwater from Upper Bear Creek Reservoir.; approx. 0.2 mile upstream of confluence with Bear Creek.	303(d) Monitoring Program	1999	9s/11w/1			34.3021	-87.6519
0603	0005	030	Lauderdale	BLWL-1	Bluewater Cr	@ Lauderdale Co. Rd. 71	NPS Screening Program	2003	2S/9W/2	71f		34.9056	-87.4478
0603	0005	010	Lawrence	BNCTVA01	Big Nance Cr	Lawrence Co. Rd. 25	University Reservoir Tributary Nutrient Study	1999		71g		34.6700	-87.3172
0603	0004	070	Limestone	BPTL-1	Baptizing Cr	@ AL State Hwy 99.	NPS Screening Program	2003	1S/5W/31	71h		34.9111	-87.1014

Appendix E. Location descriptions for data collected within the Tennessee Basin.

Basin	CU	Sub	County	Station	Stream	Station Description	Related_Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0006	070	Colbert	BRCTVA01	Bear Cr	Colbert Co. Rd. 1	University Reservoir Tributary Nutrient Study	1999		65j		34.6556	-88.1214
0603	0006	010	Franklin	BRCTVA02	Bear Cr	Upper Bear Creek Dam Tailrace	University Reservoir Tributary Nutrient Study	1999		65j		34.3986	-87.9894
0603	0005	010	Lawrence	BRDL-1	Bridge Cr	@ Lawrence Co. Rd. 42.	NPS Intensive Monitoring Program	2003	5S/8W/13	71j		34.6082	-87.3253
0603	0006	110	Colbert	BRNC-1	Browns Cr	@ unnamed Colbert Co. rd.	NPS Screening Program	2003	4S/14W/3-3	71g		34.7475	-87.9982
0603	0001	300	Marshall	BSC-1	Big Spring Cr	Big Spring Creek @ unnamed drive	303(d) Monitoring Program	1999	T9S/ R3E, S6, NE 1/4.	68b		34.2903	-86.3528
0603	0001	300	Marshall	BSC-2	Big Spring Cr	Big Spring Creek @ unnamed drive in	303(d) Monitoring Program	1999	T9S/ R2E, S23, SE1/4.	68c		34.2341	-86.3937
0603	0002	180	Madison	BVDM-17	Beaverdam Cr	@ Hwy 431 bridge.	303(d) Monitoring Program	2002	2S/1W/25	71g		34.8377	-86.5712
0603	0002	180	Madison	BVDM-18	Beaverdam Cr	Beaver Dam Creek (upstream of confl with Brier Fork)	303(d) Monitoring Program	2002	2S/1E/30	71g		34.8447	-86.5355
0603	0001	180	Jackson	BYTJ-1	Bryant Cr	Upstream of AL Hwy 71 bridge in Jackson County, 2 miles south of Pisgah,	Periphyton Bioassessment Pilot Project	2002	4S/7E/25	68d	42	34.6466	-85.8430
0603	0001	180	Jackson	BYTJ-1	Bryant Cr	Upstream of AL Hwy 71 bridge in Jackson County, 2 miles south of Pisgah,	Reference Reach Program	2002-03	4S/7E/25	68d	42	34.6466	-85.8430
0603	0001	180	Jackson	BYTJ-2	Bryant Cr	@ Jackson Co. Rd. 260	NPS Screening Program	2003	4S/8E/14	68d		34.6883	-85.7609
0603	0001	180	Jackson	BYTJ-2a	Bryant Cr	@ Jackson Co. Rd. 165.	NPS Screening Program	2003	4S/8E/23	68d		34.7686	-85.7686
0603	0001	180	Jackson	BYTJ-3	Bryant Cr	@ Jackson Co. Rd. 83.	NPS Screening Program	2003	4S/8E/22	68d		34.6703	-85.7868
0603	0006	110	Colbert	BZDC-1	Buzzard Roost Cr	@ Colbert Co. Rd. 21.	NPS Screening Program	2003	4S/14W/22	65j		34.6983	-87.9891
0603	0002	220	Marshall	CANM-220	Cane Cr	Greenbrier Road Bridge (unnamed Co rd)	303(d) Monitoring Program	2003	6S/1E/28	71g		34.4850	-86.5314
0603	0006	040	Franklin	CDRF-1	Cedar Cr	@ Franklin Co. Rd. 63.	NPS Screening Program	2003	7S/11W/20	71g		34.4403	-87.7214
0603	0006	040	Franklin	CECTVA01	Cedar Cr	Al. Highway 24	University Reservoir Tributary Nutrient Study	1999		65j		34.4869	-87.8275
0603	0006	040	Franklin	CED1	Cedar Cr Reservoir	Dam Forebay To One Mile Upstream of The Dam.	Fish Tissue Monitoring	1999, 2003	6S/14W/14	68		34.5440	-87.9737
0603	0001	160	Jackson	CFRJ-160	Coon/Flat Rock Cr	Coon/Flat Rock Creek just prior to confluence with Dry Creek	303(d) Monitoring Program	2001-02	T3S/R8E/S27	68c		34.7398	-85.7851
0603	0001	160	Jackson	CFRJ-161	Coon/Flat Rock Cr	Coon/Flat Rock Creek @ AL Hwy 117	303(d) Monitoring Program	2001-02	T3S/R9E/S17	68d		34.7695	-85.7058
0603	0001	160	Jackson	CFRJ-162	Coon/Flat Rock Cr	Coon/Flat Rock Creek as close to middle of CFRJ-160 and CFRJ161 as possible	303(d) Monitoring Program	2001-02	T3S/R8E/S24	68d		34.7806	-85.7357
0603	0002	420	Lawrence	CHAM2	Tennessee R	Approximately One Mile Downstream Of Champion International	Fish Tissue Monitoring	2000, 2002	3S/7W/30	71		34.7591	-87.3071
0603	0006	040	Franklin	CHSF-1	Chisholm Cr	@ Franklin Co. Rd. 36.	NPS Screening Program	2003	6S/12W/31	65j		34.4906	-87.8429
0603	0001	120	Jackson	COCJ-1	Little Coon Cr	@ Jackson Co. Rd. 53.	NPS Screening Program	2003	2S/7E/9	68b		34.8743	-85.9108
0603	0005	010	Lawrence	CRB-1	Crow Br	Crow Branch @ Court Street; approx. 1.9 miles upstream of confluence with Muddy Fork.	303(d) Monitoring Program	1999	06S07W32	71g		34.4803	-87.2959
0603	0005	010	Lawrence	CRCL-1	Crooked Cr	Crooked Creek @ Lawrence Co. Rd. 150.	303(d) Monitoring Program	2000	05S08W15	71j		34.6139	-87.3520

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0603	0005	010	Lawrence	CRKL-1	Crooked Cr	@ Lawrence Co. Rd. 27	NPS Intensive Monitoring Program	2003	5S/8W/14-15	71j		34.6143	-87.3525
0603	0005	010	Lawrence	CRWL-1	Crow Cr	Crow Branch @ 50-100 ft upstream of discharge	303(d) Monitoring Program	2003	T6S_R7W_NE1/4-S31			34.4884	-87.2984
0603	0005	010	Lawrence	CRWL-2	Crow Cr	@ Lawrence Co. Rd. 167.	303(d) Monitoring Program	2003	6S/7W/30	71g		34.4987	-87.3050
0603	0001	280	Dekalb	CSC-1	Cross Cr	Cross Creek @ Dekalb Co. Rd. 386.	303(d) Monitoring Program	1999	09S05E22	68d		34.2377	-86.0974
0603	0002	070	Jackson	CSPR-1	Cole Springs Br		Paint Rock Int. NPS Project	1999		71g		34.6683	-86.3179
0603	0002	270	Morgan	CTCM-26	Cotaco Cr	NE of Lynntown	303(d) Monitoring Program	2003	7S2W12	71g		34.4397	-86.7006
0603	0002	270	Morgan	CTCM-37	Cotaco Cr	at Co 505	303(d) Monitoring Program	2003	7S2W24	71g		34.4141	-86.6888
0603	0002	270	Morgan	CTCM-38	Cotaco Cr	Cotaco Creek @ Crawford Bottom Rd (Crawford Bridge)	303(d) Monitoring Program	2003	T7S/R1W_NE1/4-S29			34.4078	-86.6533
0603	0005	200	Lauderdale	CYCTVA01	Cypress Cr	Lauderdale Co. Rd. 14	University Reservoir Tributary Nutrient Study	1999		71f		34.8081	-87.7006
0603	0004	120	Limestone	DBBL-1	Dobbins Br	4 mi. east of Good Springs	Reference Reach Program	2003	1S/6W/29	71h	3	34.9353	-87.1911
0603	0001	180	Jackson	DICJ-1	Dickey Cr	@ Jackson Co. Rd. 425.	NPS Screening Program	2003	4S/8E/32	68d		34.6490	-85.8199
0603	0004	150	Lauderdale	DMTL-1	Dement Cr	@ lauderdale Co. Rd. 95.	NPS Screening Program	2003	2S/7W/26	71f		34.8526	-87.2355
0603	0005	230	Colbert	DRC1-1	Dry Cr	@ Colbert Co. Rd. 49.	NPS Screening Program	2003	5S/12W/6	71j		34.6522	-87.8421
0603	0005	210	Colbert	DRCC-1	Dry Cr	@ AL State Hwy 133.	NPS Screening Program	2003	4S/11W/13	71g		34.7050	-87.6346
0603	0002	050	Jackson	DRYJ-1	Dry Cr	Dry Creek @ AL Hwy 65 crossing just south of Hollytree.	303(d) Monitoring Program	1999	3S/4E/7	71g		34.7842	-86.2502
0603	0001	160	Jackson	DRYJ-160	Dry Cr	Dry Creek prior to confluence with Coon/Flat Rock Creek	303(d) Monitoring Program	2001-02	3S/8E/27-28	68c		34.7468	-85.7949
0603	0004	150	Lauderdale	EFAL-1	E Fk Anderson Cr	@ Lauderdale Co. Rd. 93.	NPS Screening Program	2003	1S/7W/27	71f		34.9308	-87.2604
0603	0004	150	Limestone	ELKL-1	Elk R	Approx. RM 6 (NE 1/4, Sec 12, T3S R7W)	303(d) Monitoring Program	2001-02					
0603	0004	150	Limestone	ELKL-3	Elk R	Approx. RM 2.5 (SW 1/4, Sec 15, T3S R7W)	303(d) Monitoring Program	2001-02					
0603	0002	020	Jackson	ESTL-1	Estill Fk		Paint Rock Int NPS Study	1999		68c		34.9515	-86.1504
0603	0002	440	Lauderdale	FIRL-1	First Cr	First Creek @ Turner Lindsey Rd (Ford On Turner Lane)	303(d) Monitoring Program	2003	T2S_R8W_NE1/4-S25			34.8503	-87.3208
0603	0002	440	Lauderdale	FIRL-2	First Cr	First Creek @ Lauderdale Cnty Rd 96	303(d) Monitoring Program	2003	T2S_R7W_E1/2-S18			34.8799	-87.3022
0603	0002	210	Madison	FLIM-1	Flint R	Flint River @ Madison County Hwy 65 (Winchester Rd) Above the Brier Fork Confluence	303(d) Monitoring Program	2003	T2S_R1E_NE1/4-S35			34.8265	-86.4827
0603	0002	210	Madison	FLIM-2	Flint R	Flint River @ Ryland Pke Rd	303(d) Monitoring Program	2003	T3S_R2E_NW1/4-S20			34.7685	-86.4428
0603	0002	210	Madison	FLIM-3	Flint R	Flint River @ Little Cove Rd	303(d) Monitoring Program	2003	T4S_R2E_N1/2-S16			34.6960	-86.4226
0603	0002	210	Madison	FLIM-4	Big Cove Cr	Big Cove Creek @ downstream of Huntsville Big Cove WWTP discharge prior to confluence with Flint R.	303(d) Monitoring Program	2003	T4S_R2E_W1/2-S31			34.6455	-86.4656
0603	0002	210	Madison	FLIM-5	Flint R	Flint River @ Old 431 Hwy (County Rd 28)	303(d) Monitoring Program	2003	T4S_R2E_NE1/4-S31			34.6514	-86.4482

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0603	0002	190	Madison	FLIM-6	Flint R	Flint River @ Big Cove Rd	303(d) Monitoring Program	2003	T5S_R1E_NE1/4-S24			34.5932	-86.4680
0603	0002	190	Madison	FLIM-7	Flint R	Flint River @ Hobbs Island Rd	303(d) Monitoring Program	2003	T6S_R1E_SE1/4-S2			34.5399	-86.4915
0603	0002	140	Madison	FLTM-1	Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	2S/1E/12	71g		34.8806	-86.4805
0603	0002	140	Madison	FLTM-2	Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	1S/1E/27	71g		34.9175	-86.5032
0603	0002	140	Madison	FLTM-3	Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	1S/1E/21	71g		34.9375	-86.5227
0603	0002	320	Limestone	FMCL-1	French Mill Cr	French Mill Creek @ Limestone Cnty Rd 93 (Same as PINL-319)	303(d) Monitoring Program	2003	T3S_R3W_NW1/4-S30			34.7566	-86.8950
0603	0002	330	Morgan	FTC-1	Flint Cr	Flint Creek @ Huckaby Bridge Rd.; T7S, R4W, S34.	303(d) Monitoring Program	1999	07S04W34	71g		34.3961	-86.9515
0603	0002	330	Morgan	FTC-2	Flint Cr	Flint Creek @ Morgan Co. Rd. 55 north of Falkville WWTP.	303(d) Monitoring Program	1999	08S04W02	71g		34.3733	-86.9333
0603	0002	210	Madison	GOOM-1	Goose Cr	@ unnamed Madison Co. Rd. (Old Highway 431 near Berkley Road-NPS Int-2005)	303(d) Monitoring Program	2003	5S/2E/6	71g		34.6298	-86.4523
0603	0002	210	Madison	GOOM-2	Goose Cr	Goose Creek @ Co. Rd 28 (Cherry Tree Rd)	303(d) Monitoring Program	2003	T5S_R2E_N1/2-S3			34.6349	-86.4037
0603	0006	010	Franklin	GSB-1	Gas Br	Gas Branch @ edge of backwater from Upper Bear Creek reservoir.	303(d) Monitoring Program	1999	08S11W26	68e		34.3331	-87.6612
0603	0001	080	Jackson	GSTJ-1	Guest Cr	@ Jackson Co. Rd. 431.	NPS Screening Program	2003	2S/9E/2	68d		34.8951	-85.6486
0603	0002	060	Jackson	GUES-1	Guess Cr	Near Jackson Co Rd 20	303(d) Monitoring Program	2003	T3S/R4E/S27	68c		34.7597	-86.1902
0603	0002	060	Jackson	GUES-1	Guess Cr	Near Jackson Co Rd 20	Paint Rock Int NPS Study	1999	T3S/R4E/S27	68c		34.7597	-86.1902
0603	0002	060	Jackson	GUES-2	Guess Cr	@ crossing upstream of ranch.	303(d) Monitoring Program	2003	3S/4E/23	68c		34.7671	-86.1768
0603	0001	320	Marshall	GUN1	Guntersville Reservoir	Tennessee River Mile 350, Downstream of Honeycomb Creek And Upstream of The Dam	Fish Tissue Monitoring	2000	7S/2E/13	71		34.4238	-86.3745
0603	0001	230	Jackson	GUN10	Guntersville Reservoir	Guntersville Reservoir South Sauty Creek Embayment	Fish Tissue Monitoring	2003	6S/5E/15	68		34.5192	-86.1039
0603	0001	210	Jackson	GUN3	Guntersville Reservoir	Guntersville Lake, Tenn. R., Trm-375 Between The Confluences of S Sauty Ck And Tenn R & N Sauty Ck And Tenn R.	Fish Tissue Monitoring	2000	5S/5E/5	68		34.5523	-86.1216
0603	0001	170	Jackson	GUN5	Guntersville Reservoir	Mud Creek Embayment Upstream of County Road 213	Fish Tissue Monitoring	2000	3S/7E/28	68		34.7546	-85.9009
0603	0001	290	Marshall	GUN6	Guntersville Reservoir	Short Creek Embayment Approximately 1.75 Miles Upstream of State Hwy 227	Fish Tissue Monitoring	2000	8S/4E/10	68		34.3563	-86.1973
0603	0001	260	Marshall	GUN7	Guntersville Reservoir	Town Creek Embayment Approximately 4 Miles Upstream of State Hwy 227	Fish Tissue Monitoring	2000	7S/5E/8	68		34.4442	-86.1351
0603	0001	310	Marshall	GUN8	Guntersville Reservoir	Brown's Creek Embayment	Fish Tissue Monitoring	2000	8S/2E/24	68		34.3189	-86.3750
0603	0001	300	Marshall	GUN9	Guntersville Reservoir	Guntersville Reservoir at Spring Creek Embayment Upstream of Al H Wy 227 Bridge	Fish Tissue Monitoring	2003	8S/3E/11	68		34.3456	-86.2917
0603	0006	040	Franklin	HAMF-1	Hamilton Cr	@ franklin Co. Rd. 36.	NPS Screening Program	2003	7S/12W/9	71g		34.4634	-87.7982
0603	0002	160	Madison	HESM-1	Hester Cr	@ unnamed Madison Co. Rd.	303(d) Monitoring Program	2003	1S/2E/32	71g		34.9108	86.4375
0603	0002	160	Madison	HESM-2	Hester Cr	Hester Creek @ Buddy Williamson Road	303(d) Monitoring Program	2003	T1S_R2E_NW1/4-S18			34.9622	-86.4603
0603	0001	160	Jackson	HFLJ-1	Highfield Cr	@ Jackson Co. Rd. 118.	NPS Screening Program	2003	3S/9E/27	68d		34.7589	-85.6743

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0603	0001	160	Jackson	HGUJ-160	Hogue Cr	Hogue Creek @ AL Hwy 117	303(d) Monitoring Program	2001-03	3S/9E/17	68d	4	34.7715	-85.7074
0603	0001	160	Jackson	HGUJ-160	Hogue Cr	Hogue Creek @ AL Hwy 117	NPS Screening Program	2003	3S/9E/17	68d	4	34.7715	-85.7074
0603	0001	160	Jackson	HGUJ-160	Hogue Cr	Hogue Creek @ AL Hwy 117	Periphyton Bioassessment Pilot Project	2002	3S/9E/17	68d	4	34.7715	-85.7074
0603	0002	200	Madison	HRCM-3	Hurricane Cr	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	2S/2E/11	71g		34.8790	-86.3870
0603	0002	240	Madison	HSBM-240	Huntsville Spring Br	HSB @ Martin Road on RSA	303(d) Monitoring Program	2001-03	4S1W26	71?		34.6900	-86.5963
0603	0002	240		HSBM-240a	Huntsville Spring Br	Huntsville Spring Branch @ Patton Road	303(d) Monitoring Program	2002					
0603	0002	240	Madison	HSBM-242a	Huntsville Spring Br	HSB @ Johnson Road	303(d) Monitoring Program	2001-02					
0603	0002	240	Madison	HSBM-243	Huntsville Spring Br	HSB @ US Hwy 431	303(d) Monitoring Program	2001-02					
0603	0002	200	Madison	HURM-1	Hurricane Cr	Hurricane Creek @ Little Cove Rd	303(d) Monitoring Program	2003	T4S_R2E_NE1/4-S16			34.6955	-86.4177
0603	0002	200	Madison	HURM-2	Hurricane Cr	Hurricane Creek @ Gurley Rd (Pike)	303(d) Monitoring Program	2003	T3S_R2E_NW1/4-S26			34.7530	-86.3915
0603	0002	200	Madison	HURM-3	Hurricane Cr	Hurricane Creek @ Sharps Cove Rd Below Lake Confluence	303(d) Monitoring Program	2003	T3S_R2E_S10			34.7991	-86.4014
0603	0002	200	Jackson	HURR-1	Hurricane Cr		303(d) Monitoring Program	1999		68c		34.9168	-86.1183
0603	0005	150	Lauderdale	INCL-1	Indian Camp Cr	Indiancamp Creek upstream of Lauderdale Co. Rd. 135 crossing at Indian Camp Festival Park North of Florence	Reference Reach Program	2003	T1S/R10W/S31	71f	10	34.9222	-87.6208
0603	0002	260	Madison	INDCR1	Indian Cr	Indian Creek From Mouth To Redstone Arsenal Boundry	Fish Tissue Monitoring	2002	5S/2W/22	71		34.5830	-86.7300
0603	0002	040	Jackson	LARK-1	Larkin Fk		Paint Rock Int NPS Study	1999		68c		34.8516	-86.2008
0603	0006	030	Franklin	LBCTVA01	Little Bear Cr	Al. Highway 187	University Reservoir Tributary Nutrient Study	1999		65j		34.4011	-87.8667
0603	0006	030	Franklin	LBEA1	Little Bear Cr Res.	Dam Forebay Area.	Fish Tissue Monitoring	19,992,003	7S/14W/14	68		34.4549	-87.9783
0603	0005	030	Lauderdale	LBEL-1	Little Bluewater Cr	@ unnamed Lauderdale Co. Rd.	NPS Screening Program	2003	1S/9W/13	71f		34.9726	-87.4281
0603	0006	010	Franklin	LBRF-1	Little Bear Cr	@ AL Hwy 243	NPS Screening Program	2003	8S/11W/1	68e		34.3856	-87.6389
0603	0005	030	Lauderdale	LBWL-1	Little Bluewater Cr	@ Lauderdale Co. Rd. 39.	NPS Screening Program	2003	1S/9W/10	71f		34.9786	-87.4625
0603	0001	100	Jackson	LCRJ-1	Little Crow Cr	AL Hwy 117.	NPS Screening Program	2003	1S/7E/7	68c		34.9637	-85.9275
0603	0001	100	Jackson	LCRJ-2	Little Crow Cr	@ Jackson Co. Rd. 56.	NPS Screening Program	2003	1S/6E/1	71f		34.9805	-85.9515
0603	0005	200	Lauderdale	LCYL-2	Little Cypress Cr	@ Lauderdale Co. Rd. 8.	NPS Screening Program	2003	1S/11W/21	71f		34.9495	-87.6944
0603	0005	200	Lauderdale	LCYL-3	Little Cypress Cr	@Lauderdale Co. Rd. 11.	NPS Screening Program	2003	1S/11W/9	71f		34.9819	-87.6923
0603	0006	010	Franklin	LDB-1	Little Dice Br	Little Dice Branch @ Franklin Co. Rd. 85.	303(d) Monitoring Program	1999	08S10W33	68e		34.3178	-87.5983
0603	0002	050	Jackson	LICK-1	Lick Fk		Paint Rock Int NPS Study	1999		68c		34.8502	-86.2344
0603	0002	300	Limestone	LMCTVA01	Limestone Cr	U.S. Highway 72	University Reservoir Tributary Nutrient Study	1999		71g		34.7517	-86.8233

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0603	0002	090	Jackson	LPNT-1	Little Paint Cr		Paint Rock Int NPS Study	1999		71g		34.6001	-86.2669
0603	0002	100	Marshall	LPRK-1	Little Paint Rock Cr		Paint Rock Int NPS Study	1999		71g		34.4834	-86.3836
0603	0002	040	Jackson	LRKJ-1	Larkin Fk	@ AL Hwy 65.	NPS Screening Program	2003	2S/4E/16	68c		34.8659	-86.2080
0603	0002	040	Jackson	LRKJ-2	Larkin Fk	@ Jackson Co. Rd. 27.	NPS Screening Program	2003	1S/4E/29	68c		34.9286	-86.2200
0603	0002	040	Jackson	LRKJ-3	Larkin Fk	@ AL Hwy 65.	NPS Screening Program	2003	1S/4E/6	68c		34.9877	-86.2496
0603	0001	270	Marshall	LSLM-1	Little Shoal Cr	@ unnamed Marshall Co. Rd.	NPS Intensive Monitoring Program	2003	8S/5E/9	68d		34.3475	-86.1250
0603	0002	040	Colbert	MCFC-1	McAfee Cr	@ Colbert Co. Rd. 48.	NPS Screening Program	2003	5S/9W/19	71j		34.6064	-87.5219
0603	0005	160	Colbert	MCKC-1	McKiernan Cr	@ Colbert Co. Rd. 48.	303(d) Monitoring Program	2003	3S/10W/25	71g		34.7702	-87.5289
0603	0005	160	Colbert	MCKC-2	Mckiernan Cr	McKiernan Creek @ River Road	303(d) Monitoring Program	2003	T3S_R10W_NW1/4-S24			34.7860	-87.5407
0603	0006	030	Franklin	MCKF-1	Mack Br	@ Franklin Co. Rd. 22.	NPS Screening Program	2003	7S/13W/35	65j		34.4000	-87.8711
0603	0005	010	Lawrence	MDFL-1	Muddy Fk Big Nance Cr	Muddy Fork @ Lawrence Co. Rd 234 (MFBN-3)	303(d) Monitoring Program	2003	T6S_R8W_SE1/4-S15			34.5236	-87.3536
0603	0005	010	Lawrence	MDFL-2	Muddy Fk Big Nance Cr	Muddy Fork @ AL Hwy 157 (MFBN-1)	303(d) Monitoring Program	2003	T6S_R8W_N1/2-S2			34.5597	-87.3434
0603	0004	150	Lauderdale	MFAL-1	Middle Fk Anderson Cr	@ Lauderdale Co. Rd. 49.	NPS Screening Program	2003	1S/7W/16	71f		34.9593	-87.2737
0603	0005	010	Lawrence	MFBN-1	Muddy Fk Big Nance Cr	Muddy Fork of Big Nance Creek @ AL Hwy 157.	303(d) Monitoring Program	1999	06S08W02	71j		34.5579	-87.3434
0603	0005	010	Lawrence	MFBN-2	Muddy Fk Big Nance Cr	Muddy Fork of Big Nance Creek @ Lawrence Co. Rd. 236.	303(d) Monitoring Program	1999	06S08W10	71g		34.5396	-87.3571
0603	0005	010	Lawrence	MFBN-3	Muddy Fk Big Nance Cr	Muddy Fork of Big Nance Creek @ Lawrence Co. Rd. 234.	303(d) Monitoring Program	1999	06S08W15	71g		34.5223	-87.3535
0603	0005	010	Lawrence	MFBN-4	Crow Br	Crow Branch @ Lawrence Co. Rd. 167.; approx. 0.4 mile upstream of confluence with Muddy Fork.	303(d) Monitoring Program	1999	06S07W30	71g		34.4964	-87.3037
0603	0001	080	Jackson	MILJ-2	Miller Cr	@ Jackson Co. Rd. 95.	NPS Screening Program	2003	2S/10E/30	68d		34.8332	-85.6306
0603	0004	020	Limestone	MILL-1	Mill Cr	@ unnamed Limestone Co. Rd.; road has been reclaimed by farmer and is now a dirt road thru his pasture.	NPS Screening Program	2003	1S/5W/12	71h		34.9740	-87.0038
0603	0006	010	Marion	MLB-1	Melton Br	Melton Branch @ unnamed Marion Co. Rd. @ edge of backwater.; approx. 0.4 mile upstream of confluence with Little Bear Creek.	303(d) Monitoring Program	1999	09S11W09	68e		34.2915	-87.6879
0603	0006	050	Franklin	MLBF-1	Mill Br	@ Franklin Co. Rd. 11.	NPS Screening Program	2003	6S/15W/15	65j		34.5391	-88.1025
0603	0006	110	Colbert	MLCC-1	Mill Cr	@ Colbert Co. Rd. 5.	NPS Screening Program	2003	3S/14W/30	65j		34.7766	-88.0408
0603	0002	200	Madison	MLDM-2	Molder Br	@ Cove Rd., below Sneed Spring (upstream of manmade dam)	Reference Reach Program	2003	2S/3E/31	68c	4	34.8278	-86.3548
0603	0005	040	Lawrence	MLML-1	Milam Cr	@ AL Hwy 24.	NPS Screening Program	2003	7S/9W/2	71g		34.4693	-87.4550
0603	0002	270	Marshall	MLPM-1	Mill Pond Cr	Mill Pond Creek @ Mill Pond Bridge (Matt Morrow Rd)	303(d) Monitoring Program	2003	T8S/R1E/NE1/4-S17			34.3416	-86.5565
0603	0005	010	Lawrence	MOWW-1	Moulton WWTP Outfall	Moulton WWTP outfall; approx. 1.3 miles upstream of confluence with Muddy Fork.	303(d) Monitoring Program	1999	06S07W32	71g		34.4877	-87.2959
0603	0005	040	Lawrence	MSTL-1	Masterson Cr	@ Lawrence Co. Rd. 136.	NPS Screening Program	2003	5S/9W/28	71j		34.5806	-87.4944

Appendix E. Location descriptions for data collected within the Tennessee Basin.

Basin	CU	Sub	County	Station	Stream	Station Description	Related_Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0002	350	Morgan	MTC-1	Mud Tavern Cr	Mud Tavern Creek @ Mud Tavern Rd.; T6S, R5W, S22.; approx. 1 mile upstream of confluence with West Flint Creek.	303(d) Monitoring Program	1999	06S05W22	71j		34.5139	-87.0519
0603	0002	350	Morgan	MTC-2	Mud Tavern Cr	Mud Tavern Creek @ Morgan Co. Rd. 61.; approx. 3.7 miles upstream of confluence with West Flint Creek.	303(d) Monitoring Program	1999	06S05W17	71j		34.5321	-87.0816
0603	0002	160	Madison	MTMN-164	Mountain Fk Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	1S/2E/13	68c	15	34.9508	-86.3650
0603	0002	160	Madison	MTNM-1	Mountain Fk Flint R	Mountain Fork At Subdivision (Landfill)	303(d) Monitoring Program	2003	T2S_R2E_E1/2-S1			34.8820	-86.4725
0603	0002	160	Madison	MTNM-2	Mountain Fk Flint R	Above Confl. w/ Hester Creek @ New Market Bridge	303(d) Monitoring Program	2003	T1S_R2E_N1/2-S32			34.9107	-86.4369
0603	0002	160	Madison	MTNM-3	Mountain Fk Flint R	at unnamed co rd nr New Market/Jones Cemetary	303(d) Monitoring Program	2003	T1S_R2E_N1/2-S34			34.9174	-86.4035
0603	0005	040	Franklin	MUDF-2	Mud Cr	@ Franklin Co. Rd. 80.	NPS Screening Program	2003	6S/10W/15-22	71g		34.5232	-87.5706
0603	0001	170	Jackson	MUDJ-3	Mud Cr	Mud Creek (Embayment) @ Mouth (RM 1)	303(d) Monitoring Program	2003	3S_7E_(NE1/4-S-33)			34.7414	-85.8890
0603	0001	170	Jackson	MUDJ-4	Mud Cr	Mud Creek (Embayment) @ Powerline Crossing	303(d) Monitoring Program	2003	3S_7E_(NW1/4-S-21)			34.7667	-85.9015
0603	0001	170	Jackson	MUDJ-5	Mud Cr	Mud Creek (Embayment)@ Railroad Bridge	303(d) Monitoring Program	2003	T3S_R7E_(N1/2-S-19)			34.7722	-85.9298
0603	0001	170	Jackson	MUDJ-6	Mud Cr	At Co Rd 42	303(d) Monitoring Program	2003	3S/6E/10	68b		34.7872	-85.9772
0603	0001	170	Jackson	MUDJ-7	Mud Cr	Mud Creek @ County Rd 33 Bridge	303(d) Monitoring Program	2003	3S_6E_(NW1/4-S-17)			34.7858	-86.0266
0603	0002	270	Morgan	MUDM-1	Mud Cr	Mud Creek @ Gum Pond Rd Bridge	303(d) Monitoring Program	2003	T8S/R1W/SW1/4-S8			34.3553	-86.6545
0603	0001	210	Jackson	NSTJ-1	N Sauty Cr	@ AL Hwy 35	NPS Screening Program	2003	4S/4E/27	68b		34.6716	-86.1837
0603	0005	160	Colbert	OXYC-1	Pond Cr, UT to	Occidental Chemical treated process and stormwater outfall to Pond Creek @ AL Hwy 133 (AKA Wilson Dam Rd). (Section 10W SW1/4)	303(d) Monitoring Program	2000	03S10W19	71g		34.7745	-87.6342
0603	0002	110	Marshall	PGRM-1	Pigeon Cr	@ unnamed Marshall Co. Rd.	NPS Screening Program	2003	7S/2E/8	68d		34.3826	-86.4366
0603	0005	230	Colbert	PIC10	Pickwick Reservoir	Cane Creek Embayment Approximately 1 Mile Upstream of Confluence With Tennessee R	Fish Tissue Monitoring	2003	4S/13W/1	71		34.7469	-87.8639
0603	0005	210	Colbert	PIC11	Pickwick Reservoir	Spring Creek Embayment Approximately 1 Mileupstream of Pickwick Lake Confluence	Fish Tissue Monitoring	2003	4S/11W/6	71		34.7394	-87.7308
0603	0005	150	Lauderdale	PIC9	Pickwick Reservoir	Close To Wilson Dam Tailrace at Trm 259.0	Fish Tissue Monitoring	2001	3S/10W/7	71		34.8023	-87.6342
0603	0002	320	Limestone	PINL-319	Piney Cr	French Mill Creek @ Limestone Co. Rd. 93.; approx 0.3 mile upstream of confluence with Piney Creek.	303(d) Monitoring Program	2000	03S04W25	71g		34.7567	-86.8949
0603	0002	320	Limestone	PINL-320	Piney Cr	Piney Creek next to Limestone Co. Rd. 10 near New Zion Church.	303(d) Monitoring Program	2000	04S04W24	71g		34.6718	-86.9059
0603	0002	320	Limestone	PINL-321	Piney Cr	Piney Creek @ Limestone Co. Rd. 24.	303(d) Monitoring Program	2000	03S04W36	71g		34.7302	-86.9154
0603	0002	320	Limestone	PINL-322	Piney Cr	Piney Creek @ Pepper Rd. T3S, R3W, S7/18.	303(d) Monitoring Program	2000	03S03W18	71g		34.7883	-86.8949
0603	0002	320	Limestone	PINL-323	Piney Cr	Piney Creek @ AL Hwy 251.	303(d) Monitoring Program	2000	02S04W36	71g		34.8295	-86.8948
0603	0002	320	Limestone	PINL-324	Piney Cr	Piney Creek @ Limestone Co. Rd. 86.	303(d) Monitoring Program	2000	02S04W13	71g		34.8616	-86.9064
0603	0002	320	Limestone	PINL-325	Piney Cr	Piney Creek @ unnamed Limestone Co. Rd. T1S, R3W, S33.	303(d) Monitoring Program	2000	01S03W33	71g		34.9186	-86.8396

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Basin	CU	Sub	County	Station	Stream	Station Description	Related_Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0002	320	Limestone	PINL-326	Piney Cr	Piney Creek @ Sweet Springs Rd. south of Ardmore.; T1S, R3W, S9/16.	303(d) Monitoring Program	2000	01S03W09	71g		34.9627	-86.8482
0603	0005	160	Colbert	PNDC-010	Pond Cr	Pond Creek at the mouth (North of TVA trail bridge, upstream of falls) (S13 S1/2)	303(d) Monitoring Program	2001-02	3S11W13			34.7890	-87.6440
0603	0005	160	Colbert	PNDC-011	Pond Cr	at second street gauging station - 4070 Second Street (AKA Ala Hwy 184)	303(d) Monitoring Program	2001-02					
0603	0005	160	Colbert	PNDC-1	Pond Cr	Pond Creek @ Colbert Co. Rd. 63.	303(d) Monitoring Program	2000, 2003	3S/10W/34-35	71g		34.7488	-87.5648
0603	0005	160	Colbert	PNDC-100	Pond Cr	Pond Creek at the mouth (North of TVA trail bridge, upstream of falls) (S13 S1/2)	303(d) Monitoring Program	2001-02	3S11W13			34.7890	-87.6440
0603	0005	160	Colbert	PNDC-101	Pond Cr	at second street gauging station - 4070 Second Street (AKA Ala Hwy 184)	303(d) Monitoring Program	2001-02					
0603	0005	160	Colbert	PNDC-2	Pond Cr	Pond Creek upstream of Wise Alloys (Reynolds) process and stormwater outfall #004.	303(d) Monitoring Program	2000, 2003	03S10W32	71g		34.7484	-87.5823
0603	0005	160	Colbert	PNDC-3	Pond Cr	Pond Creek @ Pepi Road.; T3S, R10W, S30, SE1/4, SE1/4.	303(d) Monitoring Program	2000, 2003	03S10W30	71g		34.7595	-87.6175
0603	0005	160	Colbert	PNDC-4	Pond Cr	Pond Creek @ Wilson Dam Rd (AKA AL Hwy 133) (R10/11W Boundary) (S25/30 S1/2)	303(d) Monitoring Program	2000, 2003	3S/11W/25-30	71g	20	34.7625	-87.6344
0603	0005	160	Colbert	PNDC-4	Pond Cr	Pond Creek @ Wilson Dam Rd (AKA AL Hwy 133) (R10/11W Boundary) (S25/30 S1/2)	Periphyton Bioassessment Pilot Project	2002	3S/11W/25-30	71g	20	34.7625	-87.6344
0603	0005	160	Colbert	PNDC-5	Pond Cr	Pond Creek upstream of Oxychem process and stormwater outfall. T3S, R11W, S24, SE1/4, SE1/4.	303(d) Monitoring Program	2000, 2003	3S/11W/24	71g		34.7745	-87.6349
0603	0005	160	Colbert	PNDC-A	Pond Cr	Pond Creek at the mouth (North of TVA trail bridge, upstream of falls) (S13 S1/2)	303(d) Monitoring Program	2001-02	3S11W13			34.7890	-87.6440
0603	0005	280	Lauderdale	PNTL-1	Panther Cr	At unnamed road crossing south of road that follows along Panther Creek. Downstream of the confluence of North and South Forks of Panther Creek	Reference Reach Program	2003	1S/15W/20	65j	6	34.9611	-88.1378
0603	0002	070	Jackson	PRRTVA01	Paint Rock R	U.S. Highway 72	University Reservoir Tributary Nutrient Study	1999		71g		34.6242	-86.3064
0603	0006	010	Franklin	PYB-1	Pretty Br	Pretty Branch @ Franklin Co. rd. 7.; approx. 0.1 mile upstream of confluence with Bear Creek.	303(d) Monitoring Program	1999	09S10W06	68e		34.3005	-87.6345
0603	0001	160	Jackson	RCBJ-160	Rocky Br	Rocky Branch @ Co. Rd. just prior to confluence with Warren Smith Creek	303(d) Monitoring Program	2001-02	3S/8E/1-2	68d		34.7878	-85.7750
0603	0006	070	Colbert	RCKC-2	Rock Cr	@ Colbert Co. Rd. 7.	NPS Intensive Monitoring Program	2003	5S/15W/24	65j		34.6093	-88.0632
0603	0006	070	Colbert	RCKC-3	Rock Cr	@ Colbert Co. Rd. 21.	NPS Screening Program	2003	5S/14W/26	65j		34.6014	-87.9812
0603	0004	020	Limestone	RGDL-1	Ragsdale Cr	@ unnmaed Limestone Co. Rd.	NPS Screening Program	2003	1S/4W/2-3	71h	7	34.9867	-86.9267
0603	0001	170	Jackson	ROBJ-1	Robinson Cr	@ Jackson Co. Rd. 42.	NPS Screening Program	2003	3S/6E/17	68b		34.7741	-86.0259
0603	0005	010	Lawrence	RTFL-1	Rutherford Cr	@ Lawrence Co. Rd. 236	NPS Intensive Monitoring Program	2003	6S/8W/9	71g		34.5392	-87.3829
0603	0005	230	Colbert	SBCC-1	Stinking Bear Cr	@ Colbert Co. Rd. 36.	NPS Screening Program	2003	5S/11W/5-6	71j		34.6493	-87.7223
0603	0001	270	Dekalb	SC-1	Scarham Cr	@ Dekalb Co. Rd. 150.	NPS Intensive Monitoring Program	2003	8S/7E/7	68d		34.3453	-85.9431
0603	0001	270	Dekalb	SC-2	Scarham Cr	@ AL Hwy 227.	NPS Intensive Monitoring Program	2003	8S/6E/27	68d		34.3053	-85.9940
0603	0001	270	Marshall	SC-4	Scarham Cr	@ Marshall Co. Rd. 89.	NPS Intensive Monitoring Program	2003	8S/5E/19	68d		34.3263	-86.1616

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0603	0001	270	Dekalb	SCD-3	Scarham Cr	@ Dekalb Co. Rd. 24	NPS Intensive Monitoring Program	2003	8S/5E/34	68d		34.2947	-86.0961
0603	0001	270	Dekalb	SCDD3	Scarham Creek				T8S/R5E/S34			34.2947	-86.0961
0603	0002	440	Lauderdale	SCDL-11	Second Cr	County Road 76 Bridge	303(d) Monitoring Program	2003	2S8W9	71f		34.8851	-87.3734
0603	0002	440	Lauderdale	SCDL-12	Second Cr	Second Creek @ Lauderdale Cnty Rd 88	303(d) Monitoring Program	2003	T1S_R8W_NW1/4-S25			34.9395	-87.3368
0603	0002	440	Lauderdale	SCDL-13	Second Cr	UT to Swan Creek @ US Hwy 31 Bridge	303(d) Monitoring Program	2003	T1S_R8W_W1/2-S2			34.9939	-87.3509
0603	0004	120	Limestone	SGRL-1	Sugar Cr	@ Limestone Co. Rd. 21.	303(d) Monitoring Program	2003	2S/6W/3	71h		34.8968	-87.1430
0603	0004	120	Limestone	SGRL-1	Sugar Cr	@ Limestone Co. Rd. 21.	NPS Screening Program	2003	2S/6W/3	71h		34.8965	-87.1408
0603	0001	280	Etowah	SH-1	Short Cr	@ Son Johnson Rd.	NPS Intensive Monitoring Program	2003	10S/5E/10	68d		34.1714	-86.0972
0603	0001	280	Marshall	SH-2	Short Cr	@ Bruce Ave.	NPS Intensive Monitoring Program	2003	9S/5E/28	68d		34.2145	-86.1142
0603	0001	280	Marshall	SH-4	Short Cr	@ Marshall Co. Rd. 50.	NPS Intensive Monitoring Program	2003	8S/4E/22	68d		34.3206	-86.2046
0603	0005	090	Lauderdale	SHCTVA01	Shoal Cr	Lauderdale Co. Rd. 8	University Reservoir Tributary Nutrient Study	1999		71f		34.9533	-87.5944
0603	0005	160	Colbert	SHGC-1	Shegog Cr	@ Colbert Co. Rd. 48.	303(d) Monitoring Program	2003	3S/10W/24	71g		34.7754	-87.5288
0603	0002	110	Marshall	SHLM-1	Shoal Cr	@ Marshall Co. Rd. 240.	NPS Screening Program	2003	7S/2E/33	68d		34.3891	-86.4250
0603	0001	280	Marshall	SHM-3A	Short Cr	@ Marshall Co. Rd. 543.	NPS Intensive Monitoring Program	2003	9S/5E/9	68d		34.2588	-86.1234
0603	0004	060	Limestone	SHOL-1	Shoal Cr	Shoal Creek @ Leggtown Rd Bridge	303(d) Monitoring Program	2003	T1S_R5W_SW1/4-S16			34.9529	-87.0669
0603	0004	060	Limestone	SHOL-2	Shoal Cr	Shoal Creek @ Gardner Hollow Rd	303(d) Monitoring Program	2003	T1S_R5W_W1/2-S5			34.9903	-87.0854
0603	0001	270	Marshall	SLM-1	Shoal Cr	@ unnamed Marshall Co. Rd.	NPS Intensive Monitoring Program	2003	8S/5E/9	68d		34.3500	-86.1261
0603	0004	080	Limestone	SLRL-1	Sulphur Cr	Sulphur Cr at unnamed Limestone Co. Rd.	NPS Screening Program	2003	1S/5W/35	71h		34.9083	-87.0298
0603	0006	050	Franklin	SMBF-1	Shoat Mill Cr	@ Franklin Co. Rd. 190.	NPS Screening Program	2003	6S/15W/10	65j		34.5579	-88.0938
0603	0005	230	Colbert	SMTC-1	Smith Cr	@ Colbert Co. Rd. 51.	NPS Screening Program	2003	5S/11W/6	71j		34.6525	-87.7307
0603	0005	220	Lauderdale	SNKL-10	Sinking Cr	@ unimproved road off of Lauderdale Co. Rd. 4.	NPS Screening Program	2003	3S/12W/7	71g		34.8027	-87.8371
0603	0005	220	Lauderdale	SNKL-7	Sinking Cr	At unnamed Ford off Co 4 nr Woodland	303(d) Monitoring Program	2003	3S/12W/32	71g		34.7532	-87.8225
0603	0005	220	Lauderdale	SNKL-7	Sinking Cr	At unnamed Ford off Co 4 nr Woodland	NPS Screening Program	2003	3S/12W/32	71g		34.7532	-87.8225
0603	0005	220	Lauderdale	SNKL-8	Sinking Cr	@ unimproved road off of Lauderdale Co. Rd. 4.	NPS Screening Program	2003	3S/12W/29-20	71g		34.7714	-87.8261
0603	0005	220	Lauderdale	SNKL-9	Sinking Cr	@ Lauderdale Co. Rd. 2.	NPS Screening Program	2003	3S/12W/18	71g		34.7893	-87.8426
0603	0005	210	Colbert	SPGC-1	Spring Cr	@ Colbert Co. Rd. 61.	NPS Screening Program	2003	4S/11W/36	71g		34.6566	-87.6392
0603	0005	210	Franklin	SPGC-2	Spring Cr	@ franklin Co. Rd. 56.	NPS Screening Program	2003	6S/10W/4	71g		34.5669	-87.5993
0603	0001	180	Jackson	SPHJ-1	Spring Hill Cr	@ Jackson Co. Rd. 351.	NPS Screening Program	2003	4S/8E/23	68d		34.6728	-85.7690
0603	0001	220	Dekalb	SSCD-1	South Sauty Cr	South Sauty Creek at Dekalb Co. Rd. 47.	303(d) Monitoring Program	2003	6s/7e/20	68b	42	34.4986	-85.9296

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0603	0001	220	Dekalb	SSCD-1a	South Sauty Cr	South Sauty @ Co.Rd.452	303(d) Monitoring Program	2003	T6S_R5E_(NE1/4-S31)			34.4760	-86.0569
0603	0001	220	Dekalb	SSCD-2	South Sauty Cr	South Sauty @ Co.Rd. 27	303(d) Monitoring Program	2003	T5S_R8E_(SW1/4-S30)			34.5682	-85.8415
0603	0002	390	Limestone	SWNL-1	Swan Cr	Swan Creek @ Elkton Rd	303(d) Monitoring Program	2003	T2S_R4W_NE1/4-S33			34.8319	-86.9517
0603	0002	390	Limestone	SWNL-2	Swan Cr	@ Limestone Co. Rd. 24.	303(d) Monitoring Program	2003	4S/4W/34	71g		34.7310	-86.9435
0603	0001	250	Dekalb	TCD-1	Town Cr		303(d) Monitoring Program	2003				34.6107	-85.6569
0603	0001	250	Dekalb	TCD-2	Town Cr	Town Creek @ State Hwy 35	303(d) Monitoring Program	2003	T6S_R8E_SW1/4-S28)			34.4778	-85.8095
0603	0001	250	Dekalb	TCD-3	Town Cr	@ Dekalb Co. Rd. 50.	303(d) Monitoring Program	2003	7S/7E/14	68d		34.4277	-85.8758
0603	0001	250	Dekalb	TCD-4	Town Cr	Town Creek @ Sate Hwy 227	303(d) Monitoring Program	2003	T7S/R6E_SW1/4-S28			34.3913	-86.0185
0603	0001	100	Jackson	TCRJ-1	Crow Cr, UT to	AL Hwy 117.	NPS Screening Program	2003	1S/7E/27	68b		34.9171	-85.8871
0603	0001	100	Jackson	TCRJ-2	Crow Cr, UT to	@ Jackson Co. Rd. 170.	NPS Screening Program	2003	1S/7E/27	68b		34.9240	-85.8789
0603	0005	160	Colbert	TE01U3-54	Shegog Cr	Shegog Creek approx. 1/4 mile upstream of confluence with McKiernan Creek.	ALAMAP Monitoring Program	1999	03S10W24	71g		34.7793	-87.5376
0603	0002	390	Limestone	TE04U3-56	Swan Cr	Swan Creek approx. 5 miles upstream of confluence with Muddy Creek.	ALAMAP Monitoring Program	1999	02S04W09	71g		34.8808	-86.9582
0603	0002	390	Limestone	TE1U5-46	Town Cr	Town Creek approx. 1/4 mile upstream of Athens WWTP entrance road crossing.	ALAMAP Monitoring Program	2001	3S5W32	71g?			
0603	0005	270	Lauderdale	TE1U6-33	Second Cr	100' to 400' upstream of bridge	ALAMAP Monitoring Program	2002	1S/8W/35	71f			
0603	0002	350	Morgan	TE2U4-46	Snow Hill Br, UT to	Tributary to Snow Hill Branch. T7S, R4W, S9.	ALAMAP Monitoring Program	2000	07S04W09	71j		34.4474	-86.9627
0603	0002	100	Madison	TE2U5-48	Tremble Cr	Tremble Creek approx. 1/8 mile upstream of confluence with Paint Rock River.	ALAMAP Monitoring Program	2001	5S3E29	71g?			
0603	0005	220	Lauderdale	TE4U4-52	Sinking Cr	Sinking Creek. T3S, R12W, S4.	ALAMAP Monitoring Program	2000	03S12W04	71g		34.8195	-87.8083
0603	0005	200	Lauderdale	TE4U5-53	Little Cypress Cr, UT to	Tributary to Little Cypress Creek approx. 1/4 mile upstream of confluence with Little Cypress Creek.	ALAMAP Monitoring Program	2001	2S11W4	71f?			
0603	0004	120	Limestone	TE5U4-54	Sugar Cr, UT to	Tributary to Sugar Creek. T2S, R6W, S11.	ALAMAP Monitoring Program	2000	02S06W11	71h		34.8889	-87.1242
0603	0002	300	Limestone	TE5U6-51	Knox Cr, UT to	50' to 350' upstream of bridge	ALAMAP Monitoring Program	2002	3S/3W/24	71g		34.7310	-86.6879
0603	0004	060	Limestone	TE6U4-56	Shoal Cr	Shoal Creek. T1S, R5W, S21.	ALAMAP Monitoring Program	2000	01S05W21	71h		34.9509	-87.0619
0603	0002	340	Morgan	TE6U6-52	Mack Cr, UT to	50' to 350' above the GPS location	ALAMAP Monitoring Program	2002	8S/4W/8	71g			
0603	0005	090	Lauderdale	TE7U4-57	Cowpen Cr, UT to	Tributary to Cowpen Creek. T1S, R10W, S23.	ALAMAP Monitoring Program	2000	01S10W23	71f		34.9572	-87.5562
0603	0001	320	Limestone	TE7U5-57	Piney Cr, UT to	Tributary to Piney Creek approx. 1/8 mile downstream of unnamed Limestone Co. Rd.	ALAMAP Monitoring Program	2001	3S3W5	71g?			
0603	0001	300	Marshall	TE8A6-57	Little Hog Cr	N 34.24470 W 86.31879	ALAMAP Monitoring Program	2002	T9S/R3E,Sec.15	68d		34.2447	-86.3188
0603	0006	040	Franklin	TLNF-9	Tollison Cr	At unnamed road crossing between Franklin Co Rd 41 and 73. Trib to Cedar Creek, 6 mi west of Russelville.	Reference Reach Program	2002-03	T6S/R12W/S19	65j	13	34.5167	-87.8452
0603	0006	030	Franklin	TN08	Little Bear Cr	Franklin Co. Rd. 59 W of Phil Campbell (NW 1/4)	NPS Screening Program	2003	8S/12W/11	65j		34.4883	-88.0356
0603	0006	030	Franklin	TN09	Little Bear Cr	Franklin Co. Rd. 23 NE of Red Bay (NW 1/4)	NPS Screening Program	2003	7S/14W/5	65i		34.3756	-87.7731

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0603	0001	310	Marshall	TNRTVA02	Tennessee R	Guntersville Dam Tailrace	University Reservoir Tributary Nutrient Study	1999		68c		34.4214	-86.3928
0603	0002	420	Lawrence	TNRTVA03	Tennessee R	Wheeler Dam Tailrace	University Reservoir Tributary Nutrient Study	1999		71g		34.7978	-87.3808
0603	0005	160	Colbert	TNRTVA04	Tennessee R	Wilson Dam Tailrace	University Reservoir Tributary Nutrient Study	1999		71g		34.7961	-87.6242
0603	0004	020	Limestone	TRKL-1	Turkey Cr	@ unnamed Limestone Co. Rd.	NPS Screening Program	2003	1S/5W/23	71h		34.9410	-87.0286
0603	0002	270	Morgan	TWNM-24	Town Cr	Antioch Road	303(d) Monitoring Program	2003	6S2W3	71g		34.4649	-86.7368
0603	0002	270	Morgan	TWNM-25	Town Cr	Town Creek @ US Hwy 67	303(d) Monitoring Program	2003	T6S_R2W_SE1/4-S32			34.4663	-86.7884
0603	0002	390	Limestone	UTSL-1	Swan Cr, UT to	@ US Hwy 31.	303(d) Monitoring Program	2003	3S/4W/9	71g		34.7996	-86.9530
0603	0005	010	Lawrence	WDCL-1	Wade Cr	@ Lawrence Co. Rd. 241.	NPS Intensive Monitoring Program	2003	6S/7W/9	71j		34.5368	-87.2731
0603	0004	150	Lauderdale	WFAL-1	W Fk Anderson Cr	@ Lauderdale Co. Rd. 49.	NPS Screening Program	2003	1S/7W/17	71f		34.9668	-87.2885
0603	0002	350	Morgan	WFC-1	W Flint Cr	West Flint Creek @ Danville Rd.	303(d) Monitoring Program	1999	06S05W26	71j		34.4942	-87.0265
0603	0002	270	Morgan	WFCM-28	W Fk Cotaco Cr	West Fork Cotaco Cr. At Ryan Bridge on Martin Road	303(d) Monitoring Program	2003	8S/1W/8	68c		34.3553	-86.6760
0603	0002	440	Lauderdale	WHE1	Wheeler Reservoir	Upstream of The Dam at Trm 277.0, Near The Confluence of First Creek With The Main Channel	Fish Tissue Monitoring	1999, 2003	3S/8W/2	71		34.8119	-87.3464
0603	0002	350	Morgan	WHE10 WHE15	Wheeler Reservoir	Flint Creek Embayment Between Hwy 67 And Confluence With Tennessee R.	Fish Tissue Monitoring	1999	6S/4W/4	71		34.5589	-86.9481
0603	0002	420	Lawrence	WHE11	Wheeler Reservoir	Spring Creek Embayment Upstream of Causeway	Fish Tissue Monitoring	1999, 2003	4S/7W/9	71		34.7108	-87.2792
0603	0002	440	Lauderdale	WHE12	Wheeler Reservoir	Second Creek embayment upstream of confluence with Tennessee River	Fish Tissue Monitoring	1,999	2S/8W/34	71		34.8333	-87.3683
0603	0002	220	Morgan	WHE13	Wheeler Reservoir	Dry Creek Embayment Upstream of Confluence With Tennessee R.	Fish Tissue Monitoring	1999	6S/1W/14	71		34.5539	-86.6356
0603	0002	400	Limestone	WHE14	Wheeler Reservoir	Round Island Creek Embayment Beginning 1.5 Miles Uppstream of Confluence With Tennessee R	Fish Tissue Monitoring	2003	4S/5W/22	71		34.6842	-87.0618
0603	0002	370	Limestone	WHE16	Wheeler Reservoir	Limestone Creek Embayment Beginning Approximately 1 Mile Upstream of Confluence With Tennessee R	Fish Tissue Monitoring	2003	5S/3W/18	71		34.5933	-86.8903
0603	0004	150	Lauderdale	WHE2A	Wheeler Reservoir	Wheeler Reservoir, Elk R Enbayment, Elk River Mile 6, Near The Mouth of Anderson Creek	Fish Tissue Monitoring	1999, 2003	3S/7W/1	71		34.8144	-87.2173
0603	0002	400	Limestone	WHE3	Wheeler Reservoir	Downstream of Bakers Creek at Trm 300.0 To 296.0	Fish Tissue Monitoring	1999, 2003	4S/5W/27	71		34.6511	-87.0446
0603	0002	370	Limestone	WHE4	Wheeler Reservoir	Trm 308- 8 To 10 Miles Downstream of Flint Creek And 2.8 Miles Up Stream of Highway 31 Bridge In Decatur	Fish Tissue Monitoring	2002	5S/4W/23	71		34.5909	-86.9297
0603	0002	230	Madison	WHE7	Wheeler Reservoir	FouRiver Miles Upstream of Confluence of Indian Creek at Trm 325.0	Fish Tissue Monitoring	2002	5S/1W/30	71		34.5704	-86.6748
0603	0002	100	Marshall	WHE9	Wheeler Reservoir	Wheeler Reservoir, Tenn R, Trm-347 Two Miles Downstream of Gunter Sville Dam	Fish Tissue Monitoring	1999, 2003	7S/2E/9	71		34.4399	-86.4214
0603	0005	150	Lauderdale	WIL1	Wilson Reservoir	Dam Forebay at Trm 259.5	Fish Tissue Monitoring	2003	3S/10W/7	71		34.8045	-87.6242
0603	0005	010	Lawrence	WIL3	Wilson Reservoir	Big Nance Creek Embayment Upstream of Al Hwy 101 Bridge	Fish Tissue Monitoring	2003	3S/8W/20	71		34.7792	-87.3933

Appendix E. Location descriptions for data collected within the Tennessee Basin.

Basin	CU	Sub	County	Station	Stream	Station Description	Related_Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0005	040	Colbert	WIL4	Wilson Reservoir	Town Creek Embayment Beginning Approximately One Mile Downstream of Co Rd 314 Bridge	Fish Tissue Monitoring	2003	3S/9W/24	71		34.7731	-87.4303
0603	0005	160	Colbert	WISE-4	Pond Cr, UT to	Wise Alloys (Reynolds) treated process and stormwater outfall to Pond Creek @ AL Hwy 184 (AKA Second Street).	303(d) Monitoring Program	2000	03S10W29	71g		34.7580	-87.6009
0603	0002	110	Marshall	WLFM-1	Wolf Cr	@ unnamed Marshall Co. Rd.	NPS Screening Program	2003	7S/2E/33	68c		34.4356	-86.4553
0603	0001	160	Jackson	WSCJ-160	Warren Smith Cr	Warren Smith Creek @ Co. Rd. just prior to confluence with Rocky Branch	303(d) Monitoring Program	2001-02	3S/8E/1-2	68d		34.7916	-85.7640
0603	0002	210	Madison	YBCM-1	Yellow Bank Cr	Yellow Bank Creek @ Hobbs Island Rd	303(d) Monitoring Program	2003	T6S_R2E_NE1/4-S6			34.5489	-86.4523

Appendix F-1. List of Alabama NPS screening assessment stations.

Basin	CU	Sub	County	Station	Stream	Station Description	Related Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0001	140	Jackson	BCNJ-1	Big Coon Cr	@ Jackson Co. Rd. 55.	NPS Screening Program	2003	2S/7E/20	68b		34.8566	-85.9268
0603	0001	140	Jackson	BCNJ-2	Big Coon Cr	@ Jackson Co. Rd. 53.	NPS Screening Program	2003	2S/6E/8	68c		34.8830	-86.0077
0603	0005	030	Lauderdale	BLWL-1	Bluewater Cr	@ Lauderdale Co. Rd. 71	NPS Screening Program	2003	2S/9W/2	71f		34.9056	-87.4478
0603	0004	070	Limestone	BPTL-1	Baptizing Cr	@ AL State Hwy 99.	NPS Screening Program	2003	1S/5W/31	71h		34.9111	-87.1014
0603	0006	110	Colbert	BRNC-1	Browns Cr	@ unnamed Colbert Co. rd.	NPS Screening Program	2003	4S/14W/3-3	71g		34.7475	-87.9982
0603	0001	180	Jackson	BYTJ-2	Bryant Cr	@ Jackson Co. Rd. 260	NPS Screening Program	2003	4S/8E/14	68d		34.6883	-85.7609
0603	0001	180	Jackson	BYTJ-2a	Bryant Cr	@ Jackson Co. Rd. 165.	NPS Screening Program	2003	4S/8E/23	68d		34.7686	-85.7686
0603	0001	180	Jackson	BYTJ-3	Bryant Cr	@ Jackson Co. Rd. 83.	NPS Screening Program	2003	4S/8E/22	68d		34.6703	-85.7868
0603	0006	110	Colbert	BZDC-1	Buzzard Roost Cr	@ Colbert Co. Rd. 21.	NPS Screening Program	2003	4S/14W/22	65j		34.6983	-87.9891
0603	0006	040	Franklin	CDRF-1	Cedar Cr	@ Franklin Co. Rd. 63.	NPS Screening Program	2003	7S/11W/20	71g		34.4403	-87.7214
0603	0006	040	Franklin	CHSF-1	Chisholm Cr	@ Franklin Co. Rd. 36.	NPS Screening Program	2003	6S/12W/31	65j		34.4906	-87.8429
0603	0001	120	Jackson	COCJ-1	Little Coon Cr	@ Jackson Co. Rd. 53.	NPS Screening Program	2003	2S/7E/9	68b		34.8743	-85.9108
0603	0001	180	Jackson	DICJ-1	Dickey Cr	@ Jackson Co. Rd. 425.	NPS Screening Program	2003	4S/8E/32	68d		34.6490	-85.8199
0603	0004	150	Lauderdale	DMTL-1	Dement Cr	@ lauderdale Co. Rd. 95.	NPS Screening Program	2003	2S/7W/26	71f		34.8526	-87.2355
0603	0005	230	Colbert	DRC1-1	Dry Cr	@ Colbert Co. Rd. 49.	NPS Screening Program	2003	5S/12W/6	71j		34.6522	-87.8421
0603	0005	210	Colbert	DRCC-1	Dry Cr	@ AL State Hwy 133.	NPS Screening Program	2003	4S/11W/13	71g		34.7050	-87.6346
0603	0004	150	Lauderdale	EFAL-1	E Fk Anderson Cr	@ Lauderdale Co. Rd. 93.	NPS Screening Program	2003	1S/7W/27	71f		34.9308	-87.2604
0603	0002	140	Madison	FLTM-1	Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	2S/1E/12	71g		34.8806	-86.4805
0603	0002	140	Madison	FLTM-2	Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	1S/1E/27	71g		34.9175	-86.5032
0603	0002	140	Madison	FLTM-3	Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	1S/1E/21	71g		34.9375	-86.5227
0603	0001	080	Jackson	GSTJ-1	Guest Cr	@ Jackson Co. Rd. 431.	NPS Screening Program	2003	2S/9E/2	68d		34.8951	-85.6486
0603	0006	040	Franklin	HAMF-1	Hamilton Cr	@ franklin Co. Rd. 36.	NPS Screening Program	2003	7S/12W/9	71g		34.4634	-87.7982

Appendix F-1. List of Alabama NPS screening assessment stations.

Basin	CU	Sub	County	Station	Stream	Station Description	Related Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0001	160	Jackson	HFLJ-1	Highfield Cr	@ Jackson Co. Rd. 118.	NPS Screening Program	2003	3S/9E/27	68d		34.7589	-85.6743
0603	0001	160	Jackson	HGUJ-160	Hogue Cr	Hogue Creek @ AL Hwy 117	NPS Screening Program	2003	3S/9E/17	68d	4	34.7715	-85.7074
0603	0002	200	Madison	HRCM-3	Hurricane Cr	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	2S/2E/11	71g		34.8790	-86.3870
0603	0005	030	Lauderdale	LBEL-1	Little Bluewater Cr	@ unnamed Lauderdale Co. Rd.	NPS Screening Program	2003	1S/9W/13	71f		34.9726	-87.4281
0603	0006	010	Franklin	LBRF-1	Little Bear Cr	@ AL Hwy 243	NPS Screening Program	2003	8S/11W/1	68e		34.3856	-87.6389
0603	0005	030	Lauderdale	LBWL-1	Little Bluewater Cr	@ Lauderdale Co. Rd. 39.	NPS Screening Program	2003	1S/9W/10	71f		34.9786	-87.4625
0603	0001	100	Jackson	LCRJ-1	Little Crow Cr	AL Hwy 117.	NPS Screening Program	2003	1S/7E/7	68c		34.9637	-85.9275
0603	0001	100	Jackson	LCRJ-2	Little Crow Cr	@ Jackson Co. Rd. 56.	NPS Screening Program	2003	1S/6E/1	71f		34.9805	-85.9515
0603	0005	200	Lauderdale	LCYL-2	Little Cypress Cr	@ Lauderdale Co. Rd. 8.	NPS Screening Program	2003	1S/11W/21	71f		34.9495	-87.6944
0603	0005	200	Lauderdale	LCYL-3	Little Cypress Cr	@Lauderdale Co. Rd. 11.	NPS Screening Program	2003	1S/11W/9	71f		34.9819	-87.6923
0603	0002	040	Jackson	LRKJ-1	Larkin Fk	@ AL Hwy 65.	NPS Screening Program	2003	2S/4E/16	68c		34.8659	-86.2080
0603	0002	040	Jackson	LRKJ-2	Larkin Fk	@ Jackson Co. Rd. 27.	NPS Screening Program	2003	1S/4E/29	68c		34.9286	-86.2200
0603	0002	040	Jackson	LRKJ-3	Larkin Fk	@ AL Hwy 65.	NPS Screening Program	2003	1S/4E/6	68c		34.9877	-86.2496
0603	0002	040	Colbert	MCFC-1	McAfee Cr	@ Colbert Co. Rd. 48.	NPS Screening Program	2003	5S/9W/19	71j		34.6064	-87.5219
0603	0006	030	Franklin	MCKF-1	Mack Br	@ Franklin Co. Rd. 22.	NPS Screening Program	2003	7S/13W/35	65j		34.4000	-87.8711
0603	0004	150	Lauderdale	MFAL-1	Middle Fk Anderson Cr	@ Lauderdale Co. Rd. 49.	NPS Screening Program	2003	1S/7W/16	71f		34.9593	-87.2737
0603	0001	080	Jackson	MILJ-2	Miller Cr	@ Jackson Co. Rd. 95.	NPS Screening Program	2003	2S/10E/30	68d		34.8332	-85.6306
0603	0004	020	Limestone	MILL-1	Mill Cr	@ unnamed Limestone Co. Rd.; road has been reclaimed by farmer and is now a dirt road thru his pasture.	NPS Screening Program	2003	1S/5W/12	71h		34.9740	-87.0038
0603	0006	050	Franklin	MLBF-1	Mill Br	@ Franklin Co. Rd. 11.	NPS Screening Program	2003	6S/15W/15	65j		34.5391	-88.1025
0603	0006	110	Colbert	MLCC-1	Mill Cr	@ Colbert Co. Rd. 5.	NPS Screening Program	2003	3S/14W/30	65j		34.7766	-88.0408
0603	0005	040	Lawrence	MLML-1	Milam Cr	@ AL Hwy 24.	NPS Screening Program	2003	7S/9W/2	71g		34.4693	-87.4550

Appendix F-1. List of Alabama NPS screening assessment stations.

Basin	CU	Sub	County	Station	Stream	Station Description	Related Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0005	040	Lawrence	MSTL-1	Masterson Cr	@ Lawrence Co. Rd. 136.	NPS Screening Program	2003	5S/9W/28	71j		34.5806	-87.4944
0603	0002	160	Madison	MTMN-164	Mountain Fk Flint R	@ unnamed Madison Co. Rd.	NPS Screening Program	2003	1S/2E/13	68c	15	34.9508	-86.3650
0603	0005	040	Franklin	MUDF-2	Mud Cr	@ Franklin Co. Rd. 80.	NPS Screening Program	2003	6S/10W/15-22	71g		34.5232	-87.5706
0603	0001	210	Jackson	NSTJ-1	N Sauty Cr	@ AL Hwy 35	NPS Screening Program	2003	4S/4E/27	68b		34.6716	-86.1837
0603	0002	110	Marshall	PGRM-1	Pigeon Cr	@ unnamed Marshall Co. Rd.	NPS Screening Program	2003	7S/2E/8	68d		34.3826	-86.4366
0603	0006	070	Colbert	RCKC-3	Rock Cr	@ Colbert Co. Rd. 21.	NPS Screening Program	2003	5S/14W/26	65j		34.6014	-87.9812
0603	0004	020	Limestone	RGDL-1	Ragsdale Cr	@ unnmaed Limestone Co. Rd.	NPS Screening Program	2003	1S/4W/2-3	71h	7	34.9867	-86.9267
0603	0001	170	Jackson	ROBJ-1	Robinson Cr	@ Jackson Co. Rd. 42.	NPS Screening Program	2003	3S/6E/17	68b		34.7741	-86.0259
0603	0005	230	Colbert	SBCC-1	Stinking Bear Cr	@ Colbert Co. Rd. 36.	NPS Screening Program	2003	5S/11W/5-6	71j		34.6493	-87.7223
0603	0004	120	Limestone	SGRL-1	Sugar Cr	@ Limestone Co. Rd. 21.	NPS Screening Program	2003	2S/6W/3	71h		34.8965	-87.1408
0603	0002	110	Marshall	SHLM-1	Shoal Cr	@ Marshall Co. Rd. 240.	NPS Screening Program	2003	7S/2E/33	68d		34.3891	-86.4250
0603	0004	080	Limestone	SLRL-1	Sulphur Cr	Sulphur Cr at unnamed Limestone Co. Rd.	NPS Screening Program	2003	1S/5W/35	71h		34.9083	-87.0298
0603	0006	050	Franklin	SMBF-1	Shoat Mill Cr	@ Franklin Co. Rd. 190.	NPS Screening Program	2003	6S/15W/10	65j		34.5579	-88.0938
0603	0005	230	Colbert	SMTC-1	Smith Cr	@ Colbert Co. Rd. 51.	NPS Screening Program	2003	5S/11W/6	71j		34.6525	-87.7307
0603	0005	220	Lauderdale	SNKL-10	Sinking Cr	@ unimproved road off of Lauderdale Co. Rd. 4.	NPS Screening Program	2003	3S/12W/7	71g		34.8027	-87.8371
0603	0005	220	Lauderdale	SNKL-7	Sinking Cr	At unnamed Ford off Co 4 nr Woodland	NPS Screening Program	2003	3S/12W/32	71g		34.7532	-87.8225
0603	0005	220	Lauderdale	SNKL-8	Sinking Cr	@ unimproved road off of Lauderdale Co. Rd. 4.	NPS Screening Program	2003	3S/12W/29-20	71g		34.7714	-87.8261
0603	0005	220	Lauderdale	SNKL-9	Sinking Cr	@ Lauderdale Co. Rd. 2.	NPS Screening Program	2003	3S/12W/18	71g		34.7893	-87.8426
0603	0005	210	Colbert	SPGC-1	Spring Cr	@ Colbert Co. Rd. 61.	NPS Screening Program	2003	4S/11W/36	71g		34.6566	-87.6392
0603	0005	210	Franklin	SPGC-2	Spring Cr	@ franklin Co. Rd. 56.	NPS Screening Program	2003	6S/10W/4	71g		34.5669	-87.5993
0603	0001	180	Jackson	SPHJ-1	Spring Hill Cr	@ Jackson Co. Rd. 351.	NPS Screening Program	2003	4S/8E/23	68d		34.6728	-85.7690
0603	0001	210	Jackson	SPRJ-1	Spring Cr	@ AL Hwy 35	NPS Screening Program	2003	4S/5E/19	68b		34.6811	-86.1394

Appendix F-1. List of Alabama NPS screening assessment stations.

Basin	CU	Sub	County	Station	Stream	Station Description	Related Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0001	100	Jackson	TCRJ-1	Crow Cr, UT to	AL Hwy 117.	NPS Screening Program	2003	1S/7E/27	68b		34.9171	-85.8871
0603	0001	100	Jackson	TCRJ-2	Crow Cr, UT to	@ Jackson Co. Rd. 170.	NPS Screening Program	2003	1S/7E/27	68b		34.9240	-85.8789
0603	0006	030	Franklin	TN08	Little Bear Cr	Franklin Co. Rd. 59 W of Phil Campbell (NW 1/4)	NPS Screening Program	2003	8S/12W/11	65j		34.4883	-88.0356
0603	0006	030	Franklin	TN09	Little Bear Cr	Franklin Co. Rd. 23 NE of Red Bay (NW 1/4)	NPS Screening Program	2003	7S/14W/5	65i		34.3756	-87.7731
0603	0004	020	Limestone	TRKL-1	Turkey Cr	@ unnamed Limestone Co. Rd.	NPS Screening Program	2003	1S/5W/23	71h		34.9410	-87.0286
0603	0004	150	Lauderdale	WFAL-1	W Fk Anderson Cr	@ Lauderdale Co. Rd. 49.	NPS Screening Program	2003	1S/7W/17	71f		34.9668	-87.2885
0603	0002	110	Marshall	WLFM-1	Wolf Cr	@ unnamed Marshall Co. Rd.	NPS Screening Program	2003	7S/2E/33	68c		34.4356	-86.4553

Appendix F-2. List of Alabama NPS Intensive assessment stations.

Basin	CU	Sub	County	Station	Stream	Station Description	Related Programs	Year	T/R/S	Ecoregion	Area	Lat Dec	Lon Dec
0603	0001	270	Marshall	LSLM-1	Little Shoal Cr	@ unnamed Marshall Co. Rd.	NPS Intensive Monitoring Program	2003	8S/5E/9	68d		34.3475	-86.1250
0603	0001	270	Dekalb	SC-1	Scarham Cr	@ Dekalb Co. Rd. 150.	NPS Intensive Monitoring Program	2003	8S/7E/7	68d		34.3453	-85.9431
0603	0001	270	Dekalb	SC-2	Scarham Cr	@ AL Hwy 227.	NPS Intensive Monitoring Program	2003	8S/6E/27	68d		34.3053	-85.9940
0603	0001	270	Dekalb	SCD-3	Scarham Cr	@ Dekalb Co. Rd. 24	NPS Intensive Monitoring Program	2003	8S/5E/34	68d		34.2947	-86.0961
0603	0001	270	Marshall	SC-4	Scarham Cr	@ Marshall Co. Rd. 89.	NPS Intensive Monitoring Program	2003	8S/5E/19	68d		34.3263	-86.1616
0603	0001	270	Marshall	SLM-1	Shoal Cr	@ unnamed Marshall Co. Rd.	NPS Intensive Monitoring Program	2003	8S/5E/9	68d		34.3500	-86.1261
0603	0001	280	Etowah	SH-1	Short Cr	@ Son Johnson Rd.	NPS Intensive Monitoring Program	2003	10S/5E/10	68d		34.1714	-86.0972
0603	0001	280	Marshall	SH-2	Short Cr	@ Bruce Ave.	NPS Intensive Monitoring Program	2003	9S/5E/28	68d		34.2145	-86.1142
0603	0001	280	Marshall	SHM-3A	Short Cr	@ Marshall Co. Rd. 543.	NPS Intensive Monitoring Program	2003	9S/5E/9	68d		34.2588	-86.1234
0603	0001	280	Marshall	SH-4	Short Cr	@ Marshall Co. Rd. 50.	NPS Intensive Monitoring Program	2003	8S/4E/22	68d		34.3206	-86.2046
0603	0002	020	Jackson	ESTL-1	Estill Fk		Paint Rock Int NPS Study	1999		68c		34.9515	-86.1504
0603	0002	040	Jackson	LARK-1	Larkin Fk		Paint Rock Int NPS Study	1999		68c		34.8516	-86.2008
0603	0002	050	Jackson	LICK-1	Lick Fk		Paint Rock Int NPS Study	1999		68c		34.8502	-86.2344
0603	0002	060	Jackson	GUES-1	Guess Cr	Near Jackson Co Rd 20	Paint Rock Int NPS Study	1999	T3S/R4E/S27	68c		34.7597	-86.1902
0603	0002	070	Jackson	CSPR-1	Cole Springs Br		Paint Rock Int. NPS Project	1999		71g		34.6683	-86.3179
0603	0002	090	Jackson	LPNT-1	Little Paint Cr		Paint Rock Int NPS Study	1999		71g		34.6001	-86.2669
0603	0002	100	Marshall	LPRK-1	Little Paint Rock Cr		Paint Rock Int NPS Study	1999		71g		34.4834	-86.3836
0603	0005	010	Lawrence	BRDL-1	Bridge Cr	@ Lawrence Co. Rd. 42.	NPS Intensive Monitoring Program	2003	5S/8W/13	71j		34.6082	-87.3253
0603	0005	010	Lawrence	CRKL-1	Crooked Cr	@ Lawrence Co. Rd. 27	NPS Intensive Monitoring Program	2003	5S/8W/14-15	71j		34.6143	-87.3525
0603	0005	010	Lawrence	RTFL-1	Rutherford Cr	@ Lawrence Co. Rd. 236	NPS Intensive Monitoring Program	2003	6S/8W/9	71g		34.5392	-87.3829
0603	0005	010	Lawrence	WDCL-1	Wade Cr	@ Lawrence Co. Rd. 241.	NPS Intensive Monitoring Program	2003	6S/7W/9	71j		34.5368	-87.2731

Appendix G-1 - Summary of macroinvertebrate assessments conducted in the Tennessee basin by ADEM, 2003.

Station	Station Type	Eco-Region	Habitat Assessment TotalScore	MaxScore	% Max	Assessment	MB-EPT Assessment EPT	Assessment
BCNJ-1	NPS	68b	125	220	57	Good	5	Good
BCNJ-2	NPS	68c	112	240	47	Fair	2	Poor
BEA-2	303(d)	68e	210	240	88	Excellent	4	Fair
BFFM-3a	303(d)	71g	161	240	67	Good	5	Fair
BIGL-14	303(d)	71h	190	240	79	Excellent	11	Good
BLWL-1	NPS	71f	193	240	80	Excellent	10	Good
BRDL-1	NPS-Int	71j	128	220	58	Good	5	Fair
BRNC-1	NPS	71g	157	240	65	Good	8	Good
BVDM-18	303(d)	71g	146	240	61	Good	4	Fair
BYTJ-1	Ref	68d	186	240	77	Excellent	12	Excellent
BYTJ-2	NPS	68d	127	240	53	Good	8	Good
BYTJ-3	NPS	68d	133	220	60	Good	7	Good
BZDC-1	NPS	65j	125	240	52	Good	5	Fair
CDRF-1	NPS	71g	121	220	55	Good	7	Fair
CHSF-1	NPS	65j	191	240	80	Excellent	13	Excellent
COCJ-1	NPS	68b	114	220	52	Good	6	Good
CRKL-1	NPS-Int	71j	104	220	47	Good	5	Fair
CRWL-2	303(d)	71g	166	240	69	Excellent	6	Fair
DBBL-1	Ref	71h	192	240	80	Excellent	7	Fair
DICJ-1	NPS	68d	158	240	66	Good	6	Fair
DMTL-1	NPS	71f	185	240	77	Excellent	13	Excellent
DRC1-1	NPS	71j	152	240	63	Good	6	Fair
EFAL-1	NPS	71f	174	240	73	Excellent	11	Good
FLTM-1	NPS	71g	170	240	71	Excellent	7	Fair
FLTM-2	NPS	71g	185	240	77	Excellent	9	Good
FLTM-3	NPS	71g	140	220	64	Good	10	Good
GOOM-1	303(d)	71g	120	220	55	Good	4	Fair
GSTJ-1	NPS	68d	222	240	93	Excellent	8	Good
GUES-1	303(d)	68c	121	240	50	Fair	5	Fair
GUES-2	303(d)	68c	181	240	75	Good	9	Good
HAMF-1	NPS	71g	178	240	74	Excellent	7	Fair
HESM-1	303(d)	71g	173	240	72	Excellent	3	Poor
HFLJ-1	NPS	68d	130	240	54	Good	6	Fair
HGUJ-160	NPS	68d	152	220	69	Good	4	Fair
HRCM-3	NPS	71g	161	240	67	Good	6	Fair
INCL-1	Ref	71f	161	240	67	Excellent	16	Excellent
LBEL-1	NPS	71f	190	240	79	Excellent	10	Good
LBRF-1	NPS	68e	155	240	65	Good	7	Good
LBWL-1	NPS	71f	168	240	70	Excellent	11	Good
LCRJ-1	NPS	68c	124	220	56	Good	8	Excellent
LCRJ-2	NPS	71f	171	240	71	Excellent	9	Good
LCYL-2	NPS	71f	165	240	69	Excellent	16	Excellent
LCYL-3	NPS	71f	167	240	70	Excellent	10	Good
LRKJ-1	NPS	68c	144	240	60	Fair	13	Excellent
LRKJ-2	NPS	68c	133	240	55	Good	13	Excellent
LSLM-1	NPS-Int	68d	211	240	88	Excellent	8	Good
MCFC-1	NPS	71j	79	220	36	Fair	3	Poor
MCKC-1	303(d)	71g	136	240	57	Good	5	Fair

Appendix G-1 - Summary of macroinvertebrate assessments conducted in the Tennessee basin by ADEM, 2003.

Station	Station	Eco-	Habitat Assessment				MB-EPT Assessment	
	Type	Region	TotalScore	MaxScore	% Max	Assessment	EPT	Assessment
MCKF-1	NPS	65j	177	240	74	Excellent	11	Excellent
MFAL-1	NPS	71f	168	240	70	Excellent	7	Fair
MILJ-2	NPS	68d	142	220	65	Good	5	Fair
MILL-1	NPS	71h	148	240	62	Good	10	Good
MLCC-1	NPS	65j	179	240	75	Excellent	8	Good
MLDM-2	Ref	68c	195	240	81	Excellent	10	Excellent
MLML-1	NPS	71g	136	240	57	Good	7	Fair
MSTL-1	NPS	71j	150	240	63	Good	6	Fair
MTMN-164	NPS	68c	166	240	69	Excellent	10	Excellent
MUDF-2	NPS	71g	157	240	65	Good	6	Fair
MUDJ-6	303(d)	68b	103	220	47	Good	8	Excellent
PNDC-4	303(d)	71g	119	220	54	Good	2	Poor
PNTL-1	Ref	65j	161	240	67	Good	14	Excellent
RCKC-3	NPS	65j	173	240	72	Excellent	10	Excellent
RGDL-1	NPS	71h	149	240	62	Good	7	Fair
RTFL-1	NPS-Int	71g	147	240	61	Good	5	Fair
SBCC-1	NPS	71j	161	240	67	Good	8	Good
SCD-3	NPS-Int	68d	172	240	71	Excellent	8	Good
SGRL-1	NPS	71h	157	220	71	Excellent	7	Fair
SHGC-1	303(d)	71g	152	240	63	Good	5	Fair
SHM-3a	NPS-Int	68d	184	240	76	Excellent	7	Good
SLM-1	NPS-Int	68d	211	240	88	Excellent	8	Good
SLRL-1	NPS	71h	173	240	72	Excellent	9	Good
SMBF-1	NPS	65j	167	240	70	Excellent	8	Excellent
SMTC-1	NPS	71j	140	240	58	Good	7	Fair
SNKL-7	NPS	71g	174	240	73	Excellent	3	Poor
SNKL-8	NPS	71g	151	240	63	Good	6	Fair
SPGC-2	NPS	71g	201	240	84	Excellent	9	Good
SPHJ-1	NPS	68d	126	220	57	Good	4	Fair
SSCD-1	NPS-Int	68d	170	240	71	Good	7	Good
SWNL-2	303(d)	71g	181	240	75	Excellent	6	Fair
TCD-3	NPS-Int	68d	204	240	85	Excellent	10	Excellent
TCRJ-2	NPS	68b	201	240	84	Excellent	8	Excellent
TLNF-9	Ref	65j	167	240	70	Excellent	8	Excellent
TN-08	NPS	65j	192	240	80	Excellent	8	Excellent
TN-09	NPS	65i	167	220	76	Excellent	10	Good
TRKL-1	NPS	71h	159	240	66	Good	9	Good
UTSL-1	303(d)	71g	140	240	58	Good	4	Fair
WDCL-1	NPS-Int	71j	143	220	65	Good	6	Fair
WFAL-1	NPS	71f	185	240	77	Excellent	12	Good
WLFM-1	NPS	68c	157	220	71	Good	6	Good

Appendix H-1. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Middle Tennessee/Chicamauga Cataloging Unit (0602-0001) and Guntersville Lake Cataloging Unit (0603-0001). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		CU and Subwatershed (0602-0001)			CU and Subwatershed (0603-0001)						
		290	350	Total	060	080	100	120	140	150	160
County (s)		Dekalb	Jackson	----	Jackson	Jackson Dekalb	Jackson	Jackson	Jackson	Jackson	Jackson Dekalb
Acres Reported		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Pesticides Applied	Est. % Total Acres	20	17	20	18	27	26	10	12	35	26
Cattle	# / Acre	0.05	0.03	0.05	0.07	0.08	0.03	0.04	0.01	0.11	0.08
	A.U./Acre	**0.05**	**0.03**	**0.05**	**0.07**	**0.08**	**0.03**	**0.04**	**0.01**	**0.11**	**0.08**
Dairy	# / Acre	---	---	---	---	0.00	---	---	---	---	0.00
	A.U./Acre	---	---	---	---	**0.01**	---	---	---	---	**0.00**
Swine	# / Acre	---	---	---	0.01	0.01	0.03	---	---	---	0.18
	A.U./Acre	---	---	---	**0.00**	**0.00**	**0.01**	---	---	---	**0.07**
Poultry - Broilers	# / Acre	5.64	4.42	5.44	---	20.84	---	---	---	---	19.82
	A.U./Acre	**0.05**	**0.04**	**0.04**	---	**0.17**	---	---	---	---	**0.16**
Poultry - Layers	# / Acre	0.70	---	0.59	---	2.57	---	---	---	---	1.15
	A.U./Acre	**0.01**	---	**0.00**	---	**0.02**	---	---	---	---	**0.01**
Catfish	# Acres/ Acre	---	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.11**	**0.07**	**0.09**	**0.07**	**0.28**	**0.04**	**0.04**	**0.01**	**0.11**	**0.32**
Potential for NPS Impairment		Low	Low	Low	Low	Mod.	Low	Low	Low	Low	High

* No data reported for this portion of the subwatershed

Appendix H-1. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Middle Tennessee/Chicamauga Cataloging Unit (0602-0001) and Guntersville Lake Cataloging Unit (0603-0001). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		170	180	190	200	210	220	230	240	250	260
County (s)		Jackson	Jackson Dekalb	Jackson	Jackson	Jackson Marshall	Jackson Dekalb Marshall	Jackson	Marshall, Jackson*	Dekalb Marshall	Marshall Jackson*
Acres Reported		100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
Pesticides Applied	Est. % Total Acres	29	51	26	4	9	60	37	24	51	42
Cattle	# / Acre	0.06	0.12	0.05	0.02	0.04	0.14	0.06	0.09	0.14	0.08
	A.U./Acre	**0.06**	**0.12**	**0.05**	**0.02**	**0.04**	**0.14**	**0.06**	**0.09**	**0.14**	**0.08**
Dairy	# / Acre	---	0.01	---	---	---	---	---	---	0.00	---
	A.U./Acre	---	**0.01**	---	---	---	---	---	---	**0.00**	---
Swine	# / Acre	---	0.12	---	---	---	0.25	0.04	---	0.19	---
	A.U./Acre	---	**0.05**	---	---	---	**0.10**	**0.02**	---	**0.08**	---
Poultry - Broilers	# / Acre	---	22.97	---	---	---	55.09	25.31	0.16	65.50	25.39
	A.U./Acre	---	**0.18**	---	---	---	**0.44**	**0.20**	**0.00**	**0.52**	**0.20**
Poultry - Layers	# / Acre	0.09	1.87	---	---	---	3.34	2.24	0.00	3.37	2.79
	A.U./Acre	**0.00**	**0.01**	---	---	---	**0.03**	**0.02**	**0.00**	**0.03**	**0.02**
Catfish	# Acres/ Acre	0.00	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.06**	**0.37**	**0.05**	**0.02**	**0.04**	**0.71**	**0.30**	**0.09**	**0.77**	**0.30**
Potential for NPS Impairment		Low	High	Low	Low	Low	High	Mod.	Low	High	Mod.

* No data reported for this portion of the subwatershed

Appendix H-1. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Middle Tennessee/Chicamauga Cataloging Unit (0602-0001) and Guntersville Lake Cataloging Unit (0603-0001). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed						
		270	280	290	300	310	320	Total
County (s)		Dekalb Marshall	Dekalb Marshall Etowah	Marshall	Blount Marshall	Blount Marshall	Marshall	----
Acres Reported		100%	100%	100%	100%	100%	100%	100%
Pesticides Applied	Est. % Total Acres	56	58	53	41	36	15	37
Cattle	# / Acre	0.17	0.11	0.14	0.10	0.09	0.06	0.09
	A.U./Acre	**0.17**	**0.11**	**0.14**	**0.10**	**0.09**	**0.06**	**0.09**
Dairy	# / Acre	0.01	---	---	---	---	---	0.00
	A.U./Acre	**0.01**	---	---	---	---	---	**0.00**
Swine	# / Acre	0.12	0.06	---	---	---	---	0.07
	A.U./Acre	**0.05**	**0.03**	---	---	---	---	**0.03**
Poultry - Broilers	# / Acre	66.52	52.26	47.67	3.68	4.83	0.10	25.25
	A.U./Acre	**0.53**	**0.42**	**0.38**	**0.03**	**0.04**	**0.00**	**0.20**
Poultry - Layers	# / Acre	3.97	3.06	5.22	0.31	0.30	0.00	1.63
	A.U./Acre	**0.03**	**0.02**	**0.04**	**0.00**	**0.00**	**0.00**	**0.01**
Catfish	# Acres/ Acre	---	---	---	---	---	---	0.00
	A.U./Acre	---	---	---	---	---	---	---
Total	A.U./Acre	**0.79**	**0.58**	**0.56**	**0.13**	**0.13**	**0.06**	**0.33**
Potential for NPS Impairment		High	High	High	Low	Low	Low	High

* No data reported for this portion of the subwatershed

Appendix H-2. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Wheeler Lake Cataloging Unit (0603-0002). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		020	040	050	060	070	080	90	100	110	130
County (s)		Jackson	Jackson	Jackson	Jackson	Jackson Madison* Marshall*	Jackson	Jackson Marshall	Jackson* Madison Marshall	Marshall	Madison
Acres Reported		100%	100%	100%	100%	90%	100%	100%	99%	100%	100%
Pesticides Applied	Est. % Total Acres	6	5	7	16	13	11	31	23	36	13
Cattle	# / Acre	0.01	0.02	0.01	0.02	0.05	0.05	0.13	0.21	0.06	0.05
	A.U./Acre	**0.01**	**0.02**	**0.01**	**0.02**	**0.05**	**0.05**	**0.13**	**0.21**	**0.06**	**0.05**
Dairy	# / Acre	---	---	---	---	---	---	---	0.00	---	---
	A.U./Acre	---	---	---	---	---	---	---	**0.00**	---	---
Swine	# / Acre	---	---	---	---	---	---	---	0.04	---	---
	A.U./Acre	---	---	---	---	---	---	---	**0.01**	---	---
Poultry - Broilers	# / Acre	---	---	---	---	---	---	---	---	20.13	---
	A.U./Acre	---	---	---	---	---	---	---	---	**0.16**	---
Poultry - Layers	# / Acre	---	---	---	---	---	---	2.65	1.63	2.21	---
	A.U./Acre	---	---	---	---	---	---	**0.02**	**0.01**	**0.02**	---
Catfish	# Acres/ Acre	---	---	---	0.00	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.01**	**0.02**	**0.01**	**0.02**	**0.05**	**0.05**	**0.15**	**0.23**	**0.24**	**0.05**
Potential for NPS Impairment		Low	Low	Low	Low	Low	Low	Mod.	Mod.	Mod.	Low

* No data reported for this portion of the subwatershed

Appendix H-2. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Wheeler Lake Cataloging Unit (0603-0002). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		140	160	180	190	200	210	220	230	240	250
County (s)		Madison	Madison	Madison	Madison	Jackson* Madison	Jackson* Madison	Marshall Morgan	Madison	Madison	Madison
Acres Reported		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Pesticides Applied	Est. % Total Acres	22	15	30	17	10	24	8	8	4	22
Cattle	# / Acre	0.13	0.24	0.05	0.05	0.08	0.12	0.08	0.19	0.03	0.06
	A.U./Acre	**0.13**	**0.24**	**0.05**	**0.05**	**0.08**	**0.12**	**0.08**	**0.19**	**0.03**	**0.06**
Dairy	# / Acre	---	0.00	0.00	---	---	---	---	---	---	---
	A.U./Acre	---	**0.00**	**0.00**	---	---	---	---	---	---	---
Swine	# / Acre	---	0.01	---	---	0.01	0.01	0.00	---	---	0.00
	A.U./Acre	---	**0.00**	---	---	**0.01**	**0.01**	**0.00**	---	---	**0.00**
Poultry - Broilers	# / Acre	---	0.88	---	---	---	---	6.57	---	---	---
	A.U./Acre	---	**0.01**	---	---	---	---	**0.05**	---	---	---
Poultry - Layers	# / Acre	---	---	---	---	---	---	0.05	---	---	---
	A.U./Acre	---	---	---	---	---	---	**0.00**	---	---	---
Catfish	# Acres/ Acre	---	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.13**	**0.25**	**0.05**	**0.05**	**0.09**	**0.12**	**0.13**	**0.19**	**0.03**	**0.06**
Potential for NPS Impairment		Low	Mod.	Low	Low	Low	Low	Low	Mod.	Low	Low

* No data reported for this portion of the subwatershed

Appendix H-2. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Wheeler Lake Cataloging Unit (0603-0002). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		260	270	280	300	320	330	340	350	360	370
County (s)		Madison Limestone*	Marshall Morgan Cullman*	Limestone Madison	Limestone Madison	Limestone	Cullman Morgan	Lawrence Morgan Cullman*	Lawrence Morgan	Lawrence Morgan	Limestone
Acres Reported		97%	98%	100%	100%	100%	100%	95%	100%	100%	100%
Pesticides Applied	Est. % Total Acres	30	6	54	25	39	5	20	8	9	9
Cattle	# / Acre	---	0.13	0.08	0.07	0.10	0.19	0.21	0.12	0.09	---
	A.U./Acre	---	**0.13**	**0.08**	**0.07**	**0.10**	**0.19**	**0.21**	**0.12**	**0.09**	---
Dairy	# / Acre	---	0.01	---	---	0.00	0.01	0.03	0.01	0.00	---
	A.U./Acre	---	**0.01**	---	---	**0.01**	**0.01**	**0.05**	**0.02**	**0.00**	---
Swine	# / Acre	---	0.00	0.00	---	---	0.01	0.01	0.01	0.01	---
	A.U./Acre	---	**0.00**	**0.00**	---	---	**0.00**	**0.00**	**0.00**	**0.00**	---
Poultry - Broilers	# / Acre	---	5.81	---	---	6.69	80.93	18.62	9.68	0.13	---
	A.U./Acre	---	**0.05**	---	---	**0.05**	**0.65**	**0.15**	**0.08**	**0.00**	---
Poultry - Layers	# / Acre	---	0.14	---	1.24	0.39	0.90	0.47	0.05	0.00	---
	A.U./Acre	---	**0.00**	---	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	---
Catfish	# Acres/ Acre	---	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.00**	**0.19**	**0.08**	**0.08**	**0.16**	**0.86**	**0.41**	**0.22**	**0.10**	**0.00**
Potential for NPS Impairment		Low	Mod.	Low	Low	Mod.	High	High	Mod.	Low	Low

* No data reported for this portion of the subwatershed

Appendix H-2. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Wheeler Lake Cataloging Unit (0603-0002). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed						
		380	390	400	410	420	440	Total
County (s)		Morgan Limestone*	Limestone	Limestone	Lawrence Morgan	Lawrence	Lauderdale	----
Acres Reported		80%	100%	100%	100%	100%	100%	99%
Pesticides Applied	Est. % Total Acres	---	18	53	17	55	13	18
Cattle	# / Acre	0.07	0.04	0.04	0.07	0.36	0.12	0.10
	A.U./Acre	**0.07**	**0.04**	**0.04**	**0.07**	**0.36**	**0.12**	**0.10**
Dairy	# / Acre	---	---	0.00	---	---	---	0.00
	A.U./Acre	---	---	**0.00**	---	---	---	**0.00**
Swine	# / Acre	0.01	---	---	0.00	0.00	0.02	**0.00**
	A.U./Acre	**0.00**	---	---	**0.00**	**0.00**	**0.01**	**0.00**
Poultry - Broilers	# / Acre	6.77	---	1.38	1.68	---	10.67	**7.59**
	A.U./Acre	**0.05**	---	**0.01**	**0.01**	---	**0.09**	**0.06**
Poultry - Layers	# / Acre	---	---	0.93	0.00	---	1.06	**0.40**
	A.U./Acre	---	---	**0.01**	**0.00**	---	**0.01**	**0.00**
Catfish	# Acres/ Acre	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---
Total	A.U./Acre	**0.13**	**0.04**	**0.06**	**0.08**	**0.36**	**0.22**	**0.16**
Potential for NPS Impairment		Low	Low	Low	Low	High	Mod.	Mod.

* No data reported for this portion of the subwatershed

Shaded subwatersheds are pending reconcilliation of data from Lawrence County

Appendix H-3. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Lower Elk River Cataloging Unit (0603-0004). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed							
		020	060	070	080	120	130	150	Total
County (s)		Limestone	Limestone	Limestone	Limestone	Limestone Lauderdale*	Limestone Lauderdale*	Lauderdale Limestone*	----
Acres Reported		100%	100%	100%	100%	95%	96%	90%	96%
Pesticides Applied	Est. % Total Acres	13	16	3	52	11	19	17	24
Cattle	# / Acre	0.11	0.23	0.04	0.06	0.17	0.14	0.08	0.10
	A.U./Acre	**0.11**	**0.23**	**0.04**	**0.06**	**0.17**	**0.14**	**0.08**	**0.10**
Dairy	# / Acre	---	---	---	---	0.00	---	0.01	0.00
	A.U./Acre	---	---	---	---	**0.01**	---	**0.01**	**0.00**
Swine	# / Acre	---	---	---	---	---	0.28	0.03	0.03
	A.U./Acre	---	---	---	---	---	**0.11**	**0.01**	**0.01**
Poultry - Broilers	# / Acre	4.22	---	---	2.05	---	---	---	1.21
	A.U./Acre	**0.03**	---	---	**0.02**	---	---	---	**0.01**
Poultry - Layers	# / Acre	3.23	---	---	0.98	---	1.93	1.00	1.14
	A.U./Acre	**0.03**	---	---	**0.01**	---	**0.02**	**0.01**	**0.01**
Catfish	# Acres/ Acre	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.17**	**0.23**	**0.04**	**0.08**	**0.17**	**0.26**	**0.11**	**0.14**
Potential for NPS Impairment		Mod.	Mod.	Low	Low	Mod.	Mod.	Low	Low

* No data reported for this portion of the subwatershed

Appendix H-4. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Pickwick Lake Cataloging Unit (0603-0005). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		010	030	040	090	140	150	160	180	200	210
County (s)		Lawrence	Lauderdale	Colbert Franklin Lawrence	Lauderdale	Lauderdale	Lauderdale	Colbert	Lauderdale	Lauderdale	Colbert Franklin
Acres Reported		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Pesticides Applied	Est. % Total Acres	21	15	14	12	2	11	2	12	28	1
Cattle	# / Acre	0.08	0.17	0.12	0.17	0.08	0.10	0.07	0.10	0.05	0.06
	A.U./Acre	**0.08**	**0.17**	**0.12**	**0.17**	**0.08**	**0.10**	**0.07**	**0.10**	**0.05**	**0.06**
Dairy	# / Acre	0.00	0.00	0.00	---	---	---	---	---	---	---
	A.U./Acre	**0.00**	**0.01**	**0.00**	---	---	---	---	---	---	---
Swine	# / Acre	0.00	0.03	0.00	0.03	---	0.00	---	0.01	0.00	---
	A.U./Acre	**0.00**	**0.01**	**0.00**	**0.01**	---	**0.00**	---	**0.00**	**0.00**	---
Poultry - Broilers	# / Acre	0.07	18.39	6.31	4.34	---	---	10.17	---	9.40	9.78
	A.U./Acre	**0.00**	**0.15**	**0.05**	**0.03**	---	---	**0.08**	---	**0.08**	**0.08**
Poultry - Layers	# / Acre	0.00	0.95	1.71	---	---	---	1.14	0.70	---	0.17
	A.U./Acre	**0.00**	**0.01**	**0.01**	---	---	---	**0.01**	**0.01**	---	**0.00**
Catfish	# Acres/ Acre	0.00	---	0.00	---	---	---	---	---	0.00	0.00
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Total	A.U./Acre	**0.09**	**0.34**	**0.18**	**0.22**	**0.08**	**0.10**	**0.16**	**0.11**	**0.12**	**0.14**
Potential for NPS Impairment		Low	High	Mod.	Mod.	Low	Low	Mod.	Low	Low	Low

Appendix H-4. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Pickwick Lake Cataloging Unit (0603-0005). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed*						
		220	230	240	250	270	280	Total
County (s)		Lauderdale	Colbert Franklin	Colbert	Lauderdale	Lauderdale	Lauderdale	----
Acres Reported		100%	100%	100%	100%	100%	100%	100%
Pesticides Applied	Est. % Total Acres	53	1	6	4	0	0	13
Cattle	# / Acre	0.08	0.07	0.03	0.03	0.01	0.01	0.08
	A.U./Acre	**0.08**	**0.07**	**0.03**	**0.03**	**0.01**	**0.01**	**0.08**
Dairy	# / Acre	---	---	---	---	---	---	0.00
	A.U./Acre	---	---	---	---	---	---	**0.00**
Swine	# / Acre	0.01	---	---	---	---	---	0.01
	A.U./Acre	**0.00**	---	---	---	---	---	**0.00**
Poultry - Broilers	# / Acre	---	4.18	---	---	---	---	4.55
	A.U./Acre	---	**0.03**	---	---	---	---	**0.04**
Poultry - Layers	# / Acre	---	0.05	---	---	---	---	0.48
	A.U./Acre	---	**0.00**	---	---	---	---	**0.00**
Catfish	# Acres/ Acre	---	0.00	---	---	---	---	0.00
	A.U./Acre	---	---	---	---	---	---	---
Total	A.U./Acre	**0.08**	**0.11**	**0.03**	**0.03**	**0.01**	**0.01**	**0.12**
Potential for NPS Impairment		Low	Low	Low	Low	Low	Low	Low

* No data reported for subwatershed 320

Appendix H-5. Estimations of animal concentrations, animal units (AU), and percent of acres where pesticides/herbicides applied in the Bear Creek Cataloging Unit (0603-0006). Numbers of animals and pesicides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed*						
		010	030	040	050	070	110	Total
County (s)		Franklin Lawrence Marion Winston	Franklin	Franklin Colbert*	Franklin Colbert	Franklin* Colbert	Colbert	----
Acres Reported		100%	100%	96%	100%	98%	100%	98%
Pesticides Applied	Est. % Total Acres	4	1	1	1	1	0	2
Cattle	# / Acre	0.07	0.08	0.08	0.06	0.03	0.00	0.06
	A.U./Acre	**0.07**	**0.08**	**0.08**	**0.06**	**0.03**	**0.00**	**0.06**
Dairy	# / Acre	0.00	---	---	---	---	---	0.00
	A.U./Acre	**0.00**	---	---	---	---	---	**0.00**
Swine	# / Acre	0.00	---	---	0.05	0.02	---	0.00
	A.U./Acre	**0.00**	---	---	**0.02**	**0.01**	---	**0.00**
Poultry - Broilers	# / Acre	18.42	18.82	18.86	12.38	---	0.51	14.18
	A.U./Acre	**0.15**	**0.15**	**0.15**	**0.10**	---	**0.00**	**0.11**
Poultry - Layers	# / Acre	0.40	0.56	0.56	0.37	---	---	0.36
	A.U./Acre	**0.00**	**0.00**	**0.00**	**0.00**	---	---	**0.00**
Catfish	# Acres/ Acre	0.00	0.00	0.00	0.00	---	---	0.00
	A.U./Acre	---	---	---	---	---	---	---
Total	A.U./Acre	**0.23**	**0.23**	**0.23**	**0.19**	**0.04**	**0.00**	**0.17**
Potential for NPS Impairment		Mod.	Mod.	Mod.	Mod.	Low	Low	Mod.

* No data reported for this portion of the subwatershed (no data available for Subwatershed 100)

Appendix I-1. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Middle Tennessee (0602-0001) and Guntersville Lake (0603-0001) cataloging units as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Basin Code- Cataloging Unit	0602-0001		0603-0001						
Subwatershed	**290**	**350**	**060**	**080**	**100**	**120**	**140**	**150**	**160**
Forest Condition									
% of Subwatershed Needing Forest Improvement	60	40	19	29	35	43	42	19	33
Sediment Contributions (Tons/Acre)									
Cropland	0.1	0.4	0.2	0.5	0.4	0.1	0.2	0.3	0.3
Sand & Gravel Pits	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mined Land	0.0	0.0	0.1	2.2	0.0	0.0	0.0	0.0	4.5
Developing Urban Land	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Critical Areas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gullies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stream Banks	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Dirt Roads and Roadbanks	1.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4
Woodlands	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Sediment	1.8	0.5	0.7	**3.1**	0.6	0.2	0.3	0.4	**5.3**
Potential for Sediment NPS	Low	Low	Low	**Mod.**	Low	Low	Low	Low	**High**
Current NPS Project	----	----	----	**----**	----	----	----	----	**----**
Septic Tanks									
# Septic Tanks per acre*	0.01	0.03	0.04	0.02	0.01	0.00	0.00	0.02	0.02
# Septic Tanks Failing per acre*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Alternative Septic Systems	0	0	0	0	0	0	0	0	0
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland	X	X	X	X	X	X	X	X	X
Gully Erosion on Agricultural Land	X								X
Road and Roadbank Erosion	X			X		X			X
Poor Soil Condition (cropland)	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	X	X	X	X
Excessive Sediment From Roads/Roadbanks	X			X	X	X	X		X
Excessive Sediment from Urban Development									
Inadequate Management of Animal Wastes	X			X					X
Nutrients in Surface Waters	X			X		X	X		X
Pesticides in Surface Waters									
Livestock Commonly have Access to Streams	X	X	X	X	X	X	X	X	X

Appendix I-1. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Middle Tennessee (0602-0001) and Guntersville Lake (0603-0001) cataloging units as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Basin Code- Cataloging Unit	0603-0001								
Subwatershed	**170**	**180**	**190**	**200**	**210**	**220**	**230**	**240**	**250**
Forest Condition									
% of Subwatershed Needing Forest Improvement	26	16	29	29	27	20	19	25	32
Sediment Contributions (Tons/Acre)									
Cropland	0.6	0.8	0.6	0.0	0.3	1.1	0.8	0.2	0.8
Sand & Gravel Pits	0.0	0.0	0.1		0.0	0.0	0.0	0.0	0.0
Mined Land	0.0	1.9	0.0		0.0	0.0	1.2	0.0	1.0
Developing Urban Land	0.0	0.0	0.0		0.1	0.0	0.0	0.2	0.0
Critical Areas	0.0	0.0	0.0		0.0	0.7	0.0	0.2	0.7
Gullies	0.0	0.1	0.0		0.0	0.0	0.0	0.1	0.2
Stream Banks	0.0	0.0	0.0		0.0	0.0	0.0	0.1	0.1
Dirt Roads and Roadbanks	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.9
Woodlands	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.2
Total Sediment	0.6	**3.4**	0.7	0.1	0.5	**2.5**	**2.2**	0.9	**3.8**
Potential for Sediment NPS	Low	**Mod.**	Low	Low	Low	**Mod**	**Mod.**	Low	**Mod.**
Current NPS Project	----	**----**	----	----	----	Sand Mtn	**----**	----	Sand Mtn
Septic Tanks									
# Septic Tanks per acre*	0.02	0.03	0.05	0.00	0.01	0.04	0.02	0.09	0.04
# Septic Tanks Failing per acre*	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	0.01
# of Alternative Septic Systems	0	0	0	0	0	300	0	0	400
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland	X	X	X	X	X	X	X		X
Gully Erosion on Agricultural Land		X							
Road and Roadbank Erosion	X	X			X	X		X	X
Poor Soil Condition (cropland)		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	X			X
Excessive Sediment From Roads/Roadbanks	X	X			X	X		X	X
Excessive Sediment from Urban Development							X	X	
Inadequate Management of Animal Wastes		X				X		X	X
Nutrients in Surface Waters	X	X			X	X		X	X
Pesticides in Surface Waters					X				
Livestock Commonly have Access to Streams	X	X	X	X	X	X	X		X

Appendix I-1. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Middle Tennessee (0602-0001) and Guntersville Lake (0603-0001) cataloging units as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Basin Code- Cataloging Unit	0603-0001						
Subwatershed	**260**	**270**	**280**	**290**	**300**	**310**	**320**
Forest Condition							
% of Subwatershed Needing Forest Improvement	22	26	19	8	16	6	20
Sediment Contributions (Tons/Acre)							
Cropland	0.7	0.7	0.7	0.8	1.0	0.5	0.2
Sand & Gravel Pits	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Mined Land	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Developing Urban Land	0.1	0.1	0.1	0.3	0.2	0.0	0.1
Critical Areas	0.2	0.7	0.6	0.8	0.4	0.2	0.1
Gullies	0.2	0.3	0.2	0.5	0.2	0.2	0.1
Stream Banks	0.3	0.2	0.4	0.9	0.5	0.3	0.1
Dirt Roads and Roadbanks	0.2	1.4	0.5	0.5	0.2	0.1	0.1
Woodlands	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Total Sediment	1.7	**3.5**	**2.4**	**3.8**	**2.5**	**2.1**	0.9
Potential for Sediment NPS	Low	**Mod**	**Mod**	**Mod.**	**Mod.**	**Mod.**	Low
Current NPS Project	----	Sand Mtn	Sand Mtn	----	----	----	----
Septic Tanks							
# Septic Tanks per acre	0.03	0.05	0.05	0.08	0.02	0.05	0.05
# Septic Tanks Failing per acre	0.03	0.02	0.02	0.06	0.02	0.04	0.04
# of Alternative Septic Systems	0	0	76	0	0	0	0
Resource Concerns in the Subwatershed							
Excessive Erosion on Cropland		X	X				
Gully Erosion on Agricultural Land			X				
Road and Roadbank Erosion		X	X		X		X
Poor Soil Condition (cropland)		X	X				
Excessive Animal Waste Applied to Land	X	X	X		X		
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		
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							
Livestock Commonly have Access to Streams	X	X	X	X			

Appendix I-2. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Wheeler Lake cataloging unit (0603-0002) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0002								
Subwatershed	**020**	**040**	**050**	**060**	**070**	**080**	**090**	**100**	**110**
Forest Condition									
% of Subwatershed Needing Forest Improvement	46	47	46	41	42	43	31	25	27
Sediment Contributions (Tons/Acre)									
Cropland	0.0	0.0	0.1	0.0	0.2	0.0	0.4	0.4	0.5
Sand & Gravel Pits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mined Land	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Developing Urban Land	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Critical Areas	0.0	0.0	0.0	0.0	1.3	0.0	0.1	1.1	0.1
Gullies	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1
Stream Banks	0.0	0.0	0.0	0.0	0.5	0.1	0.6	0.6	0.3
Dirt Roads and Roadbanks	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2
Woodlands	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Total Sediment	0.1	0.1	0.1	0.2	**2.1**	0.2	1.5	**2.8**	1.2
Potential for Sediment NPS	Low	Low	Low	Low	**Mod.**	Low	Low	**Mod.**	Low
Current NPS Project	Paint Rk	Paint Rk	Paint Rk	Paint Rk	Paint Rk	Paint Rk	Paint Rk	Paint Rk	----
Septic Tanks									
# Septic Tanks per acre	0.00	0.00	0.00	0.01	0.00	0.00	0.06	0.06	0.03
# Septic Tanks Failing per acre	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.01
# of Alternative Septic Systems	0	0	0	0	0	0	0	0	0
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland			X	X	X			X	
Gully Erosion on Agricultural Land									
Road and Roadbank Erosion	X	X	X						
Poor Soil Condition (cropland)								X	
Excessive Animal Waste Applied to Land								X	X
Excessive Pesticides Applied to Land								X	
Excessive Sediment from Cropland	X		X		X			X	
Excessive Sediment From Roads/Roadbanks	X		X	X	X	X	X	X	
Excessive Sediment from Urban Development									
Inadequate Management of Animal Wastes					X		X	X	X
Nutrients in Surface Waters			X		X			X	X
Pesticides in Surface Waters								X	
Livestock Commonly have Access to Streams	X	X	X	X	X	X	X	X	

Appendix I-2. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Wheeler Lake cataloging unit (0603-0002) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0002								
Subwatershed	**130**	**140**	**160**	**180**	**190**	**200**	**210**	**220**	**230**
Forest Condition									
% of Subwatershed Needing Forest Improvement	*	*	*	*	*	*	*	5	*
Sediment Contributions (Tons/Acre)									
Cropland	0.5	0.7	0.5	0.6	0.3	0.2	0.3	0.3	0.1
Sand & Gravel Pits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mined Land	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Developing Urban Land	0.2	0.8	0.3	1.2	0.9	0.2	3.3	0.0	3.5
Critical Areas	0.3	0.8	0.7	2.2	1.9	0.5	0.6	0.1	0.1
Gullies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Stream Banks	0.1	0.1	3.8	0.1	0.1	0.3	0.4	0.1	0.1
Dirt Roads and Roadbanks	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0
Woodlands	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Total Sediment	1.3	**2.4**	**5.5**	**4.2**	**3.2**	1.3	**4.8**	0.6	**4.0**
Potential for Sediment NPS	Low	**Mod.**	**High**	**High**	**Mod.**	Low	**High**	Low	**Mod.**
Current NPS Project	----	----	----	----	----	----	----	----	----
Septic Tanks									
# Septic Tanks per acre	0.20	0.04	0.08	0.07	0.03	0.05	0.04	0.03	0.09
# Septic Tanks Failing per acre	0.04	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.03
# of Alternative Septic Systems	0	0	0	0	0	0	0	40	0
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland		X	X	X		X	X	X	
Gully Erosion on Agricultural Land		X				X	X	X	
Road and Roadbank Erosion									
Poor Soil Condition (cropland)		X		X					
Excessive Animal Waste Applied to Land								X	
Excessive Pesticides Applied to Land		X	X	X		X	X		
Excessive Sediment from Cropland		X	X	X		X	X	X	
Excessive Sediment From Roads/Roadbanks									
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	X	
Pesticides in Surface Waters		X	X	X		X	X		
Livestock Commonly have Access to Streams		X	X	X		X	X	X	

Appendix I-2. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Wheeler Lake cataloging unit (0603-0002) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0002								
Subwatershed	**240**	**250**	**260**	**270**	**280**	**300**	**320**	**330**	**340**
Forest Condition									
% of Subwatershed Needing Forest Improvement	*	*	*	6	0	6	14	8	2
Sediment Contributions (Tons/Acre)									
Cropland	0.1	0.5	0.4	0.1	1.8	0.7	0.9	0.2	0.3
Sand & Gravel Pits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Mined Land	1.2	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Developing Urban Land	4.1	1.5	1.8	0.0	0.2	2.6	0.2	0.1	0.0
Critical Areas	0.4	3.7	0.8	0.1	0.0	1.0	0.1	0.0	0.0
Gullies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stream Banks	0.0	0.2	0.3	0.1	0.2	0.6	0.3	0.0	0.1
Dirt Roads and Roadbanks	0.0	0.0	0.0	0.3	0.2	0.4	0.3	0.2	0.2
Woodlands	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.1
Total Sediment	**5.9**	**5.9**	**4.0**	0.6	**2.4**	**5.6**	**2.0**	0.8	0.8
Potential for Sediment NPS	**High**	**High**	**Mod.**	Low	**Mod.**	**High**	**Mod.**	Low	Low
Current NPS Project	----	----	----	----	----	----	----	Flint Ck	Flint Ck
Septic Tanks									
# Septic Tanks per acre	0.17	0.12	0.11	0.10	0.02	0.07	0.02	0.06	0.32
# Septic Tanks Failing per acre	0.05	0.02	0.02	0.01	0.00	0.01	0.00	0.00	0.03
# of Alternative Septic Systems	0	0	0	300	0	0	200	100	100
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland	X	X		X	X	X	X	X	X
Gully Erosion on Agricultural Land				X				X	X
Road and Roadbank Erosion				X				X	
Poor Soil Condition (cropland)		X			X	X	X		X
Excessive Animal Waste Applied to Land								X	X
Excessive Pesticides Applied to Land	X	X				X			
Excessive Sediment from Cropland		X		X	X	X	X	X	X
Excessive Sediment From Roads/Roadbanks				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
Pesticides in Surface Waters	X	X			X	X	X		
Livestock Commonly have Access to Streams	X	X		X	X	X	X	X	X

Appendix I-2. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Wheeler Lake cataloging unit (0603-0002) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0002								
Subwatershed	**350**	**360**	**370**	**380**	**390**	**400**	**410**	**420**	**440**
Forest Condition									
% of Subwatershed Needing Forest Improvement	2	50	10	0	6	1	10	26	*
Sediment Contributions (Tons/Acre)									
Cropland	0.3	0.4	0.3	0.2	0.4	1.6	1.6	2.6	0.4
Sand & Gravel Pits	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mined Land	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Developing Urban Land	0.4	0.2	0.0	2.0	1.0	0.0	0.2	0.0	0.1
Critical Areas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Gullies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stream Banks	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Dirt Roads and Roadbanks	0.1	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.8
Woodlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Sediment	0.9	0.8	0.3	**2.5**	1.5	1.7	**2.0**	**2.7**	1.6
Potential for Sediment NPS	Low	Low	Low	**Mod.**	Low	Low	**Mod.**	**Mod**	Low
Current NPS Project	Flint Ck	Flint Ck	----	----	----	----	----	----	----
Septic Tanks									
# Septic Tanks per acre	0.10	0.03	0.00	0.10	0.30	0.01	0.03	0.00	0.03
# Septic Tanks Failing per acre	0.01	0.03	0.00	0.01	0.09	0.00	0.01	0.00	0.00
# of Alternative Septic Systems	201	3	0	200	5000	0	103	0	5
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland	X	X		X	X	X	X	X	X
Gully Erosion on Agricultural Land	X			X			X		
Road and Roadbank Erosion		X					X	X	
Poor Soil Condition (cropland)	X	X			X	X	X	X	X
Excessive Animal Waste Applied to Land	X	X					X		
Excessive Pesticides Applied to Land		X					X	X	
Excessive Sediment from Cropland	X	X		X	X	X	X	X	X
Excessive Sediment From Roads/Roadbanks	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		
Pesticides in Surface Waters		X	X		X	X	X	X	
Livestock Commonly have Access to Streams	X	X		X	X	X	X		X

Appendix I-3. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Lower Elk River (0603-0004) cataloging unit as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0004						
Subwatershed	**020**	**060**	**070**	**080**	**120**	**130**	**150**
Forest Condition							
% of Subwatershed Needing Forest Improvement	21	17	23	8	11	11	*
Sediment Contributions (Tons/Acre)							
Cropland	0.5	0.5	0.1	1.5	0.4	0.7	0.3
Sand & Gravel Pits	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mined Land	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Developing Urban Land	0.2	0.0	0.1	0.2	0.0	0.1	0.1
Critical Areas	0.2	0.0	0.1	0.1	0.0	0.1	0.1
Gullies	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stream Banks	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Dirt Roads and Roadbanks	0.2	0.1	0.0	0.0	0.7	1.7	1.0
Woodlands	0.1	0.5	0.1	0.1	0.2	0.0	0.2
Total Sediment	1.4	1.3	0.7	1.9	1.5	**2.6**	1.9
Potential for Sediment NPS	Low	Low	Low	Low	Low	**Mod.**	Low
Current NPS Project	----	----	----	----	----	----	----
Septic Tanks							
# Septic Tanks per acre	0.01	0.03	0.02	0.02	0.01	0.02	0.03
# Septic Tanks Failing per acre	0.00	0.00	0.00	0.00	0.00	0.00	0.00
# of Alternative Septic Systems	50	0	0	0	0	0	40
Resource Concerns in the Subwatershed							
Excessive Erosion on Cropland	X	X		X	X	X	
Gully Erosion on Agricultural Land							
Road and Roadbank Erosion							
Poor Soil Condition (cropland)	X	X	X	X	X	X	X
Excessive Animal Waste Applied to Land							
Excessive Pesticides Applied to Land							
Excessive Sediment from Cropland	X			X	X	X	
Excessive Sediment From Roads/Roadbanks							
Excessive Sediment from Urban Development							
Inadequate Management of Animal Wastes							
Nutrients in Surface Waters							
Pesticides in Surface Waters	X			X	X	X	
Livestock Commonly have Access to Streams	X	X	X	X	X	X	X

Appendix I-4. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Pickwick Lake cataloging unit (0603-0005) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0005								
Subwatershed	**010**	**030**	**040**	**090**	**140**	**150**	**160**	**180**	**200**
Forest Condition									
% of Subwatershed Needing Forest Improvement	57	*	6	*	*	*	*	*	*
Sediment Contributions (Tons/Acre)									
Cropland	1.1	0.5	1.0	0.2	0.2	0.3	0.8	0.4	0.1
Sand & Gravel Pits	0.0	0.0	0.0	0.0		0.1	0.1	0.2	0.1
Mined Land	0.0	0.0	0.2	0.0		0.0	0.0	0.0	0.0
Developing Urban Land	0.0	0.1	0.0	0.0		0.1	6.6	0.1	1.4
Critical Areas	0.0	0.0	0.1	0.0		0.0	0.4	0.0	0.0
Gullies	0.0	0.0	0.3	0.0		0.0	1.1	0.0	0.0
Stream Banks	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Dirt Roads and Roadbanks	0.0	1.0	0.1	0.8	0.1	0.6	0.0	0.8	0.6
Woodlands	0.0	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.2
Total Sediment	1.2	1.8	**2.1**	1.5	0.6	1.4	**9.3**	1.8	**2.4**
Potential for Sediment NPS	Low	Low	**Mod.**	Low	Low	Low	**High**	Low	**Mod.**
Current NPS Project	----	----	----	----	----	----	----	----	----
Septic Tanks									
# Septic Tanks per acre*	0.02	0.06	0.02	0.06	0.00	0.07	0.05	0.03	0.11
# Septic Tanks Failing per acre*	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01
# of Alternative Septic Systems	2	35	33	14	0	56	12	38	25
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland	X	X	X			X			X
Gully Erosion on Agricultural Land									
Road and Roadbank Erosion	X		X						
Poor Soil Condition (cropland)	X	X	X			X		X	X
Excessive Animal Waste Applied to Land	X		X						
Excessive Pesticides Applied to Land			X						
Excessive Sediment from Cropland	X	X	X					X	X
Excessive Sediment From Roads/Roadbanks	X		X						
Excessive Sediment from Urban Development									X
Inadequate Management of Animal Wastes	X		X						
Nutrients in Surface Waters	X		X						
Pesticides in Surface Waters			X						
Livestock Commonly have Access to Streams	X		X	X	X			X	X

Appendix I-4. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Pickwick Lake cataloging unit (0603-0005) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Basin Code- Cataloging Unit	0603-0005							
Subwatershed	**210**	**220**	**230**	**240**	**250**	**270**	**280**	**320**
Forest Condition								
% of Subwatershed Needing Forest Improvement	*	*	*	*	*	*	*	*
Sediment Contributions (Tons/Acre)								
Cropland	0.4	2.7	0.1	0.4	0.2	0.0	0.0	
Sand & Gravel Pits	0.0	0.0	0.7	0.0	0.2	0.0	0.4	
Mined Land	0.4	0.0	0.3	0.5	0.0	0.1	0.0	
Developing Urban Land	0.4	0.0	0.2	0.1	0.0	0.0	0.0	
Critical Areas	0.3	0.0	0.1	0.4	0.0	0.0	0.0	
Gullies	0.6	0.1	0.2	0.6	0.0	0.0	0.0	
Stream Banks	0.2	0.8	0.1	0.1	0.1	0.1	0.1	
Dirt Roads and Roadbanks	0.0	1.0	0.0	0.0	0.6	0.9	0.9	
Woodlands	0.3	0.0	0.6	0.6	0.2	0.3	0.3	
Total Sediment	**2.6**	**4.7**	**2.3**	**2.7**	1.3	1.5	1.7	
Potential for Sediment NPS	**Mod.**	**High**	**Mod.**	**Mod.**	Low	Low	Low	
Current NPS Project	----	----	----	----	----	----	----	----
Septic Tanks								
# Septic Tanks per acre	0.04	0.03	0.03	0.01	0.01	0.01	0.01	
# Septic Tanks Failing per acre	0.01	0.00	0.01	0.00	0.00	0.00	0.00	
# of Alternative Septic Systems	64	36	56	15	17	7	7	
Resource Concerns in the Subwatershed								
Excessive Erosion on Cropland		X						
Gully Erosion on Agricultural Land								
Road and Roadbank Erosion								
Poor Soil Condition (cropland)		X						
Excessive Animal Waste Applied to Land	X							
Excessive Pesticides Applied to Land								
Excessive Sediment from Cropland								
Excessive Sediment From Roads/Roadbanks								
Excessive Sediment from Urban Development								
Inadequate Management of Animal Wastes	X							
Nutrients in Surface Waters	X							
Pesticides in Surface Waters								
Livestock Commonly have Access to Streams	X		X		X			

Appendix I-5. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Bear Creek cataloging unit (0603-0006) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Basin Code- Cataloging Unit	0603-0006						
Subwatershed	**010**	**030**	**040**	**050**	**070**	**100**	**110**
Forest Condition							
% of Subwatershed Needing Forest Improvement	1	*	*	*	*	*	*
Sediment Contributions (Tons/Acre)							
Crop Sediment	0.2	0.1	0.1	0.2	0.1		0.7
Sand & Gravel Pits	3.8	0.2	0.2	0.2	0.0		0.0
Mined Land	1.1	1.5	2.2	0.0	0.5		0.0
Developing Urban Land	0.1	0.0	0.0	0.0	0.0		0.1
Critical Areas	0.1	0.0	0.0	0.3	0.5		0.5
Gullies	0.1	0.2	0.1	0.7	1.3		1.5
Stream Banks	0.3	0.3	0.2	0.9	0.1		0.0
Dirt Roads	0.1	0.5	0.0	0.4	0.0		0.0
Woodlands	2.5	0.6	0.9	0.9	0.7		0.6
Total Sediment	**8.4**	**3.4**	**3.8**	**3.5**	**3.3**		**3.5**
Potential for Sediment NPS	**High**	**Mod.**	**Mod.**	**Mod.**	**Mod.**		**Mod.**
Current NPS Project	----	----	----	----	----	----	----
Septic Tanks							
# Septic Tanks per acre	0.01	0.02	0.01	0.01	0.01		0.01
# Septic Tanks Failing per acre	0.00	0.01	0.00	0.00	0.00		0.00
# of Alternative Septic Systems	81	50	82	10	6		16
Resource Concerns in the Subwatershed							
Excessive Erosion on Cropland							
Gully Erosion on Agricultural Land							
Road and Roadbank Erosion	X						
Poor Soil Condition (cropland)							
Excessive Animal Waste Applied to Land	X	X	X	X			
Excessive Pesticides Applied to Land							
Excessive Sediment from Cropland							
Excessive Sediment From Roads/Roadbanks							
Excessive Sediment from Urban Development			X				
Inadequate Management of Animal Wastes	X	X	X	X			
Nutrients in Surface Waters	X	X		X			
Pesticides in Surface Waters	X	X	X	X			
Livestock Commonly have Access to Streams							

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001
Sub-watershed		080	080	100	100	100	100	120	140	140	160	160	170	180	180	180
Station		GSTJ-1	MILJ-2	LCRJ-1	LCRJ-2	TCRJ-1	TCRJ-2	COCJ-1	BCNJ-1	BCNJ-2	HFLJ-1	HGUJ-160	ROBJ-1	BYTJ-2	BYTJ-2a	BYTJ-3
Date (YYMMDD)		030618	030617	030623	030623	030623[a]	030618	030624	030624	030624	030617	030617	030604[f]	030611	030617[f]	030616
Subecoregion		68d	68d	68c	71f[NG]	68b[NG]	68b[NG]	68b[NG]	68b[NG]	68c	68d	68d	68b[NG]	68d	68d	68d
Width (ft)		15	60	60	35		13	25	50	10	15	20		20		25
Canopy cover[b]		S	MO	50/50	50/50	MS	MS	MS	MS	50/50	50/50	MS		MS		50/50
Depth (ft)	Riffle	0.5			0.5		0.3			0.2	0.5			0.5		
	Run	1.3	1.3	1.3	1.3		1.0	1.5	2.5	0.5	1.5	2.0		2.0		2.0
	Pool	2.0	2.3	3.0	2.5	1.5	2.0	3.0	3.0	2.5	2.5	2.5		3.0		3.5
Substrate (%)	Bedrock		75		15							40				
	Boulder	50	3		5		6	1		1		15		1		
	Cobble	25	2		35		24			35	5	15		15		2
	Gravel	10		15	25		50	5	15	40	15			15		3
	Sand	10		80	15		15	65	75	20	65			47		58
	Silt	3	15	2	1		3	3	2	2	4	20		10		2
	Detritus	2	3	3	4		2	15	5		11	15		12		35
	Clay							11	3	2						
	Organic silt		2									5				
Habitat assessment form[c, d]		RR	GP[NGP]	GP[NGP]	RR		RR	GP[NGP]	GP[NGP]	RR	RR	GP[NGP]		RR		GP[NGP]
Instream habitat quality		93	53	48	90		88	49	50	54	49	54		64		58
Sediment deposition		93	66	68	71		86	69	63	56	30	69		35		74
Sinuosity		95	30	30	90		88	45	35	35	33	40		55		43
Bank and vegetative stability		85	61	56	56		80	21	30	41	48	63		33		34
Riparian measurements		100	71	36	36		71	50	73	33	85	86		48		58
Habitat assessment score		222	142	124	171		201	114	125	112	130	152		127		133
% Maximum		93	65	56	71		84	52	57	47	54	69		53		60
Assessment[e]		Excellent	Good	Good	Excellent		Excellent	Good	Good	Fair	Good	Good		Good		Good

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001
Sub-watershed		180	180	210	220	270	270	270	270	270	270	270	270	270	270	280
Station		DICJ-1	SPHJ-1	NSTJ-1	SSCD-1	LSLM-1	LSLM-1	SC-1	SC-2	SC-4	SCD-3	SCD-3	SLM-1	SLM-1	SPRJ-1	SH-1
Date (YYMMDD)		030616	030616	030625[a]	030610	030616	031015	031016	031016	031015	030610	031016	030616	031015	030604[a]	031016
Subecoregion		68d	68d	68b[NG]	68d	68d	68d	68d	68d	68d	68d	68d	68d	68d	68b[NG]	68d
Width (ft)		15	15		30	20		10	30	20	45	20	20	5		20
Canopy cover[b]		MS	MS		50/50	S	MS	MS	50/50	MO	MS	MS	S	MS		O
Depth (ft)	Riffle	0.3			0.5	1.0	0.2	0.2		0.3	0.5	0.2	0.5	0.1		0.2
	Run	1.0	1.5		1.5	1.5	0.6	2.0		0.8	2.5	0.8	1.0	0.5		1.0
	Pool	1.5	3.5		2.0	2.0	1.5	3.0		1.1	3.0	1.3	1.5	1.0		2.0
Substrate (%)	Bedrock	30			15	15	10			80	25		20	20		
	Boulder	10			32	30	40	21	2	8	15	25	40	70		1
	Cobble	4			10	25	10	10	10		15	30	20	5		3
	Gravel	5			5	8	5	10	15		5	15	6	2		5
	Sand	20	60		27	20	32	40	60	10	29	20	12	1		85
	Silt	15	10		8			10	10		3					3
	Detritus	16	30		3	2	3	4	3	2	8	7	2	2		3
	Clay							5								
	Organic silt											3				
Habitat assessment form[c, d]		RR	GP[NGP]		RR	RR	RR	RR	RR	RR	RR	RR	RR	RR		RR
	Instream habitat quality	57	45		74	85	73	52	60	58	83	73	86	65		30
	Sediment deposition	54	68		61	85	55	50	50	73	60	65	80	95		30
	Sinuosity	48	40		88	93	80	10	5	80	63	70	98	85		5
	Bank and vegetative stability	64	23		58	88	90	55	43	78	48	58	86	88		58
	Riparian measurements	85	80		64	90	90	75	80	95	75	90	90	90		20
Habitat assessment score		158	126		170	211	188	139	139	176	171	176	211	191		95
% Maximum		66	57		71	88	78	58	58	73	71	73	88	80		40
Assessment[e]		Good	Good		Good	Excellent	Excellent	Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent		Fair

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0001	0001	0001	0001	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002
Sub-watershed		280	280	280	280	040	040	040	040	110	110	110	140	140	140	140
Station		SH-2	SH-4	SHM-3a	SHM-3a	LRKJ-1	LRKJ-2	LRKJ-3	MCFC-1	PGRM-1	SHLM-1	WLFM-1	FLTM-1	FLTM-1	FLTM-2	FLTM-3
Date (YYMMDD)		031015	031015	030616	031015	030624	030624	030604[a]	030623	030617[a]	030617[f]	030617	030626	030707	030626	030626
Subecoregion		68d	68d	68d	68d	68c	68c	68c	71j[NG]	68d	68d	68c	71g	71g	71g	71g
Width (ft)		25	60	40	40	25	30		10			25	30	35	65	70
Canopy cover[b]		MS	MO	MS	MO	50/50	MO		50/50			S	50/50	50/50		MS
Depth (ft)	Riffle			1.5		0.3	0.3						1.0	0.5	1.0	
	Run	0.8		2.0	1.5	1.0	1.0		1.0			2.0	2.0	1.5	2.0	1.8
	Pool	1.0		2.5	2.5	3.3	2.5		2.0			2.8	1.0	3.0	7.0	1.5
Substrate (%)	Bedrock		15	20	80	2							50	10	40	45
	Boulder		5	20	5	5	1						2	5	10	2
	Cobble	10	38	5	5	10	30					8	20	20	20	20
	Gravel	20	20	5	2	40	35					10	20	40	15	10
	Sand	50	20	40	5	30	25		80			10	4	20	2	5
	Silt	10				3	3		15			10	1	1	10	15
	Detritus	5	2	9	3	5	4		5			3	3	3	3	3
	Clay	5		1		10	2					59		1		
	Organic silt															
Habitat assessment form[c, d]		GP[NGP]	RR	RR	RR	RR	RR		GP[NGP]			GP[NGP]	RR	RR	RR	GP[NGP]
	Instream habitat quality	55	73	81	57	68	66		35			71	72	84	86	70
	Sediment deposition	50	83	66	78	71	69		61			83	74	58	78	71
	Sinuosity	35	10	80	80	68	20		48			50	90	68	88	38
	Bank and vegetative stability	53	90	61	80	35	41		10			36	41	66	50	40
	Riparian measurements	65	75	84	80	44	43		13			84	63	51	79	63
Habitat assessment score		128	179	184	179	144	133		79			157	168	170	185	140
% Maximum		58	75	76	75	60	55		36			71	70	71	77	63
Assessment[e]		Good	Excellent	Excellent	Excellent	Fair	Good		Fair			Good	Excellent	Excellent	Excellent	Good

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0002	0002	0004	0004	0004	0004	0004	0004	0004	0004	0004	0004	0005	0005	0005
Sub-watershed		160	200	020	020	020	070	080	120	150	150	150	150	010	010	010
Station		MTMN-164	HRCM-3	MILL-1	RGDL-1	TRKL-1	BPTL-1	SLRL-1	SGRL-1	DMTL-1	EFAL-1	MFAL-1	WFAL-1	BRDL-1	BRDL-1	CRKL-1
Date (YYMMDD)		030618	030617	030619	030618	030619	030625[a]	030625	030625	030624	030625	030625	030625	030623	031014	030623
Subecoregion		68c	71g	71h	71h	71h	71h	71h	71h	71f[NG]	71f[NG]	71f[NG]	71f[NG]	71j[NG]	71j[NG]	71j[NG]
Width (ft)		35	25	25	25	15		70	80	25	20	25	15	10	10	25
Canopy cover[b]		MS	MS	50/50	50/50	MS		MS	O	MS	S	MS	S	S	S	MS
Depth (ft)	Riffle	0.5	0.8	0.5	0.7	0.4		0.2		0.3	0.3	0.2	0.2			
	Run	1.0	1.0	0.8	1.5	1.0		0.8	2.0	1.0	0.8	0.5	0.5	0.5	0.6	1.5
	Pool	2.0	2.0	1.0	2.0	2.5		1.2	2.5	1.5	1.0	1.5	0.8	1.5	1.5	3.5
Substrate (%)	Bedrock	3		40	10			60	60	5	67	59	45	2		
	Boulder	2		3	5			1	3	1	5	1	5	2		
	Cobble	10	10	10	20	40		2	1	30	5	15	15	5	2	
	Gravel	55	50	30	25	30		10	21	30	5	10	20	3	3	2
	Sand	20	23	15	35	22		10	10	25	5	7	5	66	85	67
	Silt	5	10		4	5		15		5	10	5	5	8	3	3
	Detritus	5	4	2	1	3		2	5	4	3	3	5	11	5	17
	Clay		3											3	2	11
	Organic silt															
Habitat assessment form[c, d]		RR	RR	RR	RR	RR		RR	GP[NGP]	RR	RR	RR	RR	GP[NGP]	GP[NGP]	GP[NGP]
	Instream habitat quality	63	70	58	68	76		47	69	77	56	67	75	40	40	44
	Sediment deposition	79	50	64	55	61		78	85	74	76	65	80	74	78	63
	Sinuosity	58	90	83	58	88		83	45	78	95	80	90	50	45	50
	Bank and vegetative stability	64	45	40	69	58		83	41	75	68	56	70	29	35	14
	Riparian measurements	63	80	69	45	50		85	80	80	78	79	85	86	90	66
Habitat assessment score		166	161	148	149	159		173	157	185	174	168	185	128	134	111
% Maximum		69	67	61	62	66		72	71	77	73	70	77	58	61	50
Assessment[e]		Excellent	Good	Good	Good	Good		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	Good

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005
Sub-watershed		010	010	010	010	010	030	030	030	040	040	040	200	200	210	210
Station		CRKL-1	RTFL-1	RTFL-1	WDCL-1	WDCL-1	BLWL-1	LBEL-1	LBWL-1	MLML-1	MSTL-1	MUDF-2	LYCL-2	LYCL-3	DRCC-1	SPGC-1
Date (YYMMDD)		031014	030623	031014	030623	031014	030624	030618	030618	030611	030611	030610	030618	030617	030616[a]	030616[f]
Subecoregion		71j[NG]	71g	71g	71j[NG]	71j[NG]	71f[NG]	71f[NG]	71f[NG]	71g	71j[NG]	71g	71f[NG]	71f[NG]	71g	71g
Width (ft)		15	7	1	30	25	100	30	25	25	35	20	50	60		
Canopy cover[b]		S	O	O	MS	MS	O	S	MS	MO	S	S	50/50	MO		
Depth (ft)	Riffle		0.2	0.2			0.5	0.4	0.3	0.8	0.3	0.3	0.7	0.5		
	Run	1.2	0.5	0.8	1.5	1.0	1.0	0.8	1.0	1.0		1.5	1.0	1.5		
	Pool	2.0	1.5	1.2	2.5	2.0	1.5	2.0	3.0	2.5	2.5	2.5	1.5			
Substrate (%)	Bedrock						50	15		30	5	60	2	15		30
	Boulder		1	1	35	13	1	3	1	2	1	5	3	5		25
	Cobble	2	40	50	15	15	15	10	10	2	5	5	38	20		15
	Gravel	10	40	27	10	34	10	38	45	12	15	5	44	40		13
	Sand	70	5	15	20	35	5	30	35	30	30	10	10	15		5
	Silt	10	10		10		15	1	2		35	10	1	3		10
	Detritus	3	2	2	10	3	4	3	5	4	9	2	2	2		2
	Clay	5		5					2	20		3				
	Organic silt															
Habitat assessment form[c, d]		GP[NGP]	RR	RR	GP[NGP]	GP[NGP]	RR	RR	RR	RR	RR	RR	RR	RR		RR
	Instream habitat quality	52	70	69	69	82	78	83	81	58	56	59	77	78		83
	Sediment deposition	58	71	80	75	83	76	63	63	54	51	85	45	55		81
	Sinuosity	45	78	65	43	45	73	95	85	63	28	65	80	80		90
	Bank and vegetative stability	20	60	63	33	53	84	70	63	43	58	50	65	81		85
	Riparian measurements	85	25	21	71	78	85	93	61	48	85	58	58	38		81
Habitat assessment score		126	148	153	143	168	193	190	168	136	150	157	165	167		201
% Maximum		57	61	64	65	76	80	79	70	56	62	65	69	69		84
Assessment[e]		Good	Good	Good	Good	Excellent	Excellent	Excellent	Excellent	Good	Good	Good	Excellent	Excellent		Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0005	0005	0005	0005	0005	0005	0005	0005	0006	0006	0006	0006	0006	0006	0006
Sub-watershed		210	220	220	220	220	230	230	230	010	030	030	030	040	040	040
Station		SPGC-2	SNKL-7	SNKL-8	SNKL-9	SNKL-10	DRC1-1	SBCC-1	SMTC-1	LBRF-1	MCKF-1	TN-08	TN-09	CDRF-1	CHSF-1	HAMF-1
Date (YYMMDD)		030610	030624	030624	030624[f]	030624[f]	030617	030616	030616	030610	030611	030609	030611	030610	030610	030611
Subecoregion		71g	71g	71g	71g	71g	71j[NG]	71j[NG]	71j[NG]	68e	65j	65j	65i	71g	65j	71g
Width (ft)		25	30	25			20	25	15	25	30	25	40	35	20	15
Canopy cover[b]		MS	MS	O			MS	S	50/50	MO	S	MS	50/50	MS	S	S
Depth (ft)	Riffle	0.4	0.5	0.3			0.2	0.5	0.2	0.3	0.3	0.5			0.3	0.2
	Run	1.5	1.5	0.6			1.0	1.5	1.5	1.0	0.5	1.5	1.5	1.5	1.0	1.0
	Pool	2.5	3.5	1.0			2.5	2.0	2.5	3.0	3.5	2.0	3.5	2.5	3.5	3.0
Substrate (%)	Bedrock	30								4	2	10				25
	Boulder	25	1	5			1			3	3	10		10		2
	Cobble	15	30	40			10	1	3	5	33	40	15		25	35
	Gravel	13	30	33			70	70	35	10	50	20	65	20	63	20
	Sand	5	20	5			13	20	35	64	5	8	10	63	5	8
	Silt	10	15	15			2	7	10	10	5	10	6	5	1	6
	Detritus	2	4	2			4	2	4	4	2	2	4	2	5	4
	Clay								13						1	
	Organic silt															
Habitat assessment form[c, d]		RR	RR	RR			RR	RR	RR	RR	RR	RR	GP[NGP]	GP[NGP]	RR	RR
	Instream habitat quality	83	87	77			69	74	64	55	79	82	82	51	88	83
	Sediment deposition	81	63	83			51	69	66	38	63	76	84	63	78	79
	Sinuosity	90	70	85			80	63	75	58	83	90	45	40	90	75
	Bank and vegetative stability	85	48	23			44	40	41	66	61	78	48	28	78	48
	Riparian measurements	81	79	58			74	84	48	90	90	74	88	68	63	84
Habitat assessment score		201	174	151			152	161	140	155	177	192	167	121	191	178
% Maximum		84	73	63			63	67	58	64	74	80	76	55	80	74
Assessment[e]		Excellent	Excellent	Good			Good	Good	Good	Good	Excellent	Excellent	Excellent	Good	Excellent	Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix J. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's FY2003 NPS Program.

CU		0006	0006	0006	0006	0006	0006	0006
Sub-watershed		050	050	070	070	110	110	110
Station		MLBF-1	SMBF-1	RCKC-2	RCKC-3	BRNC-1	BZDC-1	MLCC-1
Date (YYMMDD)		030611[a]	030611	030617[f]	030617	030624	030617	030617
Subecoregion		65j	65j	65j	65j	71g	65j	65j
Width (ft)			7		20	30	36	20
Canopy cover[b]			S		50/50	MS	MO	S
Depth (ft)	Riffle		0.2		0.5	0.3	1.0	0.3
	Run		0.6		1.5	1.0	2.0	0.6
	Pool		1.5		2.5	1.5	3.0	2.5
Substrate (%)	Bedrock					70		
	Boulder		2		10	3	1	5
	Cobble		15		10	2	2	10
	Gravel		48		50	5	20	50
	Sand		25		20	3	50	20
	Silt		3		5	15	6	7
	Detritus		4		3	2	6	3
	Clay		3		2		15	5
	Organic silt							
Habitat assessment form[c, d]			RR		RR	RR	RR	RR
	Instream habitat quality		78		79	49	55	74
	Sediment deposition		59		60	70	45	66
	Sinuosity		88		60	65	73	70
	Bank and vegetative stability		46		59	78	41	70
	Riparian measurements		90		85	58	44	83
Habitat assessment score			167		175	157	125	179
% Maximum			70		73	65	52	74
Assessment[e]			Excellent		Excellent	Good	Good	Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix K. Bioassessment results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 NPS assessment.

CU	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001
Sub-watershed	080	080	100	100	100	120	140	140	160	160	180	180	180	180	220
Station	GSTJ-1	MILJ-2	LCRJ-1	LCRJ-2	TCRJ-2	COCJ-1	BCNJ-1	BCNJ-2	HFLJ-1	HGUJ-160	BYTJ-2	BYTJ-3	DICJ-1	SPHJ-1	SSCD-1
Subecoregion	68d	68d	68c	71f[NG]	68b[NG]	68b[NG]	68b[NG]	68c	68d	68d	68d	68d	68d	68d	68d
Drainage area (mi^2)						25	50		8		13		5		42
Macroinvertebrate community															
Date (yymmdd)	030618	030617	030623	030623	030618	030624	030624	030624	030617	030617	030611	030616	030616	030616	030610
# EPT families	8	5	8	9	8	6	5	2	6	4	8	7	6	4	7
Assessment	Good	Fair	Excellent	Good	Excellent	Good	Good	Poor	Fair	Fair	Good	Good	Fair	Fair	Good

CU	0001	0001	0001	0001	0002	0002	0002	0002	0002	0002	0002	0002	0002	0004	0004
Sub-watershed	270	270	270	280	040	040	040	110	140	140	140	160	200	020	020
Station	LSLM-1	SCD-3	SLM-1	SHM-3a	LRKJ-1	LRKJ-2	MCFC-1	WLFM-1	FLTM-1	FLTM-2	FLTM-3	MTMN-164	HRCM-3	MILL-1	RGDL-1
Subecoregion	68d	68d	68d	68d	68c	68c	71i[NG]	68c	71g	71g	71g	68c	71g	71h	71h
Drainage area (mi^2)	5	49	6	84					35				13		7
Macroinvertebrate community															
Date (yymmdd)	030616	030610	030616	030616	030624	030624	030623	030617	030707	030626	030626	030618	030617	030619	030617
# EPT families	8	8	8	7	13	13	3	6	7	9	10	10	6	10	7
Assessment	Good	Good	Good	Good	Excellent	Excellent	Poor	Good	Fair	Good	Good	Excellent	Fair	Good	Fair

CU	0004	0004	0004	0004	0004	0004	0004	0005	0005	0005	0005	0005	0005	0005	0005
Sub-watershed	020	080	120	150	150	150	150	010	010	010	010	030	030	030	040
Station	TRKL-1	SLRL-1	SGRL-1	DMTL-1	EFAL-1	MFAL-1	WFAL-1	BRDL-1	CRKL-1	RTFL-1	WDCL-1	BLWL-1	LBEL-1	LBWL-1	MLML-1
Subecoregion	71h	71h	71h	71f[NG]	71f[NG]	71f[NG]	71f[NG]	71i[NG]	71i[NG]	71g	71i[NG]	71f[NG]	71f[NG]	71f[NG]	71g
Drainage area (mi^2)								5	18	12	5				16
Macroinvertebrate community															
Date (yymmdd)	030619	030625	030625	030624	030625	030625	030625	030623	030623	030623	030623	030624	030618	030618	030611
# EPT families	9	9	7	13	11	7	12	5	5	5	6	10	10	11	7
Assessment	Good	Good	Fair	Excellent	Good	Fair	Good	Fair	Fair	Fair	Fair	Good	Good	Good	Fair

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. Assessment guidelines based on data collected at reference sites, 1991-2003; NG=no assessment guidelines

e. Bridge construction; No assessment conducted

f. Algal mats/Decaying algae

g. Beaverdam; No flow; Assessment not conducted

h. Values reported enclosed within parenthesis represent TVA evaluations. GSA evaluations are the values not enclosed.

Appendix K. Bioassessment results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 NPS assessment.

CU	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0006	0006	0006	0006	0006
Sub-watershed	040	040	200	200	210	220	220	230	230	230	010	030	030	030	040
Station	MSTL-1	MUDF-2	LYCL-2	LYCL-3	SPGC-2	SNKL-7	SNKL-8	DRC1-1	SBCC-1	SMTC-1	LBRF-1	MCKF-1	TN-08	TN-09	CDRF-1
Subecoregion	71j[NG]	71g	71f[NG]	71f[NG]	71g	71g	71g	71j[NG]	71j[NG]	71j[NG]	68e	65j	65j	65i	71g
Drainage area (mi^2)	12		9	2	9	45			27	11	0012	0006	0013		
Macroinvertebrate community															
Date (yymmdd)	030611	030610	030618	030617	030610	030624	030624	030617	030616	030616	030610	030611	030609	030611	030610
# EPT families	6	6	16	10	9	3	6	6	8	7	7	11	8	10	7
Assessment	Fair	Fair	Excellent	Good	Good	Poor	Fair	Fair	Good	Fair	Good	Excellent	Excellent	Good	Fair

CU	0006	0006	0006	0006	0006	0006	0006
Sub-watershed	040	040	050	070	110	110	110
Station	CHSF-1	HAMF-1	SMBF-1	RCKC-3	BRNC-1	BZDC-1	MLCC-1
Subecoregion	65j	71g	65j	65j	71g	65j	65j
Drainage area (mi^2)			2			25	6
Macroinvertebrate community							
Date (yymmdd)	030610	030611	030611	030617	030624	030617	030617
# EPT families	13	7	8	10	8	5	8
Assessment	Excellent	Fair	Excellent	Excellent	Good	Fair	Good

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. Assessment guidelines based on data collected at reference sites, 1991-2003; NG=no assessment guidelines

e. Bridge construction; No assessment conducted

f. Algal mats/Decaying algae

g. Beaverdam; No flow; Assessment not conducted

h. Values reported enclosed within parenthesis represent TVA evaluations. GSA evaluations are the values not enclosed.

Appendix L-1. ADEM Riffle/Run habitat assessement field data sheet

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 is 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 **Man-made 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	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** (Distance between riffles/ stream width)	<5 5 6 7	8 9 11 13 15	16 18 21 23 25	26 28 30 32 34 ≥ 35
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.	Water fills >75% of the available channel.	Water fills 75 - 25% 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 (<5%) of erosion or bank failure.	Moderately stable; infrequent, small areas (5-30%) of erosion mostly healed over.	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
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; >1/2 of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; < 1/2 of the potential plant stubble height remaining.	Disruption of stream bank vegetation is very high; vegetation has been removed to ≤ 2 inches 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 >60 feet; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 60 - 40 feet; human activities have impacted zone only minimally.	Width of riparian zone 40 - 20 feet; human activities have impacted zone a great deal.	Width of riparian zone <20 feet; 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 L-2. ADEM Glide/Pool habitat assessment field data sheet

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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 **Man-made 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 of channel substrate is exposed.	Water fills >75% of the available channel.	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; >1/2 of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; <1/2 of the potential plant stubble height remaining.	Disruption of stream bank vegetation is very high; vegetation has been removed to $\leq$ 2 inches 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 >60 feet; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 60 - 40 feet; human activities have impacted zone only minimally.	Width of riparian zone 40 - 20 feet; human activities have impacted zone a great deal.	Width of riparian zone <20 feet; 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 L-3. ADEM - FIELD OPERATIONS DIVISION
PAGE 1---PHYSICAL CHARACTERIZATION FIELD DATA SHEET

Station #______________________ ***Date***____________________ ***Collector Names***______________________________

Reason for Survey ☐ Use Support ☐ Reconnaissance ☐ Pollution Event ☐ Ambient ☐ Permit Compliance

Reach Description____

WATERSHED FEATURES	***Predominant Watershed Land use*** ☐ Forest ☐ Commercial ☐ Field/Pasture ☐ Industrial ☐ Agriculture ☐ Mixed Urban ☐ Residential ☐ ____________	***Local Watershed NPS Pollution*** ☐ No Evidence ☐ Potential Sources ☐ Obvious Sources	***Local Watershed Erosion*** ☐ None ☐ Slight ☐ Moderate ☐ Heavy

RIPARIAN LANDUSE & VEGETATION	***Land use at Reach*** ☐ Pasture ☐ Fields ☐ Industrial ☐ Crops ☐ Residential ☐ Mixed Urban ☐ Forest ☐ Commercial ☐ ____________	***<u>Dominant</u> Riparian Vegetation Present*** *(60 ft Buffer) (If known)* ☐ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses	Dominant Species Present:____________ ________________________________ ________________________________

INSTREAM FEATURES	***Stream Morphology Est.*** Reach Length ________ft Stream Width ________ft Bank Height _________ft High Water Mark _____ft Channelized ☐ Yes ☐ No	***Canopy Cover*** ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☐ Mostly Shaded 60-80% ☐ Shaded 80-100% ***Type:*** ______________	***Stream Depth*** Riffle _______ft Run ________ft Pool ________ft ***Proportion of Reach*** Riffle_______% Run _______% Pool _______%	***Est. Gradient*** (over 300 ft reach) ☐ Low <1ft ☐ Medium 1-3 ft ☐ High >3ft	***Dam Present*** ☐ No *If Yes, Kind?* ☐ low-head ☐ Beaver ☐ _________ *Relation to Reach* ☐ Above ☐ below

AQUATIC VEGETATION

Check types present. Estimate the % of wetted substrate in the reach with each type, indicate species, if known

Total % of wetted reach with aquatic vegetation present_____% *<u>Dominant</u> Vegetation Type:*__________________________

Type	*% of Wetted Reach*	*Species*	*Type*	*% of Wetted Reach*	*Species*
☐ Rooted Emergent	____%	______________________	☐ Attached Algae	____%	____________________
☐ Rooted Floating	____%	______________________	☐ Floating Algae	____%	____________________
☐ Rooted Submergent	____%	______________________	☐ Free Floating	____%	____________________

WATER QUALITY INDICATORS	***Water Odors*** ☐ Normal/None ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Fishy ☐	***Surface Oils*** ☐ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs ☐ ____________	***Turbidity*** ☐ None ☐ Slightly Turbid ☐ Moderately Turbid ☐ Severely Turbid	***Water Color*** ☐ None ☐ Green ☐ Dk. Tannic ☐ Muddy ☐ Lt .Tannic ☐ Red (Dye) ☐ Chalky ☐ Grey ☐ _________	***Biological Indicators*** ☐ Fish ☐ Fresh Beaver Sticks ☐ Macroinvertebrates ☐ Mussels ☐ Snails ☐ ____________

SEDIMENT / SUBSTRATE	***Sediment Odors*** ☐ Normal ☐ Chemical ☐ Sewage ☐ Anaerobic ☐ Petroleum ☐ ________	***Oils*** ☐ Absent ☐ Profuse ☐ Slight ☐ Moderate	***Deposits*** ☐ None ☐ Paper ☐ Sludge ☐ Sand ☐ Sawdust	***Looking at stones that are not deeply embedded, are the undersides black in color?*** ☐ Yes ☐ No ☐ N/A

WEATHER & FLOW CONDITIONS

Now	***Weather***	*Past 24 hrs*
☐	Clear / Cloudless	☐
☐	Partly Cloudy	☐
☐	Mostly Cloudy/Overcast	☐
☐	Cloudy	☐
☐	Light Rain / Drizzle	☐
☐	Rain	☐
☐	Thunderstorms	☐
☐	Freezing Precipitation	☐
Heavy Rain in last 7 Days?	☐ Yes	☐ No

Flow Stage	***Velocity***	***Was Stream Flow Measured?***
☐ Flood (out of banks) ☐ Above Normal ☐ Normal ☐ Low ☐ Dry ☐ Unknown	☐ Fast >3 ft / Sec ☐ Moderate 1.5 – 3 ft / Sec ☐ Slow <1.5 ft / Sec ☐ No Flow	☐ Yes ☐ No If no ✓ reason below ☐ not required in Study Plan ☐ not wadeable (too deep) ☐ meter malfunction ☐ visible but not detectable ☐ flow conditions dangerous ☐ no visible flow ☐ pools/dry streambed ☐ visible/too shallow for pygmy

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Appendix L-3. ADEM - Field Operations Division
Page 2----Substrate Characterization, Habitat & Water Quality Field Data Sheet

Est. % Composition In Sampling Area

Type	Diameter	Percent	Stable
Bedrock			1/2
Boulder	>10 in.		Yes
Cobble	2.5 - 10 in.		Yes
Gravel	0.1 - 2.5 in.		Yes
Sand	Gritty		
Silt			
Clay	Slick		
Detritus	Stick/Wood		Yes
	CPOM		
Muck	Fine Organic		
	Total	100%	

Field Measures (FM) ***(Duplicate at 10% of Stations)*** ***SONDE #____***

Parameter	Value	Duplicate	Unit	Instrument
Time of FM			*hrs (24hrs)*	☐ *Clock* ☐ *Sonde*
Total Depth			*ft.*	☐ *Estimate* ☐ *Measure*
Depth of FM			*ft.*	☐ *Estimate* ☐ *Measure*
Air Temp.			*℃*	☐ *Thermometer*
Water Temp.			*℃*	☐ *Thermometer* ☐ *Sonde*
pH			*su*	☐ *pH Meter* ☐ *Sonde*
Conductivity			*µmhos@25℃*	☐ *Meter* ☐ *Sonde*
D.O.			*mg/L*	☐ *Winkler* ☐ *Meter* ☐ *Sonde*
Turbidity			*NTU*	☐ *Meter*
Stream Flow		N/A	*cfs*	☐ *AA* ☐ *Pygmy* ☐ ________

Collection Time ________*24hrs*	***Relative Sampling Depth***	☐ Surface	☐ 5 ft	☐ Mid-Depth	☐ Bottom ☐ Photic Zone
Duplicate Time _______*24hrs*	***Methods***	☐ Grab-Jug/Jar ☐ Grab-Bucket	☐ Grab-Sampler ☐ Composite-Pump	☐ **Duplicate Samples (5%)** ☐ **Field Blanks**(Carboy#___)	Photic Zone Depth ______ft or ______M
Samples Collected	***Preservatives # of Bottles***	☐ Iced ½ gal_______#	☐ H2SO4 ½ gal____#	☐ HNO3 ½ gal _______#	☐ Iced 1L AGl ________#
Field Blank Time _______*24hrs*		☐ Iced ¼ gal________#	☐ H2SO4 ¼ gal____#	☐ HNO3 ¼ gal _______#	☐ Iced P60mL_____# (IA)
	FF=Field Filtered IA--Immunoassay	☐ Iced *125mL* FF_____#		☐ HNO3 ¼ gal FF_____#	☐ HCL 2x40mL AGl ___#

Bio Samples Collected	☐ MB-I Inverts	☐ MB-EPT Inverts	☐ Fish IBI	☐ Periphyton Chlorophyll *a*	☐ Chlorophyll *a* *(Collected at 5ft or mid-depth whichever is less)*	☐ Other	☐ Fecal Coliform *BACT Bottle Batch* #_______________

Habitat Assessment Tally Forms

	Name of Collector	***Collector 1***	***Collector 2***
	Riffle / Run HA	Score (LB/RB)	Score (LB/RB)
1	Instream Cover		
2	Epifaunal surface		
3	Embeddedness		
4	Velocity/Depth		
5	Channel Alteration		
6	Sediment Deposition		
7	Frequency of Riffles		
8	Channel Flow Status		
9	Condition of Banks		
10	Bank Veg. Protection	/	/
11	Disruptive Pressure	/	/
12	Riparian Veg. zone	/	/

	Name of Collector	***Collector 1***	***Collector 2***
	Glide / Pool HA	Score (LB/RB)	Score (LB/RB)
1	Instream Cover		
2	Pool Substrate Char.		
3	Pool Variability		
4	Channel Alteration		
5	Sediment Deposition		
6	Channel Sinuosity		
7	Channel Flow Status		
8	Condition of Banks		
9	Bank Veg. Protection	/	/
10	Disruptive Pressure	/	/
11	Riparian Veg. Zone	/	/

Comments	

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030001 - Guntersville Lake														
080	GSTJ-1	030528	1515	17.0	7.1	48.2	8.8	3.38	4.9	18	1.07	10	15	1.2
080	GSTJ-1	030618	0810	20.0	6.4	47.5	7.9	6.75	7.8					
080	MILJ-2	030528	1645	18.0	6.8	57.3	7.8	4.73	29.0	110	0.80	13	19	0.8
080	MILJ-2	030617	1345	24.0	6.4	65.0	6.0	6.93	16.3					
100	LCRJ-1	030529	0855	15.0	7.6	211.5	8.8	3.98	50.1	72	<0.10	101	112	0.5
100	LCRJ-1	030623	1503	21.0	7.7	210.0	9.2	4.79	25.5					
100	LCRJ-2	030529	0750	14.0	7.9	206.3	9.0	3.71	32.6	45	1.07	75	112	0.5
100	LCRJ-2	030623	1648	20.0	8.1	296.0	9.7	3.59	19.4					
100	TCRJ-1	030529	1040	17.0	7.2	329.0	7.4	1.78	0.4	50	0.80	123	185	0.4
100	TCRJ-1	030623	1415	19.0	7.5	351.0	8.4	1.86	NF					
100	TCRJ-2	030529	0945	15.0	7.8	194.0	9.2	2.50	2.9	39	0.80	84	105	0.8
100	TCRJ-2	030618	1110	16.0	7.3	300.0	9.4	21.00	8.6					
120	COCJ-1	030603	1415	17.0	7.7	235.8	7.4	7.59	15.6	200	0.53	98	124	2.1
120	COCJ-1	030624	1100	19.0	7.7	293.3	7.4	19.10	18.4					
140	BCNJ-1	030603	1230	16.0	7.9	203.2	8.8	6.04	30.1	300	1.07	104	101	0.9
140	BCNJ-1	030624	0730	16.0	7.9	186.8	8.5	4.64	50.5					
140	BCNJ-2	030603	1315	18.0	7.6	273.0	7.6	3.19	V-NM	33	1.34	143	136	1.3
140	BCNJ-2	030624	0930	19.0	7.6	238.5	8.0	3.15	0.4					
160	HFLJ-1	030528	1045	15.4	7.8	56.2	8.5	4.59	12.5	70	1.07	6	19	0.5
160	HFLJ-1	030617	1005	21.0	6.3	66.0	7.2	6.20	8.4					
160	HGUJ-160	030528	1300	18.0	6.8	110.6	7.0	8.24	6.0	17	0.53	25	46	1.5
160	HGUJ-160	030617	0750	23.0	6.7	109.0	6.1	8.84	3.5					
180	BYTJ-2	030527	1615	17.6	8.0	44.7	8.8	5.50	25.8	83	1.87	9	17	0.3
180	BYTJ-2	030611	1025	20.0	6.2	58.0	8.1	18.30	13.4					
180	BYTJ-2a	030527	1715	17.3	8.4	45.1	8.0	6.74	27.3	83	2.40	9	16	0.4
180	BYTJ-3	030528	0930	15.8	7.3	53.1	8.1	6.85	58.5	670	0.80	6	20	0.3
180	BYTJ-3	030616	1405	23.0	6.7	72.6	7.0	6.30	29.4					
180	DICJ-1	030528	0815	16.3	7.6	50.7	8.0	2.91	9.0	32	5.34	9	20	0.7
180	DICJ-1	030616	1200	24.0	6.5	61.8	6.2	2.76	2.6					
180	SPHJ-1	030527	1815	17.8	8.5	52.7	8.1	6.82	22.7	930	1.87	8	21	0.5
180	SPHJ-1	030616	1600	24.0	6.7	85.0	8.0	6.98	7.0					

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake														
080	GSTJ-1	030528	1515	<2	9	42	4.42	1.580	0.015	0.323	0.044	<0.150	0.014	
080	GSTJ-1	030618	0810											
080	MILJ-2	030528	1645	<2	6	37	4.40	2.180	0.021	0.323	<0.015	<0.150	0.020	
080	MILJ-2	030617	1345											
100	LCRJ-1	030529	0855	<2	4	101	3.72	0.637	0.017	0.517	<0.015	<0.150	0.008	
100	LCRJ-1	030623	1503											
100	LCRJ-2	030529	0750	<2	5	118	3.53	0.613	0.018	0.368	<0.015	<0.150	0.013	
100	LCRJ-2	030623	1648											
100	TCRJ-1	030529	1040	<2	5	220	5.99	0.640	0.015	4.020	0.125	<0.150	0.017	
100	TCRJ-1	030623	1415											
100	TCRJ-2	030529	0945	<2	5	118	3.52	0.510	0.011	0.525	0.125	<0.150	0.010	
100	TCRJ-2	030618	1110											
120	COCJ-1	030603	1415	<2	8	289	3.77	1.240	0.027	0.240	<0.015	<0.150	0.005	
120	COCJ-1	030624	1100											
140	BCNJ-1	030603	1230	<2	9	308	3.77	1.000	0.012	0.408	<0.015	<0.150	0.004	
140	BCNJ-1	030624	0730											
140	BCNJ-2	030603	1315	<2	3	309	3.68	1.520	0.025	0.350	<0.015	<0.150	0.007	
140	BCNJ-2	030624	0930											
160	HFLJ-1	030528	1045	<2	7	49	4.79	2.100	0.025	0.791	<0.015	<0.150	0.019	
160	HFLJ-1	030617	1005											
160	HGUJ-160	030528	1300	<2	4	64	4.07	1.850	<0.004	<0.003	0.034	0.274	0.007	
160	HGUJ-160	030617	0750											
180	BYTJ-2	030527	1615	<2	10	38	4.82	1.810	0.026	0.989	<0.015	<0.150	0.029	
180	BYTJ-2	030611	1025											
180	BYTJ-2a	030527	1715	<2	5	34	4.78	1.830	0.016	0.948	0.026	<0.150	0.023	
180	BYTJ-3	030528	0930	<2	9	44	4.87	1.890	0.038	1.077	0.130	<0.150	0.023	
180	BYTJ-3	030616	1405											
180	DICJ-1	030528	0815	<2	3	23	4.78	2.840	0.025	0.985	0.041	<0.150	0.023	
180	DICJ-1	030616	1200											
180	SPHJ-1	030527	1815	<2	11	53	5.06	2.540	0.021	1.402	<0.015	<0.150	0.023	
180	SPHJ-1	030616	1600											

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030001 - Guntersville Lake														
210	NSTJ-1	030604	0845	17.0	7.6	203.2	7.4	21.70	6.6	1300	0.27	94	112	1.0
270	LSLM-1	030423	1000	13.0	7.2	80.0	9.6	3.62	10.0	62		9	58	<0.4
270	LSLM-1	030529	1100	17.0	7.1	74.9	8.9	3.62	20.2	80	3.20	12	28	<0.4
270	LSLM-1	030616	1435	21.7	7.0	76.6	7.6	4.97	12.6					
270	LSLM-1	030820	1015	23.0	7.6	82.6	7.1	2.47	---	3		24	21	<0.5
270	LSLM-1	031015	1000	15.0	6.9	93.7	6.3	1.43	V-NM	30		41	28	2.0
270	SC-1	030424	1050	14.0	6.6	54.8	7.6	5.06	9.6	173		10	17	1.6
270	SC-1	030604	0930	18.0	6.6	55.5	8.9	45.50	21.5	1800	3.74	10	18	1.3
270	SC-1	030821	0930	24.0	6.5	48.7	5.2	10.90	1.7	190		8	66	<0.60
270	SC-1	031016	0945	13.0	6.5	92.0	2.2	2.85	1.0	44		58	26	3.3
270	SC-2	030424	0955	13.0	6.9	67.5	8.9	3.64	15.3	20		10	22	<0.50
270	SC-2	030604	1030	18.0	7.0	60.6	8.6	17.30	69.7	1200	2.85	13	21	1.0
270	SC-2	030821	0845	23.0	7.0	68.8	7.0	3.55	7.6	97		17	13	<0.30
270	SC-2	031016	0900	11.0	6.7	103.0	7.1	1.40	---	54		69	27	2.6
270	SC-4	030423	0925	15.0	7.3	69.0	9.4	3.47	NW	70		10	28	<0.10
270	SC-4	030603	1740	19.0	7.3	69.4	9.3	10.10	94.9	300	1.07	70	24	1.0
270	SC-4	030820	0930	24.0	7.6	72.0	7.5	2.25	NW	67		17	17	<0.60
270	SC-4	031015	0815	14.0	7.4	92.5	7.7	0.91	1.6	12		52	26	1.9
270	SCD-3	030424	0900	13.0	6.9	94.7	8.6	2.61	5.8	42		12	30	<0.90
270	SCD-3	030527	1105	17.1	8.4	65.5	9.0	5.44	158.1	87	2.14	13	20	<0.80
270	SCD-3	030604	1125	18.0	7.1	77.0	9.0	21.60	150.0	600	4.27	10	24	<0.70
270	SCD-3	030610	0810	19.0	7.0	96.7	8.5	2.86	48.5					
270	SCD-3	030821	0750	23.0	7.2	120.3	6.4	3.06	1.4	73		34	20	<0.70
270	SCD-3	031016	0805	11.0	7.6	146.3	5.3	1.04	V-NM	57		74	44	1.5
270	SLM-1	030423	1030	15.0	7.0	75.0	9.0	4.03	5.4	21		12	28	<0.50
270	SLM-1	030529	1000	19.0	7.3	69.9	9.1	2.75	14.0	23	1.07	10	28	0.2
270	SLM-1	030616	1350	24.2	7.3	72.1	7.4	3.19	7.0					
270	SLM-1	030820	1030	24.0	7.3	75.6	6.5	2.60	V-NM	13		25	20	<0.90
270	SLM-1	031015	0915	13.0	7.2	92.4	7.7	2.00	V-NM	47		56	31	1.9
280	SH-1	030424	1200	16.0	6.6	67.0	5.5	13.00	5.0	57		20	24	1.9
280	SH-1	030604	1300	20.0	6.7	62.8	6.7	12.00	11.0	170	3.20	15	24	<0.70

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake														
210	NSTJ-1	030604	0845	<2	17	144	4.49	1.580	0.051	0.372	<0.015	<0.150	0.005	
270	LSLM-1	030423	1000	<2	4	85	4.20	3.943	0.020	3.020	0.058	<0.150	<0.004	0.05
270	LSLM-1	030529	1100	<2	4	52	6.32	1.720	0.067	2.000	<0.015	<0.150	0.007	
270	LSLM-1	030616	1435											
270	LSLM-1	030820	1015		4	83	6.03		0.025	1.020	<0.015	<0.150	<0.004	
270	LSLM-1	031015	1000		8	70	7.41		0.040	0.285	<0.015	<0.150	<0.004	
270	SC-1	030424	1050	<2	5	51	5.74	5.769	0.028	0.873	0.023	0.314	0.011	
270	SC-1	030604	0930	<2	29	84	5.71	2.782	0.093	0.871	<0.015	0.846	0.021	
270	SC-1	030821	0930		5	54	5.05		0.058	0.496	<0.015	<0.15	0.008	
270	SC-1	031016	0945		13	74	6.62		0.093	0.153	<0.015	<0.15	<0.004	
270	SC-2	030424	0955	<2	4	47	6.11	6.111	0.036	1.434	0.134	<0.15	0.022	
270	SC-2	030604	1030	<2	16	75	5.87	3.939	0.072	1.268	<0.015	<0.15	0.017	
270	SC-2	030821	0845		5	36	6.26		0.139	0.454	<0.015	0.462	0.024	
270	SC-2	031016	0900		4	79	7.66		0.138	0.144	<0.015	<0.15	0.072	
270	SC-4	030423	0925	<2	1	58	3.40	5.086	0.018	1.737	0.022	<0.15	<0.004	0.09
270	SC-4	030603	1740	<2	5	73	5.90	3.058	0.035	1.553	<0.015	0.908	0.013	
270	SC-4	030820	0930		6	54	6.11		0.025	0.339	<0.015	0.241	0.021	
270	SC-4	031015	0815		10	82	6.43		0.041	0.194	<0.015	<0.15	0.012	
270	SCD-3	030424	0900	<2	6	92	6.52	4.745	0.033	2.142	0.068	<0.15	0.026	
270	SCD-3	030527	1105	<2	11	57	5.72	2.620	0.063	1.583	<0.015	<0.15	0.029	
270	SCD-3	030604	1125	<2	19	139	6.15	4.172	0.119	1.480	0.053	1.490	0.036	
270	SCD-3	030610	0810											
270	SCD-3	030821	0750		8	82	8.11		0.089	0.910	<0.015	0.495	0.056	
270	SCD-3	031016	0805		12	74	8.65		0.088	0.138	<0.015	<0.15	0.036	
270	SLM-1	030423	1030	<2	1	70	3.50	4.170	0.015	2.202	<0.015	<0.15	<0.004	0.05
270	SLM-1	030529	1000	<2	4	48	5.87	2.070	0.011	1.750	<0.015	0.173	0.016	
270	SLM-1	030616	1350											
270	SLM-1	030820	1030		5	44	6.09		0.040	0.432	<0.015	<0.101	<0.004	
270	SLM-1	031015	0915		7	70	6.38		1.010	0.572	<0.015	<0.15	0.006	
280	SH-1	030424	1200	<2	3	54	5.54	8.956	0.049	0.182	0.115	<0.15	0.009	
280	SH-1	030604	1300	<2	8	43	5.55	2.433	0.059	0.179	<0.015	1.000	0.009	

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030001 - Guntersville Lake														
280	SH-1	030821	1140	25.0	6.5	80.8	4.0	7.22	2.7	60		31	27	4.6
280	SH-1	031016	1055	16.0	7.1	100.0	4.6	4.92	V-NM	32		68	29	4.3
280	SH-2	030423	1230	16.0	6.9	67.0	7.2	6.76	6.9	88		20	28	<0.30
280	SH-2	030603	1915	20.0	6.9	63.6	7.7	7.22	30.8	190	1.87	33	23	1.4
280	SH-2	030820	1200	24.0	6.7	79.1	4.2	6.20	4.7	180		25	20	<0.50
280	SH-2	031015	1140	16.0	6.9	100.0	2.3	5.00	NF	100		42	27	3.7
280	SH-4	030423	0805	15.0	7.4	119.0	8.7	3.17	79.2	24		26	38	<0.10
280	SH-4	030603	1615	19.0	7.4	104.0	8.9	14.70	NW	600	1.34	36	39	<0.90
280	SH-4	030820	0835	24.0	7.4	120.3	7.3	15.10	NW	590		28	30	1.1
280	SH-4	031015	0715	13.0	7.9	399.0	7.7	1.69	NW	20		69	67	1.3
280	SHM-3a	030423	1205	16.0	7.1	70.0	8.6	4.38	34.0	88		16	28	<0.10
280	SHM-3a	030604	0740	18.0	6.9	69.4	9.7	6.50	102.5	120	0.80	12	24	1.5
280	SHM-3a	030616	1055	22.0	7.6	70.6	7.9	4.54	40.3					
280	SHM-3a	030820	1110	24.0	7.2	69.8	6.3	15.70	27.5	790		18	18	1.0
280	SHM-3a	031015	1100	16.0	7.1	99.4	5.4	2.43	V-NM	150		49	28	2.3
06030002 - Wheeler Lake														
040	LRKJ-1	030603	1530	18.0	7.9	313.2	8.6	3.39	15.4	180	0.80	151	168	1.5
040	LRKJ-1	030624	1340	23.0	7.8	338.0	7.7	5.41	8.2					
040	LRKJ-2	030603	1615	18.0	8.0	332.7	10.2	1.66	9.6	100	1.07	148	182	0.6
040	LRKJ-2	030624	1730	23.5	7.8	357.0	9.9	2.08	2.6					
040	MCFC-1	030604	1120	20.0	7.5	151.0	7.6	30.00	2.4	1000	3.74	82	150	1.2
040	MCFC-1	030623	1805	29.0	7.7	176.0	6.1	44.80	0.3					
110	PGRM-1	030603	1230	17.0	7.3	179.5	7.8	26.80	NF	760	0.36	60	73	1.5
110	SHLM-1	030603	1435	19.0	7.1	80.4	7.6	18.50	53.5	1200	1.60	31	32	1.5
110	WLFM-1	030603	1325	19.0	7.1	66.2	9.7	11.60	17.1	360	2.40	21	25	1.8
110	WLFM-1	030617	0815	22.3	6.5	73.7	5.6	12.80	4.9					
140	FLTM-1	030528	1710	19.0	7.2	86.8	10.1	5.63	161.4	34	0.80	25	46	0.7
140	FLTM-1	030707	1100	24.0	7.5	100.0	7.2	9.59	131.6					
140	FLTM-2	030528	1620	18.0	7.1	86.7	9.3	5.01	155.9	54	0.53	21	42	0.8
140	FLTM-2	030626	1020	24.0	7.6	117.1	8.0	4.46	55.2					
140	FLTM-3	030528	1540	18.0	6.9	86.0	9.1	4.92	153.2	37	1.07	30	41	0.4

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake														
280	SH-1	030821	1140		24	100	5.67		0.061	0.123	<0.015	0.755	<0.004	
280	SH-1	031016	1055		8	91	6.01		0.073	0.136	<0.015	<0.15	<0.004	
280	SH-2	030423	1230	<2	2	60	3.40	7.926	0.046	0.612	0.077	<0.15	<0.004	0.07
280	SH-2	030603	1915	<2	4	47	5.76	4.210	0.059	0.727	<0.015	0.857	0.013	
280	SH-2	030820	1200		8	64	5.84		0.042	0.296	<0.015	0.275	0.003	
280	SH-2	031015	1140		9	87	6.14		0.102	0.147	<0.015	0.153	<0.004	
280	SH-4	030423	0805	<2	2	187	9.50	6.406	0.092	1.202	<0.015	<0.15	0.057	0.09
280	SH-4	030603	1615	<2	7	86	7.17	4.118	0.119	1.182	<0.015	1.070	0.066	
280	SH-4	030820	0835		12	85	9.20		0.444	0.732	<0.015	0.748	0.493	
280	SH-4	031015	0715		4	226	46.08		0.074	0.026	<0.015	<0.15	1.596	
280	SHM-3a	030423	1205	<2	3	55	3.60	6.042	0.026	1.288	0.033	<0.15	<0.004	
280	SHM-3a	030604	0740	<2	6	124	5.90	3.895	0.055	1.232	<0.015	0.452	0.013	
280	SHM-3a	030616	1055											
280	SHM-3a	030820	1110		15	64	5.29		0.058	0.641	<0.015	0.788	0.019	
280	SHM-3a	031015	1100		12	78	6.19		0.075	0.160	<0.015	<0.15	<0.004	
06030002 - Wheeler Lake														
040	LRKJ-1	030603	1530	<2	3	195	3.98	1.210	0.020	0.366	<0.015	0.196	0.003	
040	LRKJ-1	030624	1340											
040	LRKJ-2	030603	1615	<2	6	206	4.17	1.050	0.027	0.637	<0.015	0.347	0.006	
040	LRKJ-2	030624	1730											
040	MCFC-1	030604	1120	<2	30	123	3.95	5.430	0.064	<0.003	<0.015	0.238	0.003	
040	MCFC-1	030623	1805											
110	PGRM-1	030603	1230	<2	16	158	4.59	2.180	0.059	1.022	<0.015	0.220	0.006	
110	SHLM-1	030603	1435	<2	13	69	5.29	4.683	0.067	1.081	<0.015	0.528	0.014	
110	WLFM-1	030603	1325	<2	9	63	5.57	3.486	0.089	0.949	<0.015	0.431	0.025	
110	WLFM-1	030617	0815											
140	FLTM-1	030528	1710	<2	6	49	5.23	1.210	0.050	1.270	<0.015	<0.150	0.015	
140	FLTM-1	030707	1100											
140	FLTM-2	030528	1620	<2	5	52	5.30	1.330	0.026	1.218	<0.015	<0.150	0.014	
140	FLTM-2	030626	1020											
140	FLTM-3	030528	1540	<2	8	91	5.30	1.210	0.031	1.231	<0.015	<0.150	0.012	

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030002 - Wheeler Lake														
140	FLTM-3	030626	0845	23.0	7.4	118.1	6.9	4.74	43.9					
160	MTMN-164	030528	1810	16.0	7.6	312.0	9.3	0.93	7.2	50	0.53	145	215	0.6
160	MTMN-164	030618	0830	16.7	7.3	347.8	8.0	2.08	2.6					
200	HRCM-3	030528	1900	17.0	7.3	312.0	9.0	2.84	11.4	220	0.80	138	214	0.9
200	HRCM-3	030617	1650	17.8	6.9	343.4	9.4	5.18	9.4					
06030004 - Lower Elk River														
020	MILL-1	030528	1110	17.0	7.9	180.0	10.1	1.65	5.0	20	0.53	69	66	0.6
020	MILL-1	030619	0750	21.0	7.9	251.7	8.2	1.40	3.9					
020	RGDL-1	030528	1020	16.0	8.3	150.0	10.9	1.83	10.6	58	1.34	80	82	0.5
020	RGDL-1	030618	1625	21.7	8.0	167.1	9.5	3.47	8.8					
020	TRKL-1	030528	0910	15.0	7.8	156.0	9.4	1.58	2.4	66	0.27	52	68	0.3
020	TRKL-1	030619	1025	21.2	7.8	191.8	7.6	1.24	1.1					
070	BPTL-1	030527	1850	21.0	7.8	144.2	8.1	6.55	NW	100	0.53	60	60	0.8
080	SLRL-1	030528	0825	15.0	8.2	156.0	10.7	2.91	25.0	100	0.27	70	67	0.5
080	SLRL-1	030625	1550	27.0	8.7	195.8	9.7	2.49	7.8					
120	SGRL-1	030527	1800	19.0	7.8	106.2	9.2	5.49	277.7	45	<0.10	47	44	0.5
120	SGRL-1	030625	1330	24.0	7.8	137.0	8.2	7.91	97.8					
150	DMTL-1	030529	1025	18.2	7.1	66.4	11.2	1.62	13.8	50	0.27	24	32	0.2
150	DMTL-1	030624	1635	25.0	7.3	84.0	8.0	7.22	5.1					
150	EFAL-1	030529	0925	16.5	7.0	94.9	10.3	2.08	11.7	180	0.27	41	48	0.5
150	EFAL-1	030625	1130	22.0	7.6	112.8	9.4	2.63	6.6					
150	MFAL-1	030529	0850	16.5	6.8	31.4	9.3	2.78	3.8	140	0.27	24	30	<0.2
150	MFAL-1	030625	1000	22.0	7.4	95.6	8.7	1.66	0.7					
150	WFAL-1	030529	0820	16.4	6.9	79.7	10.8	2.78	5.6	530	0.27	30	38	0.3
150	WFAL-1	030625	0800	20.0	6.9	110.2	8.3	1.52	1.5					
06030005 - Pickwick Lake														
010	BRDL-1	030422	1310	17.0	7.7	165.0	8.5	20.80	4.1	400		78	88	1.0
010	BRDL-1	030527	1600	18.0	7.7	146.7	9.0	14.50	8.2	160	0.36	75	66	<0.6
010	BRDL-1	030623	1438	21.0	7.9	192.0	8.1	18.10	2.1					
010	BRDL-1	030819	1240	24.0	7.5	196.6	7.4	8.39	1.6	190		96	84	1.4
010	BRDL-1	031014	1235	19.0	7.2	216.0	6.8	5.24	0.9	710		90	108	1.6

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake														
140	FLTM-3	030626	0845											
160	MTMN-164	030528	1810	<2	5	170	3.55	0.706	0.004	0.150	<0.015	<0.150	<0.004	
160	MTMN-164	030618	0830											
200	HRCM-3	030528	1900	<2	6	175	4.68	25.700	0.016	1.267	0.077	<0.150	0.008	
200	HRCM-3	030617	1650											
06030004 - Lower Elk River														
020	MILL-1	030528	1110	<2	4	111	4.48	0.649	0.058	1.051	0.103	<0.150	0.055	
020	MILL-1	030619	0750											
020	RGDL-1	030528	1020	<2	2	124	4.07	0.680	0.094	0.502	0.143	<0.150	0.095	
020	RGDL-1	030618	1625											
020	TRKL-1	030528	0910	<2	3	79	4.55	0.594	0.068	1.432	0.067	<0.150	0.067	
020	TRKL-1	030619	1025											
070	BPTL-1	030527	1850	<2	9	99	4.24	0.945	0.056	0.628	<0.015	<0.150	0.048	<0.05
080	SLRL-1	030528	0825	<2	5	111	4.74	0.698	0.033	1.483	<0.015	<0.150	0.040	
080	SLRL-1	030625	1550											
120	SGRL-1	030527	1800	<2	9	87	4.22	0.817	0.059	0.540	<0.015	<0.150	0.054	
120	SGRL-1	030625	1330											
150	DMTL-1	030529	1025	<2	5	90	4.50	<0.5	0.029	1.127	0.112	<0.150	0.026	
150	DMTL-1	030624	1635											
150	EFAL-1	030529	0925	<2	3	138	4.70	0.829	0.033	1.462	0.077	<0.150	0.028	
150	EFAL-1	030625	1130											
150	MFAL-1	030529	0850	<2	2	64	4.95	0.900	0.023	0.767	<0.015	<0.150	0.023	
150	MFAL-1	030625	1000											
150	WFAL-1	030529	0820	<2	5	114	4.80	1.380	0.031	1.053	<0.015	<0.150	0.022	
150	WFAL-1	030625	0800											
06030005 - Pickwick Lake														
010	BRDL-1	030422	1310	<2	9	119	1.60	8.762	0.023	0.027	0.055	<0.150	<0.004	<0.05
010	BRDL-1	030527	1600	<2	13	104	3.58	2.416	0.015	<0.003	0.042	<0.150	0.013	
010	BRDL-1	030623	1438											
010	BRDL-1	030819	1240		9	116	4.12		0.010	0.088	<0.015	0.238	<0.004	
010	BRDL-1	031014	1235		8	146	4.16		0.044	0.032	<0.015	<0.150	<0.002	

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030005 - Pickwick Lake														
010	CRKL-1	030422	1225	18.0	7.3	119.9	7.6	17.50	12.5	350		49	60	0.4
010	CRKL-1	030527	1525	20.0	7.5	95.4	7.8	26.30	37.9	93	9.08	23	34	0.4
010	CRKL-1	030623	1530	25.0	7.4	118.0	6.2	12.90	9.2					
010	CRKL-1	030819	1205	26.0	7.2	109.5	6.0	14.10	10.9	37		43	38	1.1
010	CRKL-1	031014	1200	20.0	7.3	196.0	5.6	6.98	0.7	210		76	89	1.4
010	RTFL-1	030422	1150	20.0	7.8	259.0	10.0	12.10	2.2	84		120	134	<0.9
010	RTFL-1	030527	1330	20.0	7.6	259.7	8.4	12.50	6.2	180	0.53	111	126	<0.8
010	RTFL-1	030611	1630	23.0	7.4	154.8	7.2	141.00	11.8					
010	RTFL-1	030623	1628	28.0	7.9	252.0	9.6	8.67	0.6					
010	RTFL-1	030819	1115	27.0	7.4	251.6	7.7	8.13	3.9	63		118	105	1.3
010	RTFL-1	031014	1110	21.0	7.6	340.0	8.1	6.94	V-NM	33		130	178	2.5
010	WDCL-1	030422	1400	19.0	7.5	131.0	8.4	9.35	2.0	152		56	70	2.5
010	WDCL-1	030527	1105	17.0	7.4	111.0	8.6	12.80	10.4	130	1.34	36	46	<0.20
010	WDCL-1	030623	1320	24.0	7.5	156.0	7.0	7.13	0.7					
010	WDCL-1	030819	1325	26.0	7.2	126.5	7.0	6.31	0.4	47		54	46	<0.90
010	WDCL-1	031014	1335	19.0	6.3	166.0	3.8	2.73	V-NM	480		77	71	2.2
030	BLWL-1	030529	1130	18.9	7.9	0.0	10.8	2.59	145.5	60	0.53	31	45	0.6
030	BLWL-1	030624	1400	25.0	8.6	107.0	10.7	2.74	66.1					
030	LBEL-1	030529	0735	15.5	7.2	129.2	9.7	1.59	13.3	98	0.53	42	66	0.8
030	LBEL-1	030618	1310	19.0	7.8	154.0	8.7	1.88	6.5					
030	LBWL-1	030529	0635	16.7	7.0	102.6	8.2	2.09	13.1	87	0.53	40	49	0.2
030	LBWL-1	030618	0930	20.0	7.3	123.8	6.9	2.96	7.7					
040	MLML-1	030527	1250	17.0	7.6	292.1	8.7	10.10	30.6	170	0.53	11	147	0.5
040	MLML-1	030611	1500	25.6	7.7	320.9	8.5	7.77	7.3					
040	MSTL-1	030527	1430	18.0	7.4	99.1	8.1	8.65	7.7	110	1.60	30	36	1.0
040	MSTL-1	030611	1730	21.9	7.4	109.6	5.6	6.32	3.4					
040	MUDF-2	030527	1040	16.9	7.9	333.2	8.8	10.90	24.7	190	0.53	160	160	0.6
040	MUDF-2	030610	0850	22.0	7.7	320.0	7.1	8.10	5.1					
200	LCYL-2	030528	1735	18.6	7.8	64.3	9.4	2.02	62.1	18	0.27	29	31	0.4
200	LCYL-2	030618	0625	19.0	7.0	81.7	7.9	2.07	31.1					
200	LCYL-3	030528	1820	18.0	7.8	59.9	9.8	1.57	36.3	40	<0.10	2	29	0.3

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake														
010	CRKL-1	030422	1225	<2	17	95	3.40	6.054	0.037	0.254	0.121	<0.150	<0.004	0.05
010	CRKL-1	030527	1525	<2	41	83	4.59	3.967	0.074	0.251	0.072	<0.150	0.034	
010	CRKL-1	030623	1530											
010	CRKL-1	030819	1205		23	96	4.68		0.044	0.401	<0.015	0.633	0.012	
010	CRKL-1	031014	1200		9	139	5.03		0.073	0.227	<0.015	<0.150	<0.004	
010	RTFL-1	030422	1150	<2	7	168	5.60	9.160	0.041	0.395	<0.015	<0.150	<0.004	0.10
010	RTFL-1	030527	1330	<2	15	168	6.06	5.244	0.056	0.345	0.092	<0.150	0.041	
010	RTFL-1	030611	1630											
010	RTFL-1	030623	1628											
010	RTFL-1	030819	1115		8	162	6.16		0.060	0.296	<0.015	0.927	0.036	
010	RTFL-1	031014	1110		23	209	6.86		0.068	0.239	<0.015	<0.150	<0.001	
010	WDCL-1	030422	1400	<2	7	101	4.60	6.953	0.038	0.310	0.077	<0.15	<0.004	<0.05
010	WDCL-1	030527	1105	<2	10	96	5.11	4.564	0.056	0.157	<0.015	<0.15	0.028	
010	WDCL-1	030623	1320											
010	WDCL-1	030819	1325		6	84	5.25		0.019	0.223	<0.015	0.545	<0.004	
010	WDCL-1	031014	1335		5	118	5.77		0.079	0.063	<0.015	<0.15	<0.004	
030	BLWL-1	030529	1130	<2	5	61	4.55	0.670	0.012	0.852	0.133	<0.150	0.016	
030	BLWL-1	030624	1400											
030	LBEL-1	030529	0735	<2	9	94	5.07	0.670	0.036	1.547	<0.015	<0.150	0.020	
030	LBEL-1	030618	1310											
030	LBWL-1	030529	0635	<2	8	101	4.96	0.788	0.031	1.238	<0.015	<0.150	0.026	
030	LBWL-1	030618	0930											
040	MLML-1	030527	1250	<2	9	181	6.07	1.624	0.071	1.917	0.058	<0.150	0.031	
040	MLML-1	030611	1500											
040	MSTL-1	030527	1430	<2	9	92	5.34	3.129	0.074	0.546	0.114	<0.150	0.027	
040	MSTL-1	030611	1730											
040	MUDF-2	030527	1040	<2	15	226	5.21	1.620	0.026	0.656	0.146	<0.150	0.019	
040	MUDF-2	030610	0850											
200	LCYL-2	030528	1735	<2	3	37	3.93	0.530	0.022	0.444	<0.015	<0.150	0.027	
200	LCYL-2	030618	0625											
200	LCYL-3	030528	1820	<2	4	37	3.99	0.780	0.032	0.476	0.052	<0.150	0.028	

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030005 - Pickwick Lake														
200	LCYL-3	030617	1650	20.0	7.1	77.9	8.1	2.41	23.4					
210	DRCC-1	030604	1040	22.0	7.5	179.0	9.0	17.80	0.3	390	4.27	87	78	0.7
210	SPGC-1	030604	1000	19.0	7.7	197.0	7.4	16.40	31.9	220	0.53	84	95	0.7
210	SPGC-2	030527	1240	17.9	8.0	262.9	10.0	3.93	11.4	210	<0.10	13	119	0.4
210	SPGC-2	030610	0700	19.0	7.8	275.0	8.2	2.04	3.2					
220	SNKL-10	030528	1430	23.9	7.6	146.0	9.7	13.30	5.3	28	0.27	59	74	0.3
220	SNKL-7	030528	1625	17.5	7.4	259.2	7.2	3.87	42.1	93	<0.10	105	148	0.2
220	SNKL-7	030624	1000	17.0	7.0	301.0	6.4	2.87	16.4					
220	SNKL-8	030528	1550	23.7	8.2	136.8	9.7	11.40	8.2	280	0.80	65	73	0.4
220	SNKL-8	030624	1110	25.0	8.1	168.0	9.1	12.20	3.5					
220	SNKL-9	030528	1510	21.4	7.7	141.7	7.8	10.80	5.4	19	<0.10	62	79	0.2
230	DRC1-1	030604	0720	17.0	7.8	150.4	8.6	3.47	3.9	51	<0.10	68	72	0.7
230	DRC1-1	030617	0605	21.5	7.8	172.8	7.3	1.96	1.8					
230	SBCC-1	030604	0910	18.0	7.9	201.0	8.5	3.34	23.9	84	1.34	75	99	0.3
230	SBCC-1	030616	1615	26.0	7.9	177.1	8.0	8.56	25.8					
230	SMTC-1	030604	0830	18.0	7.7	154.0	8.2	3.16	6.1	93	0.27	57	75	0.4
230	SMTC-1	030616	1705	26.0	7.6	155.9	7.2	8.97	6.9					
06030006 - Bear Creek														
010	LBRF-1	030527	1350	17.8	7.3	47.7	9.3	9.21	18.1	83	3.74	150	14	0.6
010	LBRF-1	030610	1100	20.0	6.9	65.0	9.1	9.78	7.3					
030	MCKF-1	030528	0640	14.0	7.7	95.7	10.9	2.98	14.4	45	<0.10	30	39	<0.5
030	MCKF-1	030611	0840	19.0	7.8	123.0	8.9	1.71	2.6					
030	TN-08	030430	0945	27.0	7.1	53.9	9.5	15.10	12.8	49	0.80	3	19	0.5
030	TN-08	030527	1450	18.1	7.5	43.6	9.6	19.40	26.9	45	<0.10	13	15	0.5
030	TN-08	030609	1600	21.9	7.7	55.4	8.9	20.80	11.3					
030	TN-09	030430	1310	23.0	7.3	120.3	9.0	5.96	157.8	19	2.14	43	59	0.5
030	TN-09	030528	0745	18.7	7.6	119.7	8.6	4.75	109.4	83	1.87	56	50	0.2
030	TN-09	030611	1055	25.0	7.8	121.0	7.7	3.97	71.7					
040	CDRF-1	030527	1545	17.0	7.6	190.8	9.8	9.00	39.3	130	<0.10	80	83	0.3
040	CDRF-1	030610	1320	22.0	7.9	218.0	9.6	5.67	10.6					
040	CHSF-1	030501	0940	12.0	7.5	206.1	9.1	8.49	13.9	190	2.40	108	113	0.6

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake														
200	LCYL-3	030617	1650											
210	DRCC-1	030604	1040	<2	12	102	6.68	4.520	0.198	0.805	<0.015	0.414	0.093	
210	SPGC-1	030604	1000	<2	18	136	5.34	3.020	0.062	0.154	<0.015	<0.150	0.007	
210	SPGC-2	030527	1240	<2	5	187	5.61	1.460	0.016	0.215	<0.015	<0.150	0.022	
210	SPGC-2	030610	0700											
220	SNKL-10	030528	1430	<2	15	91	5.17	1.820	0.050	0.855	0.079	<0.150	0.010	
220	SNKL-7	030528	1625	<2	6	162	5.18	0.820	0.037	1.908	0.014	<0.150	0.038	
220	SNKL-7	030624	1000											
220	SNKL-8	030528	1550	<2	8	79	5.00	2.250	0.057	0.784	<0.015	<0.150	0.021	
220	SNKL-8	030624	1110											
220	SNKL-9	030528	1510	<2	11	79	4.96	2.230	0.042	0.799	0.047	<0.150	0.022	
230	DRC1-1	030604	0720	<2	5	96	3.78	1.510	0.024	0.228	<0.015	0.538	0.003	
230	DRC1-1	030617	0605											
230	SBCC-1	030604	0910	<2	7	133	4.62	1.770	0.018	0.286	<0.015	<0.150	0.004	
230	SBCC-1	030616	1615											
230	SMTC-1	030604	0830	<2	8	107	4.22	1.520	0.019	0.085	<0.015	0.768	0.003	
230	SMTC-1	030616	1705											
06030006 - Bear Creek														
010	LBRF-1	030527	1350	<2	15	33	4.54	1.690	0.025	1.086	0.096	<0.150	0.028	
010	LBRF-1	030610	1100											
030	MCKF-1	030528	0640	<2	6	65	4.02	0.817	0.022	0.921	<0.015	<0.150	0.008	
030	MCKF-1	030611	0840											
030	TN-08	030430	0945	<2	3	40	4.11	1.950	0.019	0.398	0.029	<0.15	0.015	
030	TN-08	030527	1450	<2	14	84	4.00	2.040	0.022	0.293	0.117	<0.15	0.025	
030	TN-08	030609	1600											
030	TN-09	030430	1310	<2	7	82	3.86	1.835	0.015	0.296	<0.015	<0.15	0.007	
030	TN-09	030528	0745	<2	11	83	3.84	1.970	0.022	0.085	<0.015	<0.15	0.009	
030	TN-09	030611	1055											
040	CDRF-1	030527	1545	<2	6	117	5.37	1.080	0.033	0.493	0.113	<0.150	0.021	
040	CDRF-1	030610	1320											
040	CHSF-1	030501	0940	<2	7	125	3.76	1.019	0.028	0.338	<0.015	<0.150	0.004	

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)
06030006 - Bear Creek														
040	CHSF-1	030527	1730	18.4	7.7	174.7	9.9	12.30	23.4	120	<0.10	70	80	0.3
040	CHSF-1	030610	1500	22.0	7.8	212.0	8.7	11.70	12.1					
040	HAMF-1	030501	0700	15.0	7.4	24.3	8.6	6.10	8.4	37	1.60	103	139	0.9
040	HAMF-1	030527	1645	19.4	7.8	201.7	9.6	5.65	12.4	18	<0.10	89	92	0.6
040	HAMF-1	030611	0705	20.5	7.7	255.0	8.0	4.15	4.9					
050	MLBF-1	030430	1505	21.0	6.7	25.3	8.6	6.83	8.8	37	0.53	3	8	0.5
050	MLBF-1	030528	0835	16.0	7.8	0.0	10.6	9.29	6.2	25	<0.10	9	7	0.1
050	SMBF-1	030430	1655	19.0	7.3	45.4	8.6	3.60	2.4	25	2.14	4	19	0.4
050	SMBF-1	030528	0910	14.2	7.8	39.2	10.5	5.03	2.5	62		20	14	0.4
050	SMBF-1	030611	1315	20.0	7.7	45.0	8.1	4.03	1.5					
070	RCKC-2	030528	0950	16.7	7.7	110.1	9.5	9.58	27.6	70	<0.10	40	48	0.5
070	RCKC-3	030528	1035	16.7	7.9	157.6	10.2	4.08	12.4	67	0.27	75	74	0.7
070	RCKC-3	030617	0810	21.5	7.5	170.4	7.1	19.40	8.0					
110	BRNC-1	030528	1240	18.2	8.1	295.6	9.4	9.88	1.7	97	<0.10	107	167	0.4
110	BRNC-1	030624	0715	20.0	7.6	348.0	5.7	6.46	0.5					
110	BZDC-1	030528	1130	17.5	7.9	89.6	9.4	6.34	23.8	23	<0.10	30	38	0.2
110	BZDC-1	030617	1025	23.8	7.5	103.0	7.2	7.45	13.5					
110	MLCC-1	030528	1325	17.8	7.9	108.5	9.4	5.43	13.7	120	<0.10	47	56	0.5
110	MLCC-1	030617	1220	21.0	7.6	122.4	8.0	12.00	5.5					

Appendix M. Field Parameter and water quality data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030006 - Bear Creek														
040	CHSF-1	030527	1730	<2	15	113	3.72	0.983	0.023	0.232	0.081	<0.150	0.013	
040	CHSF-1	030610	1500											
040	HAMF-1	030501	0700	<2	8	40	4.04	0.751	0.019	0.303	<0.015	<0.150	0.002	
040	HAMF-1	030527	1645	<2	10	123	3.71	0.781	0.024	0.215	0.100	<0.150	0.009	
040	HAMF-1	030611	0705											
050	MLBF-1	030430	1505	<2	6	32	3.54	1.552	0.038	0.067	<0.015	<0.150	0.007	
050	MLBF-1	030528	0835	<2	5	25	3.55	1.520	0.014	<0.003	0.080	<0.150	0.019	
050	SMBF-1	030430	1655	<2	5	35	3.36	1.270	0.020	0.242	<0.015	<0.150	0.012	
050	SMBF-1	030528	0910	<2	8	29	3.37	0.890	0.012	0.183	0.143	<0.150	0.013	
050	SMBF-1	030611	1315											
070	RCKC-2	030528	0950	<2	7	66	3.64	1.390	0.018	0.013	0.115	<0.150	0.014	
070	RCKC-3	030528	1035	<2	5	91	3.86	1.130	0.010	0.028	0.151	<0.150	0.015	
070	RCKC-3	030617	0810											
110	BRNC-1	030528	1240	<2	9	195	4.74	1.970	0.020	0.248	0.024	<0.150	0.011	
110	BRNC-1	030624	0715											
110	BZDC-1	030528	1130	<2	8	65	3.69	1.120	0.004	<0.003	<0.015	<0.150	0.012	
110	BZDC-1	030617	1025											
110	MLCC-1	030528	1325	<2	9	62	3.45	0.962	0.014	0.191	0.158	<0.150	0.014	
110	MLCC-1	030617	1220											

Appendix N. Metals data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)
06030001 - Guntersville Lake																	
080	GSTJ-1	030528	1515	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.170	0.259
160	HFLJ-1	030528	1045	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.260	0.810
160	HGUJ-160	030528	1300	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.268	0.954
180	DICJ-1	030528	0815	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.320	0.510
270	LSLM-1	030423	1000	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.074	0.210
270	LSLM-1	030529	1100	<0.116	<0.116	0.288	0.889	<10	<10	<0.087	<0.087	0.274	0.219	<0.086	<0.086	1.950	3.590
270	LSLM-1	030820	1015	<0.050	<0.050	0.154	0.100	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	2.887	1.699
270	LSLM-1	031015	1000	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
270	SC-2	030424	0955	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.351	0.559
270	SC-2	030604	1030	<0.015	<0.015	<0.200	0.908	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.331	1.000
270	SC-2	030821	0845	<0.050	<0.050	<0.050	0.116	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	0.157	1.301
270	SC-2	031016	0900	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.130
270	SC-4	030423	0925	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.103	0.223
270	SC-4	030603	1740	<0.015	<0.015	<0.200	0.481	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.127	0.467
270	SC-4	030820	0930	<0.050	<0.050	<0.050	0.058	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	0.819	0.638
270	SC-4	031015	0815	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.085
270	SCD-3	030424	0900	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.101
270	SCD-3	030527	1105	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.216	0.425
270	SCD-3	030604	1125	<0.015	<0.015	<0.200	1.350	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	<0.020	1.090
270	SCD-3	030821	0750	<0.050	<0.050	<0.050	0.053	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	1.539	1.487
270	SCD-3	031016	0805	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.084
270	SLM-1	030423	1030	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.099	0.282
270	SLM-1	030529	1000	<0.116	<0.116	0.201	1.010	<10	<10	<0.087	<0.087	0.331	1.060	<0.086	<0.086	3.090	8.960
270	SLM-1	030820	1030	<0.050	<0.050		0.055	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	1.081	1.037
270	SLM-1	031015	0915	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.072	0.140
280	SH-4	030423	0805	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.208	0.385
280	SH-4	030603	1615	<0.015	<0.015	<0.200	0.758	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.224	0.856
280	SH-4	030820	0835	<0.050	<0.050	0.640	0.500	47	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	1.786	1.380
280	SH-4	031015	0715	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
280	SHM-3a	030423	1205	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.390	0.640
280	SHM-3a	030604	0740	<0.015	<0.015	<0.200	0.291	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.265	0.779
280	SHM-3a	030820	1110	<0.050	<0.050	<0.050	0.942	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	0.401	2.422
280	SHM-3a	031015	1100	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.476	0.656

Appendix N. Metals data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030001 - Guntersville Lake																			
080	GSTJ-1	030528	1515	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
160	HFLJ-1	030528	1045	<0.40	<0.40	<2	<2	0.106	0.205	<0.228	<0.228	<2	5	<10	<10	<1	<1	<0.069	<0.069
160	HGUJ-160	030528	1300	<0.40	<0.40	<2	<2	0.816	0.823	<0.228	<0.228	<2	4	<10	<10	<1	<1	<0.069	<0.069
180	DICJ-1	030528	0815	<0.40	<0.40	<2	<2	0.093	0.096	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	LSLM-1	030423	1000	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	LSLM-1	030529	1100	<0.40	<0.40	<2	<2	0.149	0.253	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	LSLM-1	030820	1015	<0.01	<0.01	<10	18	<0.050	<0.050	<0.050	<0.050	<10	10	<10	<10	<10	<10	<0.050	<0.050
270	LSLM-1	031015	1000	<0.30	<0.30	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SC-2	030424	0955	<0.400	<0.400	<2	<2	<0.047	0.053	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SC-2	030604	1030	<0.500	<0.300	<2	<2	<0.020	0.050	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
270	SC-2	030821	0845	<0.010	<0.010	<10	113	<0.050	0.053	<0.050	<0.050	<10	10	<0.05	<10	<10	<10	<0.050	<0.050
270	SC-2	031016	0900	<0.300	<0.300	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SC-4	030423	0925	<0.400	<0.400	<2	<2	<0.047	0.053	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SC-4	030603	1740	<0.500	<0.300	<2	<2	<0.020	0.021	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
270	SC-4	030820	0930	<0.010	<0.010	<10	17	<0.050	<0.050	<0.050	<0.050	<10	10	<0.05	<10	<10	<10	<0.050	<0.050
270	SC-4	031015	0815	<0.300	<0.300	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SCD-3	030424	0900	<0.400	<0.400	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SCD-3	030527	1105	<0.400	<0.400	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SCD-3	030604	1125	<0.500	<0.300	<2	<2	<0.020	0.067	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
270	SCD-3	030821	0750	<0.010	<0.010	<10	61	<0.050	<0.050	<0.050	<0.050	<10	10	<0.05	<10	<10	<10	<0.050	<0.050
270	SCD-3	031016	0805	<0.300	<0.300	<2	<2	<0.047	0.069	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SLM-1	030423	1030	<0.400	<0.400	<2	<2	<0.047	0.062	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
270	SLM-1	030529	1000	<0.400	<0.400	5	31	0.322	0.582	<0.228	<0.228	<2	2	<10	<10	<1	<1	0.159	<0.337
270	SLM-1	030820	1030	<0.010	<0.010	<10	19	<0.050	0.059	<0.050	<0.050	<10	10	<0.05	10	<10	<10	<0.050	<0.050
270	SLM-1	031015	0915	<0.300	<0.300	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
280	SH-4	030423	0805	<0.400	<0.400	<2	<2	<0.047	0.056	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
280	SH-4	030603	1615	<0.500	<0.300	<2	<2	0.021	0.041	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
280	SH-4	030820	0835	<0.010	<0.010	<10	15	<0.050	<0.050	<0.050	<0.050	<10	10	<0.05	<10	<10	<10	<0.050	<0.050
280	SH-4	031015	0715	<0.300	<0.300	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
280	SHM-3a	030423	1205	<0.400	<0.400	<2	<2	0.059	0.066	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
280	SHM-3a	030604	0740	<0.500	<0.300	<2	<2	0.026	0.043	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
280	SHM-3a	030820	1110	<0.010	0.01	<10	24	<0.050	0.096	<0.050	<0.050	<10	10	<0.05	<10	<10	<10	<0.050	<0.050
280	SHM-3a	031015	1100	<0.300	<0.300	<2	<2	0.068	0.113	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069

Appendix N. Metals data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)
06030002 - Wheeler Lake																	
040	LRKJ-2	030603	1615	<0.015	<0.015	<0.200	<0.200	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.020	0.040
040	MCFC-1	030604	1120	<0.015	<0.015	<0.200	<0.200	<10	14	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.090	1.606
140	FLTM-1	030528	1710	<0.116	<0.116	0.211	0.950	<10	<10	<0.087	<0.087	<0.079	0.192	<0.086	<0.086	1.950	3.820
06030004 - Lower Elk River																	
150	EFAL-1	030529	0925	<0.015	<0.015	<0.200	<0.200	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	<0.071	<0.071
06030005 - Pickwick Lake																	
010	BRDL-1	030422	1310	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.105	0.819
010	BRDL-1	030527	1600	<0.116	<0.116	<0.500	0.530	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.185	0.974
010	BRDL-1	030819	1240	<0.050	<0.050	0.139	0.228	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	0.428	2.482
010	BRDL-1	031014	1235	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.219	0.477
010	CRKL-1	030422	1225	<0.116	<0.116	<0.109	0.130	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.357
010	CRKL-1	030527	1525	<0.116	<0.116	<0.500	0.936	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.288	1.170
010	CRKL-1	030819	1205	<0.050	<0.050	0.069	1.187	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	1.009	1.280
010	CRKL-1	031014	1200	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.301
010	RTFL-1	030422	1150	<0.116	<0.116	<0.109	0.174	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.163
010	RTFL-1	030527	1330	<0.116	<0.116	<0.500	0.720	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.630
010	RTFL-1	030819	1115	<0.050	<0.050	0.173	0.487	<10	19	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	3.595	0.581
010	RTFL-1	031014	1110	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
010	WDCL-1	030422	1400	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.171	0.455
010	WDCL-1	030527	1105	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.422	1.080
010	WDCL-1	030819	1325	<0.050	<0.050	0.129	0.313	<10	<10	<0.015	<0.015	<0.050	<0.050	<0.050	<0.050	1.575	6.156
010	WDCL-1	031014	1335	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.222	0.428
030	BLWL-1	030529	1130	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
040	MLML-1	030527	1250	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.485
040	MSTL-1	030527	1430	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.228	0.776
200	LCYL-2	030528	1735	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
210	SPGC-1	030604	1000	<0.015	<0.015	<0.200	<0.200	19	21	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.067	1.007
210	SPGC-2	030527	1240	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.017	0.159
220	SNKL-10	030528	1430	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.092	0.700
230	DRC1-1	030604	0720	<0.015	<0.015	<0.200	<0.200	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.029	0.152
230	SBCC-1	030604	0910	<0.015	<0.015	<0.200	<0.200	<10	22	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.039	0.212
230	SMTC-1	030604	0830	<0.015	<0.015	<0.200	<0.200	<10	17	<0.003	<0.003	<0.015	<0.015	<0.020	<0.020	0.029	0.145

Appendix N. Metals data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030002 - Wheeler Lake																			
040	LRKJ-2	030603	1615	<0.50	<0.30	<2	<2	<0.020	<0.020	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
040	MCFC-1	030604	1120	<0.50	<0.30	<2	<2	1.319	1.354	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
140	FLTM-1	030528	1710	<0.40	<0.40	<2	<2	0.157	0.324	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.209
06030004 - Lower Elk River																			
150	EFAL-1	030529	0925	<0.40	<0.40	<2	<2	<0.020	<0.020	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
06030005 - Pickwick Lake																			
010	BRDL-1	030422	1310	<0.40	<0.40	<2	<2	0.091	0.115	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.070
010	BRDL-1	030527	1600	<0.40	<0.40	<2	<2	0.052	0.068	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	BRDL-1	030819	1240	<0.01	<0.01	<10	46	<0.050	0.069	<0.050	<0.050	<10	10	<10	<10	<10	<10	<0.050	<0.050
010	BRDL-1	031014	1235	<0.30	<0.30	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	CRKL-1	030422	1225	<0.40	<0.40	<2	<2	0.115	0.148	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	CRKL-1	030527	1525	<0.40	<0.40	<2	<2	0.109	0.192	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	CRKL-1	030819	1205	<0.01	<0.01	<10	35	0.074	0.251	<0.050	<0.050	<10	10	<10	<10	<10	<10	<0.050	0.050
010	CRKL-1	031014	1200	<0.30	<0.30	<2	<2	0.099	0.112	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	RTFL-1	030422	1150	<0.40	<0.40	<2	<2	0.059	0.072	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	RTFL-1	030527	1330	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	RTFL-1	030819	1115	<0.01	<0.01	<10	31	0.105	<0.050	<0.050	<0.050	<10	10	<10	<10	<10	<10	<0.050	<0.050
010	RTFL-1	031014	1110	<0.30	<0.30	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	WDCL-1	030422	1400	<0.400	<0.400	<2	<2	0.061	0.076	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
010	WDCL-1	030527	1105	<0.400	<0.400	<2	<2	0.059	0.066	<0.228	<0.228	<2	7	<10	<10	<1	<1	<0.069	<0.069
010	WDCL-1	030819	1325	<0.010	<0.010	<10	25	0.233	0.109	<0.050	<0.050	<10	10	<0.05	<10	<10	<10	<0.050	<0.050
010	WDCL-1	031014	1335	<0.300	<0.300	<2	<2	0.118	0.145	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
030	BLWL-1	030529	1130	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
040	MLML-1	030527	1250	<0.40	<0.40	<2	<2	<0.047	0.057	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
040	MSTL-1	030527	1430	<0.40	<0.40	<2	<2	0.053	0.060	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
200	LCYL-2	030528	1735	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	5	<10	<10	<1	<1	<0.069	0.069
210	SPGC-1	030604	1000	<0.50	<0.30	<2	<2	0.060	0.076	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
210	SPGC-2	030527	1240	<0.40	<0.40	<2	<2	0.015	0.019	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
220	SNKL-10	030528	1430	<0.40	<0.40	<2	<2	<0.047	0.326	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
230	DRC1-1	030604	0720	<0.50	<0.30	<2	<2	<0.020	<0.020	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
230	SBCC-1	030604	0910	<0.50	<0.30	<2	<2	0.032	0.036	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030
230	SMTC-1	030604	0830	<0.50	<0.30	<2	<2	0.036	0.040	<0.030	<0.030	<2	2	<10	<10	<1	<1	<0.030	<0.030

Appendix N. Metals data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)
06030006 - Bear Creek																	
010	LBRF-1	030527	1350	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.227	0.558
030	MCKF-1	030528	0640	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.090
040	CDRF-1	030527	1545	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.355
040	CHSF-1	030501	0940	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.576
040	CHSF-1	030527	1730	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.722
040	HAMF-1	030501	0700	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.300
040	HAMF-1	030527	1645	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.271
070	RCKC-2	030528	0950	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.120	0.632
110	MLCC-1	030528	1325	<0.116	<0.116	<0.500	<0.500	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.091	0.438

Appendix N. Metals data collected on TN basin NPS streams during FY2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030006 - Bear Creek																			
010	LBRF-1	030527	1350	<0.40	<0.40	<2	<2	0.057	0.060	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
030	MCKF-1	030528	0640	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	5	<10	<10	<1	<1	<0.069	<0.069
040	CDRF-1	030527	1545	<0.40	<0.40	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
040	CHSF-1	030501	0940	<0.40	<0.40	<2	<2	<0.047	0.081	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
040	CHSF-1	030527	1730	<0.40	<0.40	<2	<2	0.064	0.112	<0.228	<0.228	<2	7	<10	<10	<1	<1	<0.069	0.069
040	HAMF-1	030501	0700	<0.40	<0.40	<2	<2	0.064	0.083	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
040	HAMF-1	030527	1645	<0.40	<0.40	<2	<2	0.067	0.076	<0.228	<0.228	<2	11	<10	<10	<1	<1	<0.069	0.069
070	RCKC-2	030528	0950	<0.40	<0.40	<2	<2	<0.047	0.052	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069
110	MLCC-1	030528	1325	<0.40	<0.40	<2	<2	0.085	0.097	<0.228	<0.228	<2	2	<10	<10	<1	<1	<0.069	<0.069

Appendix O. Ecoregional Reference Reach Program

Lead agency: ADEM

Purpose: Ecoregions are relatively homogeneous ecological areas defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables. Since 1991, ADEM has maintained a network of least-impaired ecoregional reference reaches. Intensive monitoring assessments, including chemical, physical, habitat, and biological data, are collected to develop baseline reference conditions for each of Alabama's 29 Level IV subecoregions (Griffith et al. 2001). The reference condition establishes the basis for making comparisons and detecting use impairment.

Appendix O-1. Habitat assessment data

Appendix O-2. Biological assessment data

Appendix O-3. Physical/ chemical data

Appendix O-4. Metals data

References:

ADEM. 2002k. Ecoregional reference reach data collected by ADEM 1992 to 2002 (unpublished). Field Operations Division, Alabama Department of Environmental Management. Montgomery, AL.

Appendix O-1. Physical characteristics and habitat quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

CU		0001	0001	0001	0001	0001	0001	0002	0002	0002	0004	0004	0004	0005
Sub-watershed		180	180	180	180	180	180	200	200	200	120	120	120	150
Station		BYTJ-1	BYTJ-1	BYTJ-1	BYTJ-1	BYTJ-1	BYTJ-1	MLDM-2	MLDM-2	MLDM-2	DBBL-1	DBBL-1	DBBL-1	INCL-1
Date (YYMMDD)		990708	020626	020626	030610	030611	030813	030513	030617	030708	030422	030625	030717	990707
Subecoregion		68d	68d	68d	68d	68d	68d	68c	68c	68c	71h	71h	71h	71f
Drainage area (mi^2)		42	42	42	42	42	42	4	4	4	6	6	6	10
Width (ft)		55	50	60	44	60	30	20	10	10	20	15	15	32
Canopy cover[b]		MO	MS	O	MS	MS	50/50	S	S	S	50/50	50/50	50/50	O
Depth (ft)	Riffle	0.5	0.5	0.2	0.3	1.0	0.5	0.9	0.5	0.4	0.2	0.5	0.2	0.5
	Run	1.0	0.5	0.5	0.8	1.8	2.0		1.0		0.5	1.0	0.5	0.5
	Pool	2.5	0.8			3.3			1.5		0.7	1.5	0.7	1.5
Substrate (%)	Bedrock	80	75	95	85	70	65				35	25	30	25
	Boulder	10	3		5	15	10	10	5		10	5	10	1
	Cobble	5	5			5	10	50	40	45	10	34	20	15
	Gravel	5	1		3	5	5	33	33	38	30	33	20	40
	Sand	2	5		3	2	3	2	15	2	8	2	8	15
	Silt	1	5	5	2		2				2		4	1
	Detritus	2	6		2	3	5	5	3	5	4	2	8	3
	Clay													
	Organic silt										1			
Habitat assessment form[c]		RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR
	Instream habitat quality	43	63	54	77	53	59	73	80	70	61	86	59	64
	Sediment deposition	75	65	91	94	91	86	90	93	90	73	83	73	76
	Sinuosity	50	50	95	63	68	70	100	90	100	88	90	100	85
	Bank and vegetative stability	90	96	93	75	76	88	90	70	90	66	76	70	79
	Riparian measurements	95	100	94	95	93	93	81	90	81	54	83	60	48
Habitat assessment score		174	187	197	201	186	192	204	195	196	164	211	167	171
% Maximum		73	78	82	84	77	80	85	81	81	68	84	70	71
Assessment[d]		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. Assessment guidelines based on data collected at reference sites, 1991-2003; NG=no assessment guidelines

e. high turbidity; no substrate comp or habitat assessment conducted

f. nonwadeable; no substrate comp or habitat assessment conducted

g. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria

Appendix O-1. Physical characteristics and habitat quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

CU		0005	0005	0005	0005	0005	0005	0006	0006	0006	0006	0006	0006
Sub-watershed		150	150	150	280	280	280	040	040	040	040	040	040
Station		INCL-1	INCL-1	INCL-1	PNTL-1	PNTL-1	PNTL-1	TLNF-9	TLNF-9	TLNF-9	TLNF-9	TLNF-9	TLNF-9
Date (YYMMDD)		030513	030618	030826	030513	030617	030826	020611	021107	021218	030501	030610	030709
Subecoregion		71f	71f	71f	65j	65j	65j	65j	65j	65j	65j	65j	65j
Drainage area (mi^2)		10	10	10	6	6	6	13	13	13	13	13	13
Width (ft)		30	35	30	24	26	20	20	26	25	27	40	30
Canopy cover[b]		50/50	MO	50/50	MS	MS	50/50	50/50	MO	50/50	50/50	S	50/50
Depth (ft)	Riffle	0.3	0.2	0.2	0.3	0.2	0.3	0.2		0.5	0.4	0.2	0.7
	Run	0.8	0.7	0.5	0.8	1.0	0.8	0.5		1.0	0.8	0.8	1.0
	Pool	3.0	3.0	1.5	1.5	2.5	1.0			1.5		1.5	
Substrate (%)	Bedrock	30	12	10	3	5	5						
	Boulder	5	1	5			1						
	Cobble	30	15	35	55	25	50	5	10	10	50	1	40
	Gravel	25	40	35	30	35	35	80	55	65	40	74	50
	Sand	5	28	8	10	25	4	5	32	20	2	10	2
	Silt		2			5		3		1		10	
	Detritus	5	2	7	2	5	5	2	3	4	2	2	7
	Clay							5			6	3	1
	Organic silt												
Habitat assessment form[c]		RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR
	Instream habitat quality	90	70	85	89	75	83	66	62	85	78	65	78
	Sediment deposition	81	58	81	78	60	80	89	89	65	74	58	78
	Sinuosity	78	58	75	98	63	100	70	65	95	63	60	63
	Bank and vegetative stability	89	74	76	86	64	63	50	80	83	66	66	61
	Riparian measurements	68	56	75	93	75	95	90	93	100	81	88	90
Habitat assessment score		203	161	193	211	171	194	177	189	204	175	167	171
% Maximum		84	67	80	88	71	81	74	79	85	73	70	71
Assessment[d]		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. Assessment guidelines based on data collected at reference sites, 1991-2003; NG=no assessment guidelines

e. high turbidity; no substrate comp or habitat assessment conducted

f. nonwadeable; no substrate comp or habitat assessment conducted

g. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria

Appendix O-2. Bioassessment results from sites assessed in the Tennessee River basin as part of ADEM's Ecoregional Reference Reach Program, 1999-2003.

CU	0001	0001	0001	0002	0004	0005	0005	0005	0006	0006
Sub-watershed	180	180	180	200	120	150	150	280	040	040
Station	BYTJ-1	BYTJ-1	BYTJ-1	MLDM-2	DBBL-1	INCL-1	INCL-1	PNTL-1	TLNF-9	TLNF-9
Subecoregion	68d	68d	68d	68c	71h	71f	71f	65j	65j	65j
Drainage area (mi^2)	42	42	42	4	6	10	10	6	13	13
Macroinvertebrate community										
Date (yymmdd)	000614	020626	030611	030617	030625	990707	030618	030617	020611	030610
# EPT families	11	9	12	10	7	14	16	14	13	8
Assessment	Excellent	Good	Excellent	Excellent	Fair	Excellent	Excellent	Excellent	Excellent	Excellent

Appendix O-3. Water quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)
06030001 - Guntersville Lake															
180	BYTJ-1	990707	0945	23	6.7		5.1		47.1	156			34		1.4
180	BYTJ-1	990708	0845	23	6.9	65.0	7.6	1.7	20.1						
180	BYTJ-1	990803	1000	22	6.5		6.0		0.0	55			34		1.0
180	BYTJ-1	990908	1220	25	7.4		5.1			820					1.2
180	BYTJ-1	020626	0810	18	6.7	72.0	6.1	1.2			0.53	28	23	1.0	
180	BYTJ-1	030326	0940	15	7.8	74.0	9.7	3.0	49.8	26		9	20	3.3	
180	BYTJ-1	030408	1525	16	6.4	63.0	9.8	5.8			1.60	8	18		
180	BYTJ-1	030506	1245	17	6.5	35.5	7.7	241.0		7000		10	11		
180	BYTJ-1	030610	1535	21	6.8	116.3	8.0	2.6	17.7	33	1.34	15	21	<1	
180	BYTJ-1	030611	0830	20	7.0	64.0	8.2	3.6	48.6						
180	BYTJ-1	030708	1510	24	7.4	73.0	7.9	8.2	34.1			10	21	1.1	
180	BYTJ-1	030813	1100	23	7.5	125.0	8.0	3.4		46	1.87	17	26	<1	
180	BYTJ-1	030902	1515	26	8.4	89.0	8.5	3.2				96	13		
180	BYTJ-1	031014	1410	18	7.8	75.0	7.4	24.8				47	23	2.0	
180	BYTJ-1	031119	1045	14	7.1	72.3	8.6	12.0		1200		16	19	<1	
180	BYTJ-1	111204	1500	18	6.1	61.0	8.8	4.3	150.9	148			22		0.6
180	BYTJ-1	120318	1400	21	6.7	68.7	6.6	2.0	8.8	92			36		0.4
06030002 - Wheeler Lake															
200	MLDM-2	030320	1215	15	7.7	198.0	5.6	22.0		144		118	130	2.0	
200	MLDM-2	030410	1200	13	7.8	7.7	11.4	11.2	15.9			111	124	0.7	
200	MLDM-2	030513	0930	14	7.9	213.0	7.2	3.0	14.9			101	114		
200	MLDM-2	030618	1015	16	7.8	304.0	7.2	3.0		65		137	150	4.9	
200	MLDM-2	030708	1000	16	7.1	288.0	9.5	2.0				142	144	0.5	
200	MLDM-2	030804	1200	17	7.8	326.0	8.7	2.9		30		159	170	0.3	
06030004 - Lower Elk River															
120	DBBL-1	030331	1025	13	7.0	76.7	13.5	3.2	6.2	28		29	38	10.7	
120	DBBL-1	030422	1000	15	7.6	68.0	10.9	1.7	3.9		<1	33	46		
120	DBBL-1	030520	0935	16	7.8	55.0	13.9	3.8	15.0			22	30		
120	DBBL-1	030625	0930	18	5.0	93.0	8.2	1.6	3.0	184	<1	35	44	0.4	
120	DBBL-1	030717	0941	20	7.4	90.0	9.5	2.9	2.3			40	50	0.4	
120	DBBL-1	030805	0950	20	7.3	100.0	10.5	1.8	2.7	240		40	50	0.4	

Appendix O-3. Water quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	TON (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake															
180	BYTJ-1	990707	0945		22			3.220	0.022	1.072	0.025	0.485			
180	BYTJ-1	990708	0845												
180	BYTJ-1	990803	1000		27			4.270	<0.004	0.349	<0.015	0.453			
180	BYTJ-1	990908	1220		11			6.880	0.025	0.059	0.042	1.174			
180	BYTJ-1	020626	0810		4	64	6.17	3.403	0.037	0.342	<0.015	0.632		<0.004	
180	BYTJ-1	030326	0940	<2	5	41		2.45	0.026	1.692	<0.015	0.654		0.017	<0.05
180	BYTJ-1	030408	1525		20	49		2.60	0.022	1.243	<0.015	<0.15		0.027	<0.05
180	BYTJ-1	030506	1245		124	47		7.46	0.250	0.529	0.090	<0.15		0.074	
180	BYTJ-1	030610	1535	<2	6	42		3.11	0.040	0.718	0.051	<0.15		0.006	
180	BYTJ-1	030611	0830												
180	BYTJ-1	030708	1510		6	68		2.26	0.034	0.594	<0.015	1.420		0.020	
180	BYTJ-1	030813	1100	<2	11	63		4.30	0.026	0.524	<0.015	<0.15		0.012	
180	BYTJ-1	030902	1515		2	64		3.50	0..027	0.416	<0.015	<0.15		<0.004	
180	BYTJ-1	031014	1410		24	80		1.84	0.073	0.350	<0.015	<0.15		<0.004	
180	BYTJ-1	031119	1045	<2	5	14		5.01	0.043	0.357	<0.015	0.195		0.022	
180	BYTJ-1	111204	1500		2			1.94	<0.004	1.568	<0.015	0.178			
180	BYTJ-1	120318	1400		7			3.04	0.036	0.701	<0.015	0.336			
06030002 - Wheeler Lake															
200	MLDM-2	030320	1215		22	150		0.93	0.270	0.220	0.023	<0.15		<0.004	<0.05
200	MLDM-2	030410	1200		1	150		0.76	<0.004	1.366	1.018	<0.15		<0.004	<0.05
200	MLDM-2	030513	0930		3	129		1.02	<0.004	0.237	0.040	<0.15		<0.004	
200	MLDM-2	030618	1015		<1	164		0.34		0.318	0.021	<0.15		<0.004	
200	MLDM-2	030708	1000		<1	181		1.03	<0.004	0.235	<0.015	<0.15		<0.004	
200	MLDM-2	030804	1200		1	194		0.87	<0.05	0.331	<0.015	0.168		<0.005	
06030004 - Lower Elk River															
120	DBBL-1	030331	1025		3	49		0.61	<0.004	1.147	<0.015	<0.15		<0.004	<0.05
120	DBBL-1	030422	1000		2	69		1.33	0.021	1.451	<0.015	<0.15		<0.004	
120	DBBL-1	030520	0935		3	56		1.26	0.000	0.975	<0.015	<0.15		<0.004	
120	DBBL-1	030625	0930	<2	5	71		0.59	<0.004	1.680	<0.015	<0.15		<0.004	
120	DBBL-1	030717	0941		2	72		0.88	<0.02	1.323	<0.015	<0.15		<0.004	
120	DBBL-1	030805	0950	<2	2	65		490.40	<0.05	1.484	0.051	1.000		<0.005	

Appendix O-3. Water quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)
06030004 - Lower Elk River															
120	DBBL-1	030915	0930	18	6.5	108.2	10.2	1.3	1.9			44	54		
120	DBBL-1	031016	1115	16	7.1	109.0	11.3	1.1	4.6			44	56		
120	DBBL-1	031120	1020	14	7.6	57.0	10.9	1.0	3.1	43		43	52		
06030005 - Pickwick Lake															
150	INCL-1	030313	0830	12	7.5	84.5	10.7	1.6	10.1	30		31	32	1.2	
150	INCL-1	030429	1545	20	7.9	77.7	9.0	2.3	13.7		2.67	28	36		
150	INCL-1	030513	1630	18	7.2	73.8	9.0	3.6	17.3			25	31		
150	INCL-1	030708	1650	26	7.0	117.9	8.0	3.0	6.1	43	<0.1	44	49	1.8	
150	INCL-1	030729	1605	22	7.5	100.2	8.6	0.9	6.7			41	45		
150	INCL-1	030826	1600	25	7.8	109.1	8.0	1.5	5.2	30	2.14	49	41	2.3	
150	INCL-1	030909	1445	22	7.6	105.0	8.5	0.7				50	45		
150	INCL-1	031105	1500	20	7.3	105.1	8.7	0.5	5.7			88	53		
150	INCL-1	031118	1600	17	7.2	118.0	8.2	1.4		280		54		1.0	
150	INCL-1	111219	1030	18	7.1	84.2	8.6	<1.0	9.8	32			46		0.4
150	INCL-1	120325	0930	20	6.8	92.9	7.6	2.6	5.2	368			58		0.2
150	INCL-1	120617	0740	21	6.7	96.0	7.8	0.9	4.9						
150	INCL-1	120630	1030	22	7.7	100.3	8.7	1.4	5.2	37			60		1.0
150	INCL-1	121013	1300	23	7.2	97.0	9.0	<1.0	6.4	112			48		0.2
150	INCL-1	130118	1130	16	7.5	72.0	10.8	<1.0	1.6	55					0.9
280	PNTL-1	030312	1325	18	6.7	23.3	10.0	2.0	6.1	10		6	7	2.0	
280	PNTL-1	030429	1330	18	7.1	21.5	8.8	2.0	4.9		1.60	8	6		
280	PNTL-1	030513	1340	17	6.8	23.1	8.8	2.5	5.8			11	7		
280	PNTL-1	030617	1435	21	6.7	22.4	8.0	2.9	9.6						
280	PNTL-1	030708	1405	24	5.9	22.6	7.8	1.8	2.6		0.53	3	7	2.2	
280	PNTL-1	030708	1405	24	5.9	22.6	7.8	1.8	2.6		<0.1	3	8	2.2	
280	PNTL-1	030729	1400	22	6.4	23.0	8.0	2.9	5.1	83		31	8		
280	PNTL-1	030729	1400	22	6.4	23.0	8.0	2.9	5.1	127					
280	PNTL-1	030826	1330	23	6.7	27.3	7.1	1.6	1.4	57	<0.1	6	6	2.8	
280	PNTL-1	030909	1300	22	6.1	22.2	7.7	1.9				6	9		
280	PNTL-1	031105	1325	21	6.2	20.5	8.1	2.1				37	6		
280	PNTL-1	031118	1430	18	7.6	25.0	8.6	10.8		1500		6	6	0.5	

Appendix O-3. Water quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	TON (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030004 - Lower Elk River															
120	DBBL-1	030915	0930		1	72		<0.50	<0.02	1.322	<0.015	<0.15		0.007	
120	DBBL-1	031016	1115		<1	65		0.90	0.035	1.117	<0.015	<0.156		0.009	
120	DBBL-1	031120	1020		<1	66			<0.02	1.031	<0.015	0.191		0.006	
06030005 - Pickwick Lake															
150	INCL-1	030313	0830	<2	7	54		0.64	0.035	0.400	0.335	1.660		0.013	<0.05
150	INCL-1	030429	1545		5	24		0.75	<0.021	0.339	<0.015	<0.15		0.010	<0.05
150	INCL-1	030513	1630		2	46		0.87	<0.021	0.311	0.128	<0.15		0.041	
150	INCL-1	030708	1650	<2	2	66		0.45	0.016	0.106	0.030	<0.15		0.015	
150	INCL-1	030729	1605		5	65		0.62	0.016	0.376	<0.015	<0.15		0.012	
150	INCL-1	030826	1600	<2	8	66		0.53	0.021	0.285	<0.015	<0.15		0.003	
150	INCL-1	030909	1445		10	19		0.38	<0.004	0.306	<0.015	<0.15		0.007	
150	INCL-1	031105	1500		15	75		0.10	0.039	0.102	<0.015	0.223		0.004	
150	INCL-1	031118	1600	<2	4	84		0.94	0.048	0.269	<0.015	<0.15		0.015	
150	INCL-1	111219	1030		<1			2.92	<0.004	0.387	<0.015	<0.15			
150	INCL-1	120325	0930		6			1.10	0.021	0.691	<0.015	<0.15			
150	INCL-1	120617	0740												
150	INCL-1	120630	1030		1			0.75	0.049	0.364	<0.015	0.458			
150	INCL-1	121013	1300		<1			0.79	0.027	0.539	<0.015	<0.15			
150	INCL-1	130118	1130		21			0.93	0.013	0.291	<0.015	<0.15			
280	PNTL-1	030312	1325	<2	44	41		0.74	0.049	0.059	0.318	0.969		<0.004	<0.05
280	PNTL-1	030429	1330		4	35		0.81	0.012	0.091	<0.015	<0.15		0.014	<0.05
280	PNTL-1	030513	1340		4	49		0.94	0.012	<0.003	<0.015	<0.15		0.013	
280	PNTL-1	030617	1435												
280	PNTL-1	030708	1405	<2	5	27		0.31	0.015	0.092	<0.015	<0.15		0.009	
280	PNTL-1	030708	1405	<2	5	25		0.61	0.012	0.383	<0.015	<0.15		0.006	
280	PNTL-1	030729	1400		5	42		0.61	<0.004	0.122	<0.015	<0.15		0.012	
280	PNTL-1	030729	1400												
280	PNTL-1	030826	1330	<2	4	54		0.37	<0.004	0.091	<0.015	<0.15		0.007	
280	PNTL-1	030909	1300		12	69		0.48	<0.004	0.090	<0.015	<0.15		<0.004	
280	PNTL-1	031105	1325		6	39		0.75	<0.004	<0.003	<0.015	<0.15		<0.004	
280	PNTL-1	031118	1430	<2	7	47		2.67	0.048	0.021	<0.015	<0.15		0.017	

Appendix O-3. Water quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)
06030006 - Bear Creek															
040	TLNF-9	020320	1830	14	8.0	172.0	9.2	15.3		370	2.67		108	0.7	
040	TLNF-9	020415	1840	24	8.5	135.0	8.8	1.2	23.0	54	<0.10	77	96	0.6	
040	TLNF-9	020508	1530	22	8.1	190.0	8.5	4.0	46.8	70	0.80		82		
040	TLNF-9	020611	1345	25	7.9	230.0	9.0	1.0	4.5						
040	TLNF-9	020806	1600	26	6.4	295.0	6.7	0.8	1.1	125	1.12		47	0.5	
040	TLNF-9	020910	1500	25	7.7	280.0	6.8	2.4	0.0						
040	TLNF-9	021009	1720	20	8.0	1400.0	8.4	1.6		189	2.14		148		
040	TLNF-9	021107	0740	11	8.2		10.1	5.2	50.7	230	0.60		116	1.4	
040	TLNF-9	021218	1525	13	7.8	190.0	9.8	2.0	24.7	23	0.56		130		
040	TLNF-9	030318	1525	15	8.1	218.2	9.6	6.3	48.8	330		159	111	3.6	
040	TLNF-9	030416	1040	18	8.0	23.1	10.7	1.7	18.6		1.07	58	107		
040	TLNF-9	030501	0920	17	7.8	234.0	9.3	2.9	19.7						
040	TLNF-9	030501	0920	17	7.8	234.0	9.3	2.9	19.7			99	128	0.9	
040	TLNF-9	030610	1715	23	8.1	220.0	9.1	6.3	10.5						
040	TLNF-9	030611	0910	24	7.9	231.0	8.7	1.4	9.3	49	2.40	102	117	1.2	
040	TLNF-9	030709	0915	25	6.7	227.0	7.7	3.1	8.4			80	118	2.9	
040	TLNF-9	030806	1030	22	8.3	231.0	8.0	168.0		5600	6.41	103	118	2.6	
040	TLNF-9	030904	0900	24	8.0	223.0	7.4	2.3	6.4			128	129		
040	TLNF-9	031022	0950	15	7.2	246.0	9.7	0.6	4.2			163	155		
040	TLNF-9	031118	1200	17	7.9	275.5	9.3	10.7		480		130	136	0.5	

Appendix O-3. Water quality of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	TON (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030006 - Bear Creek															
040	TLNF-9	020320	1830	<2	18	119		2.796	0.060	0.259	0.050	0.3		0.010	
040	TLNF-9	020415	1840	<2	3	120		1.363	0.025	0.090	<0.015	<0.150		0.003	<0.05
040	TLNF-9	020508	1530		1	120		1.132	0.034	0.296	<0.015	0.188	0.188	0.004	
040	TLNF-9	020611	1345												
040	TLNF-9	020806	1600	<2	4	146		0.986	0.055	0.334	0.109	<0.150	<0.001	0.008	
040	TLNF-9	020910	1500												
040	TLNF-9	021009	1720		5	159		2.213	0.042	0.449	0.097	0.177		0.011	
040	TLNF-9	021107	0740	<2	4	18		2.109	0.052	0.576	0.149	0.247		0.010	
040	TLNF-9	021218	1525	<2		138		0.942	0.032	0.351	0.078	<0.150		0.031	
040	TLNF-9	030318	1525	<2	143	157		1.53	0.035	0.264	0.111	0.859		0.005	<0.05
040	TLNF-9	030416	1040		3	174		0.91	0.031	0.168	0.120	<0.15		0.004	<0.05
040	TLNF-9	030501	0920												
040	TLNF-9	030501	0920	<2	4	128		0.98	0.025	0.292	<0.015	<0.15		<0.004	
040	TLNF-9	030610	1715												
040	TLNF-9	030611	0910	<2	5	161		0.91	0.009	0.238	0.059	<0.15		<0.004	
040	TLNF-9	030709	0915	<2	17	129		1.09	0.017	0.267	<0.015	0.179		0.011	
040	TLNF-9	030806	1030	<2	163	160		6.30	0.143	0.302	0.037	0.284		0.027	
040	TLNF-9	030904	0900	<2	3	155		1.04	<0.004	0.157	<0.015	<0.15		0.009	
040	TLNF-9	031022	0950		10	185			<0.004	0.023	<0.015	<0.15		<0.004	
040	TLNF-9	031118	1200	<2	12	170		1.39	0.045	0.101	<0.015	<0.15		0.019	

Appendix O-4. Metals data of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)
06030001 - Guntersville Lake																	
180	BYTJ-1	990511	1500						<10		<0.003		<0.015		<0.020		0.287
180	BYTJ-1	990616	1400						<10		<0.003		<0.015		<0.020		1.32
180	BYTJ-1	990707	0945						<10		<0.003		<0.015		<0.020		0.571
180	BYTJ-1	990803	1000						<10		<0.003		<0.015		<0.020		0.746
180	BYTJ-1	990908	1220						<10		<0.003		<0.015		<0.020		0.248
180	BYTJ-1	020626	0810				<0.20										0.338
180	BYTJ-1	030326	0940	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.215
180	BYTJ-1	030506	1245	<0.116	<0.116	<0.5	5.600	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.188	4.27
180	BYTJ-1	030610	1535	<0.015	<0.015	<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.261	0.565
180	BYTJ-1	030902	1515	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.528	0.72
180	BYTJ-1	031119	1045	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.428	1.35
180	BYTJ-1	120618	0750						<10		<0.003		<0.015		<0.02		0.571
06030002 - Wheeler Lake																	
200	MLDM-2	030320	1215	<0.015	<0.015	<0.2	2.278		<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.044	2.698
200	MLDM-2	030618	1015	<0.015	<0.015	<0.1	<0.1	<10	31	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.033	0.0033
200	MLDM-2	030804	1200	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	<0.1	0.168
06030004 - Lower Elk River																	
120	DBBL-1	030331	1025	<0.015	<0.015	<0.2	<0.2		<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	2.569	0.242
120	DBBL-1	030625	0930	<0.015	<0.015	<0.2	<0.2	12	13	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.02	<0.02
120	DBBL-1	030805	0950	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.209	0.116
120	DBBL-1	031120	1020	<0.05	<0.05	<0.05	<0.05	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	<0.05	<0.06
06030005 - Pickwick Lake																	
150	INCL-1	990526	1030						<10		<0.003		<0.015		<0.020		0.049
150	INCL-1	990623	0930						<10		<0.003		<0.015		<0.020		0.031
150	INCL-1	990720	1030						<10		<0.003		<0.015		<0.020		0.032
150	INCL-1	990825	1300						<10		<0.003		<0.015		<0.020		0.636
150	INCL-1	030313	0830	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
150	INCL-1	030708	1650	<0.015	<0.015	<0.1	<0.1	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.078	0.042
150	INCL-1	030826	1600	<0.05	<0.05	<0.05	<0.05	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.297	0.522
150	INCL-1	031118	1600	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
150	INCL-1	130118	1130						<10		<0.003		0.033		<0.02		0.166

Appendix O-4. Metals data of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030001 - Guntersville Lake																			
180	BYTJ-1	990511	1500		<0.3		<2		0.029										<0.030
180	BYTJ-1	990616	1400		<0.3		3		0.218										<0.030
180	BYTJ-1	990707	0945		<0.3		<2		0.034										<0.030
180	BYTJ-1	990803	1000		<0.3		33		0.067										<0.030
180	BYTJ-1	990908	1220		<0.3		<2		0.184										<0.030
180	BYTJ-1	020626	0810						0.027										
180	BYTJ-1	030326	0940	<0.4	<0.4	<2	<2	0.051	0.052	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
180	BYTJ-1	030506	1245	<0.4	<0.4	<2	7.84	0.124	0.224	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
180	BYTJ-1	030610	1535	<0.3	<0.3	<2	<2	<0.02	0.021	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
180	BYTJ-1	030902	1515			<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
180	BYTJ-1	031119	1045	<0.3	<0.3	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
180	BYTJ-1	120618	0750		<0.3		<2		0.034										<0.03
06030002 - Wheeler Lake																			
200	MLDM-2	030320	1215	<0.5	<0.3	<2	<2	<0.02	0.064	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
200	MLDM-2	030618	1015	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	2	<2	<10	<10	<1	<1	<0.03	<0.03
200	MLDM-2	030804	1200	<0.01	<0.01	<100	<100	<0.1	<0.1	<0.1	<0.1	100	100	<10	<100	<100	<100	<0.1	<0.1
06030004 - Lower Elk River																			
120	DBBL-1	030331	1025	<0.5	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
120	DBBL-1	030625	0930	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
120	DBBL-1	030805	0950	<0.01	<0.01	<100	<100	<0.1	<0.1	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
120	DBBL-1	031120	1020	<0.01	<0.01	<10	<10	<0.05	<0.05	<0.05	<0.05	10	10	<50	<10	<10	<10	<0.05	<0.05
06030005 - Pickwick Lake																			
150	INCL-1	990526	1030		<0.3		<2		<0.02										<0.030
150	INCL-1	990623	0930		<0.3		<2		<0.02										<0.030
150	INCL-1	990720	1030		<0.3		<2		<0.02										<0.030
150	INCL-1	990825	1300		<0.3		4.25		0.072										<0.030
150	INCL-1	030313	0830	<0.4	<0.4	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
150	INCL-1	030708	1650	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
150	INCL-1	030826	1600	<0.01	<0.01	<10	<10	<0.05	<0.05	<0.05	<0.05	<10	<10		13	<10	<10	<0.05	<0.05
150	INCL-1	031118	1600	<0.3	<0.3	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
150	INCL-1	130118	1130		<0.3		<2		<0.02										<0.03

Appendix O-4. Metals data of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)
06030005 - Pickwick Lake																	
280	PNTL-1	030312	1325	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071
280	PNTL-1	030708	1405	<0.015	<0.015	<0.1	<0.1	<10	41	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.03	0.124
280	PNTL-1	030708	1405	<0.015	<0.015	<0.1	<0.1	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.042	0.128
280	PNTL-1	030826	1330	<0.05	<0.05	0.055	0.108	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.639	3.211
280	PNTL-1	031118	1430	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.116
06030006 - Bear Creek																	
040	TLNF-9	020320	1830			<0.20	0.388							<0.020	<0.020	<0.100	0.527
040	TLNF-9	020415	1840			<0.20	<0.20							<0.020	<0.020	<0.100	0.074
040	TLNF-9	020806	1600			<0.20	<0.20							<0.020	<0.020	0.094	0.117
040	TLNF-9	021107	0740			<0.109	<0.109							<0.086	<0.086	<0.071	<0.071
040	TLNF-9	021218	1525			<0.109	<0.109							<0.086	<0.086	<0.071	<0.071
040	TLNF-9	030318	1525	<0.116	<0.116	<0.109	0.148	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.179
040	TLNF-9	030611	0910	<0.015	<0.015	<0.2	<0.2		<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.02	0.69
040	TLNF-9	030806	1030	<0.1	<0.1	<0.1	14.590	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.179	10.85
040	TLNF-9	031118	1200	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.083

Appendix O-4. Metals data of sites assessed for the Tennessee River basin during ADEM's Ecoregional Reference Reach Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030005 - Pickwick Lake																			
280	PNTL-1	030312	1325	<0.4	<0.4	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
280	PNTL-1	030708	1405	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
280	PNTL-1	030708	1405	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
280	PNTL-1	030826	1330	<0.01	<0.01	<10	<10	<0.05	<0.05	<0.05	<0.05	<10	<10		<10	<10	<10	<0.05	<0.05
280	PNTL-1	031118	1430	<0.3	<0.3	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
06030006 - Bear Creek																			
040	TLNF-9	020320	1830	<0.3	<0.3	<2	<2											<0.030	<0.030
040	TLNF-9	020415	1840	<0.3	<0.3	<2	<2											<0.030	<0.030
040	TLNF-9	020806	1600	<0.5	<0.3	<2	<2											<0.030	<0.030
040	TLNF-9	021107	0740	<0.3	<0.3	<2	<2											<0.069	<0.069
040	TLNF-9	021218	1525	<0.4	<0.4	<2	<2											<0.069	<0.069
040	TLNF-9	030318	1525	<0.4	<0.4	<2	<2	<0.047	0.081	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
040	TLNF-9	030611	0910	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
040	TLNF-9	030806	1030	<0.01	<0.01	<100	<100	<0.1	0.747	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
040	TLNF-9	031118	1200	<0.3	<0.3	<2	<2	<0.047	<0.047	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069

Appendix P. §303(d) Waterbody Monitoring Project

Lead agency**:** ADEM

Purpose**:** In accordance with §303(d) of the Federal Clean Water Act, each state must identify its impaired waterbodies that do not meet surface water quality standards and submit this list to the EPA. In an effort to address water quality problems within Alabama, some waterbodies 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 impaired waterbodies to support §303(d) listing and de-listing decisions. The program includes intensive chemical, habitat, and biological data collected using ADEM's SOPs and QA/QC manuals.

Appendix P-1. Habitat assessment data

Appendix P-2. Biological assessment data

Appendix P-3. Physical/chemical data

Appendix P-4. Metals data

References:

ADEM. 2002l. Water quality monitoring data collected by ADEM in support of CWA §303(d) listing and de-listing decisions 1999-2002 (unpublished). Field Operations Division, Alabama Department of Environmental Management. Montgomery, AL.

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU		0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001	0001
Sub-watershed		160	160	160	160	160	160	160	160	160	160	160	170	170	220	220
Station		CFRJ-160	CFRJ-160	CFRJ-161	CFRJ-161	DRYJ-160	DRYJ-160	DRYJ-160	HGUJ-160	HGUJ-160	WSCJ-160	WSCJ-160	MUDJ-6	MUDJ-6	SSCD-1	SSCD-1
Date (YYMMDD)		020306	020626	020314	020625	020226	020313	020626	020314	020625	020313	020626	030625	031028	030610	030610
Subecoregion		68c	68c	68d	68d	68c	68c	68c	68d	68d	68d	68d	68b	68b	68d	68d
Width (ft)		35	35	30		25	26	25	18	30	10	10	39	45	30	30
Canopy cover[b]		MO	50/50	50/50	O	S	S	S	MO	50/50	50/50	O	MS	S	MO	50/50
Depth (ft)	Riffle	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0				1.0	0.5
	Run	2.0	1.0	2.0		2.0	1.0	2.0		1.0	1.0		2.0	3.0	1.0	1.5
	Pool	2.0								2.0			3.0			2.0
Substrate (%)	Bedrock	10		30	96				40	80					70	15
	Boulder	25	10	30		15	10	15	30	10	5	3			5	32
	Cobble	25	60	15		70	60	70	10		30	40			3	10
	Gravel	25	15	10		10	20	10	10		20		2		2	5
	Sand	5	10	5	1	3	10	3	5	3	20	20	55		20	27
	Silt	5	3	5					5	3	10		4			8
	Detritus	5	2	5	3	2		2		2	5	3	19			3
	Clay										10	34	20			
	Organic silt									2						
Habitat assessment form[c, d]		RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	GP[NGP]	RR	RR	RR
	Instream habitat quality	92	85	93	56	84	92	84	95	76	63	51	44	25	56	74
	Sediment deposition	93	84	98	84	91	98	91	98	88	85	49	65	25	45	61
	Sinuosity	100	83	90	53	80	100	80	100	70	40	28	48	0	98	88
	Bank and vegetative stability	80	84	93	91	80	100	80	88	90	75	53	13	63	84	58
	Riparian measurements	100	88	90	95	80	100	80	88	51	95	68	44	88	84	64
Habitat assessment score		223	206	222	177	199	234	199	223	186	182	130	103	118	175	170
% Maximum		93	86	93	74	83	98	83	93	77	76	54	47	49	73	71
Assessment[e]		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Fair	Fair	Excellent	Excellent

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria

e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.

f. nonwadeable; no habitat assessment conducted

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU	0001	0001	0001	0001	0001	0001	0002	0002	0002	0002	0002	0002	0002	0002	0002
Sub-watershed	220	250	250	280	300	300	060	060	060	060	060	160	160	160	160
Station	SSCD-1a	TCD-1	TCD-3	CSC-001	BSC-001	BSC-002	GUES-1	GUES-1	GUES-2	GUES-2	GUES-2	HESM-1	HESM-1	HESM-1	HESM-2
Date (YYMMDD)	030611	030610	030610	990708	990708	991108	030625	030813	030514	030625	030813	030520	030709	030715	030520
Subecoregion	68d	68d	68d	68d	68b	68c	68c	68c	68c	68c	68c	71g	71g	71g	71g
Width (ft)	45	35	70	40	35		20	15	35	20	15	40	40	53	50
Canopy cover[b]	MO	MO	MO	S	S	50/50	MS	S	O	50/50	MO	S	S	MS	MO
Depth (ft) Riffle	1.0		0.5				1.0		1.0	1.0		2.0	1.0	1.0	
Run	1.0	1.0	1.5	3.0	2.0		2.0		2.0	1.0	1.0	2.0	2.0	2.0	3.0
Pool	3.0	2.0	1.5	4.0	4.0		3.0		4.0	3.0	2.0			3.0	
Substrate (%) Bedrock											5	30	28	30	10
Boulder	30	1	30				5	5	2	2	2	5	10	2	65
Cobble	45		30		5		10	15	50	40	55	40	33	30	22
Gravel	15	4	5		15	50	5	20	45	15	30	25	22	20	3
Sand	5	70	15	91	68		60	50		39	5			13	1
Silt	3	5	10	1	5	25	2	5		2			6	3	
Detritus	2	20	10	8	7	5	15	5	3	2	3		3	2	
Clay							3								
Organic silt						10									
Habitat assessment form[c, d]	RR	RR	RR	GP[NGP]	GP[NGP]	GP[NGP]	RR	RR	RR	RR	RR	RR	RR	RR	RR
Instream habitat quality	84	59	83	43	57	62	49	68	88	86	88	67	52	79	63
Sediment deposition	90	64	79	70	73	78	41	61	93	81	88	90	88	66	73
Sinuosity	83	38	95	35	45	80	33	65	95	53	90	100	100	93	100
Bank and vegetative stability	75	25	81	23	28	45	46	68	81	78	89	84	70	60	73
Riparian measurements	75	48	90	88	88	65	48	56	64	56	65	56	56	53	74
Habitat assessment score	201	118	204	124	138	144	121	160	205	181	205	189	173	173	179
% Maximum	84	54	85	56	63	65	50	67	85	75	85	79	72	72	74
Assessment[e]	Excellent	Good	Excellent	Good	Good	Good	Fair	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU		0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002
Sub-watershed		160	180	180	180	180	180	180	180	180	180	180	180	180	180	180
Station		HESM-2	BFFM-1	BFFM-1	BFFM-2	BFFM-2	BFFM-2	BFFM-3a	BFFM-3a	BFFM-3a	BFFM-4	BFFM-5	BVDM-17	BVDM-17	BVDM-18	BVDM-18
Date (YYMMDD)		030709	020212	020612	020212	020612	020618	020212	020612	030715	020618	020612	020212	020612	020612	030730
Subecoregion		71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g
Width (ft)		40	40	40	30	30	30	50	50	30	40	75	30	30	18	20
Canopy cover[b]		MO	50/50	50/50	MO	50/50	MO	MO	MO	MS	MS	MO	50/50	50/50	50/50	S
Depth (ft)	Riffle				2.0	2.0	1.0	1.0	1.0	1.0	1.0	3.0	1.0	1.0		1.0
	Run	2.0			3.0	3.0	1.0			2.0	2.0	5.0	3.0	3.0		2.0
	Pool		3.0	2.0	3.0	3.0	3.0	5.0	5.0	3.0	3.0	6.0	4.0	4.0	5.0	3.0
Substrate (%)	Bedrock	5					3			10	2		5	5		
	Boulder	60					10				2	10				3
	Cobble	25	70	65	60	65	65			45	40	5	10	10	15	7
	Gravel	1	10	15	20	15	10	65	75	25	40	5	65	65		50
	Sand	1			10	10	6					10	5	2		20
	Silt	8					2	15	5	17	10	10			25	5
	Detritus		20	20	10	10	4	15	15	3	6	10	15	15		7
	Clay											50			60	8
	Organic silt							5	5							
Habitat assessment form[c, d]		RR	GP[NGP]	GP[NGP]	GP[NGP]	GP[NGP]	RR	GP[NGP]	GP[NGP]	RR	RR	GP[NGP]	GP[NGP]	GP[NGP]	GP[NGP]	RR
	Instream habitat quality	51	83	83	89	87	85	78	78	76	88	68	91	92	52	73
	Sediment deposition	75	89	89	96	95	78	89	89	46	86	71	94	94	70	53
	Sinuosity	100	60	60	80	80	85	35	35	63	78	45	83	80	83	60
	Bank and vegetative stability	63	69	68	71	73	81	56	58	45	58	59	59	58	64	26
	Riparian measurements	70	99	99	89	88	90	85	86	85	75	100	84	85	49	59
Habitat assessment score		162	191	191	202	200	202	171	174	161	190	166	192	192	148	146
% Maximum		68	87	87	92	91	84	78	79	67	79	75	87	87	67	61
Assessment[e]		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU		0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002
Sub-watershed		210	210	210	210	210	210	210	240	240	240	240	240	240	270	270
Station		FLIM-1	GOOM-1	GOOM-1	GOOM-1	GOOM-2	GOOM-2	YBCM-1	HSBM-240	HSBM-240	HSBM-242a	HSBM-242a	HSBM-243	HSBM-243	TWNM-24	TWNM-25
Date (YYMMDD)		030805	030515	030617	030729	030515	030729	030728	020213	020613	020213	020613	020213	020613	030729	030729
Subecoregion		71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g
Width (ft)		120	22	10	20	6	8	15	75	75	100	100	80	80	20	30
Canopy cover[b]		O	MS	MS	MS	S	S	MS	MO	MO	O	O	O	O	MS	MS
Depth (ft)	Riffle											1.0	1.0	1.0		
	Run	2.0	2.0	1.0	1.0	1.0			2.0		1.0	1.0	1.0	1.0		
	Pool		4.0	3.0	2.0	1.0		2.0		2.0					2.0	1.0
Substrate (%)	Bedrock	20		2											10	5
	Boulder	55						2							25	20
	Cobble	20				5	2	6					40	40	10	10
	Gravel	3		5		75	80	10	5	5	5	10	40	40	10	10
	Sand	3	80	75	80	15	16	10			15	10			5	10
	Silt		10	10	10	2	1	10	5	5	15	25	10	10	2	10
	Detritus		6	8	5	2		17				10			4	10
	Clay					1	1	40	10	10			10	10	30	15
	Organic silt		4		5			5	80	80	65	45			4	5
Habitat assessment form[c, d]		RR	GP[NGP]	GP[NGP]	GP[NGP]	RR	RR	GP[NGP]	GP[NGP]	GP[NGP]	GP[NGP]	RR	RR	RR	GP[NGP]	GP[NGP]
	Instream habitat quality	74	63	55	61	43	42	65	34	33	33	78	76	73	53	53
	Sediment deposition	89	79	60	76	93	94	81	51	53	50	35	36	35	85	89
	Sinuosity	100	90	55	88	38	33	45	23	23	20	100	100	100	38	40
	Bank and vegetative stability	70	46	25	44	70	71	66	51	51	53	79	81	81	46	64
	Riparian measurements	94	53	55	56	80	73	58	96	96	96	34	34	34	64	86
Habitat assessment score		202	149	120	146	155	150	155	130	130	129	140	141	139	138	162
% Maximum		84	68	55	66	64	63	70	59	59	58	58	59	58	63	73
Assessment[e]		Excellent	Excellent	Good	Good	Good	Good	Excellent	Good	Good	Good	Good	Good	Good	Good	Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU		0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0002	0004	0004	0004	0004
Sub-watershed		330	330	350	390	390	390	390	390	390	390	390	080	080	080	080
Station		FTC-001	FTC-002	WFC-001	SWNL-1	SWNL-1	SWNL-2	SWNL-2	SWNL-2	UTSL-1	UTSL-1	UTSL-1	BIGL-14	BIGL-14	BIGL-14	BIGL-15
Date (YYMMDD)		991208	991208	991208	030422	030717	030529	030618	031030	030422	030618	030717	030512	030625	030728	030512
Subecoregion		71g	71g	71j	71g	71g	71g	71g	71g	71g	71g	71g	71h	71h	71h	71h
Width (ft)		50	35	25	25	18	20	54	35	25	20	20	50	60	46	38
Canopy cover[b]		O	MO	MO	S	S	50/50	O	MO	O	MO	O	MS	MO	MS	MS
Depth (ft)	Riffle						1.0	2.0	1.0		1.0			0.3	1.0	1.0
	Run				2.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0
	Pool		3.0	4.0	2.0	1.0	4.0	3.0	2.0	2.0	2.0			0.8		
Substrate (%)	Bedrock				60	65	10	45	25	5	10	5	60	55	65	70
	Boulder				5	5	10	15	10		15		10	1	5	1
	Cobble				5	3	40	20	25	5	20	5	10	10	15	3
	Gravel				12	15	25	10	15	70	35	65	10	20	5	10
	Sand	25	25	25	10	5		6	15	10	15	10	5	7	5	6
	Silt	25	25	25			10	3	10		4			5		
	Detritus	10	10	10	4	6		1	5		1	5	2	2	2	
	Clay	25	25	25	2		5			10		10	2		1	10
	Organic silt	15	15	15	2	1							1		2	
Habitat assessment form[c, d]		GP[NGP]	GP[NGP]	GP[NGP]	RR		RR	RR	GP[NGP]	GP[NGP]	RR	GP[NGP]	RR	RR	RR	RR
	Instream habitat quality	63	52	57	43		85	67	75	58	51	54	35	60	50	39
	Sediment deposition	65	55	70	75		85	86	50	79	75	80	90	76	85	93
	Sinuosity	50	50	60	100		98	90	25	28	20	28	100	83	93	100
	Bank and vegetative stability	40	33	30	30		84	83	55	55	89	61	70	94	69	84
	Riparian measurements	55	60	50	96		56	50	53	43	18	44	100	83	100	71
Habitat assessment score		131	111	123	162		192	181	136	138	140	135	185	190	190	179
% Maximum		60	50	56	68		80	75	62	63	58	61	77	79	79	75
Assessment[e]		Good	Good	Good	Excellent		Excellent	Excellent	Good	Good	Good	Good	Excellent	Excellent	Excellent	Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU		0004	0004	0004	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005	0005
Sub-watershed		080	080	080	010	010	010	010	010	010	010	010	010	010	010	010
Station		BIGL-15	BIGL-16	BIGL-16	CRB-001	CRWL-1	CRWL-1	CRWL-2	CRWL-2	CRWL-2	MDFL-1	MDFL-1	MDFL-2	MDFL-2	MFBN-2	MFBN-3
Date (YYMMDD)		030728	030512	030728	991104	030430	030708	030430	030623	030708	030430	030708	030430	030708	991104	990707
Subecoregion		71h	71h	71h	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g	71g
Width (ft)		40	12	10	16	20	20	40	40	40	25	23	20	22	30	35
Canopy cover[b]		S	MO	50/50	O	MS	MS	50/50	MS	50/50	O	O	50/50	50/50	50/50	O
Depth (ft)	Riffle															
	Run	1.0	1.0			1.0	1.0	1.0	2.0	1.0	3.0	2.0				
	Pool		1.0	1.0		2.0	2.0		3.0	2.0			3.0	4.0	3.0	2.0
Substrate (%)	Bedrock	65				80	80	79	72	74	35	30				5
	Boulder	2	1	2	25	10	9	5	1	5	25	30				5
	Cobble	5	2	2	25	3	3	2	1	2	10	10		4	10	15
	Gravel	12	65	60	20	2	1	1	1	1	15	15	5	8	25	15
	Sand	10	2	2	10		2	4	3	4	5	5	3	3	25	27
	Silt				10		1	3	15	3	5	4	5	5	20	25
	Detritus	4		3	10	2	2	3	5	8	2	3	3	18	10	1
	Clay		30	29	10	2	2	2	2	2	2	2	14	20	10	
	Organic silt	2		2		1		1		1	1	1	70	42		2
Habitat assessment form[c, d]		RR	GP^{NGP}	GP^{NGP}	GP^{NGP}	RR	RR	RR	RR	RR	RR	RR	GP^{NGP}	GP^{NGP}	GP^{NGP}	GP^{NGP}
	Instream habitat quality	40	44	36	70	62	70	67	43	79	63	65	50	53	70	52
	Sediment deposition	80	93	94	73	86	86	86	66	84	69	65	50	45	80	45
	Sinuosity	90	30	33	25	65	65	48	68	73	40	70	25	23	45	20
	Bank and vegetative stability	80	44	58	70	76	69	90	76	80	79	70	51	53	53	40
	Riparian measurements	76	100	100	48	74	75	73	90	80	43	50	70	65	90	15
Habitat assessment score		172	151	147	144	173	176	171	166	179	144	151	122	120	165	100
% Maximum		72	69	67	65	72	73	71	69	75	60	63	55	54	75	45
Assessment[e]		Excellent	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	Good	Good	Excellent	Fair

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix P-1. Physical characteristics and habitat quality of sites assessed in the Tennessee River basin as part of ADEM's §303(d) Monitoring Program, 1999-2003.

CU		0005	0005	0005	0005	0005	0005	0005	0005	0006	0006	0006
Sub-watershed		160	160	160	160	160	160	160	160	010	010	010
Station		MCKC-1	MCKC-1	MCKC-2	PNDC-4	PNDC-4	SHGC-1	SHGC-1	SHGC-1	BEA-2	BEA-2	BEA-2
Date (YYMMDD)		030529	030616	031030	030616	030827	030529	030616	031030	030430	030609	030821
Subecoregion		71g	71g	71g	71g	71g	71g	71g	71g	68e	68e	68e
Width (ft)		12	6	10	30	20	8	5	15	65	50	30
Canopy cover[b]		MS	S	MO	S	50/50	50/50	MS	50/50	50/50	MO	MO
Depth (ft)	Riffle									0.7	0.5	
	Run	1.0	1.0		2.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0
	Pool	1.0	2.0	1.0	4.0		1.0	3.0	1.0	2.0	2.0	3.0
Substrate (%)	Bedrock					2				70	84	60
	Boulder							2		5	5	15
	Cobble	50	30	10			50	35	50	5	5	15
	Gravel	25	35	50			25	45	25	5	2	
	Sand	10	5	20	25	15	10	5	10	10	2	5
	Silt	15	8	15	15	5	15	5	10	3		
	Detritus		2	5	4	8		3	15	2	2	5
	Clay		20	5	56	70		5				
	Organic silt											1
Habitat assessment form[c, d]		RR	RR	RR	GP[NGP]	GP[NGP]	RR	RR	GP[NGP]	RR	RR	RR
	Instream habitat quality	74	70	68	37	46	78	70	81	85	89	78
	Sediment deposition	80	80	76	59	54	79	79	79	73	86	86
	Sinuosity	68	73	70	15	20	85	88	75	95	93	90
	Bank and vegetative stability	73	20	60	41	59	73	25	38	85	84	83
	Riparian measurements	53	25	45	73	65	79	64	55	85	88	85
Habitat assessment score		165	136	154	119	128	189	152	153	203	211	202
% Maximum		69	56	64	54	58	79	63	69	85	88	84
Assessment[e]		Excellent	Good	Good	Good	Good	Excellent	Good	Excellent	Excellent	Excellent	Excellent

a. No flow; Assessment not conducted
b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open
c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)
d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria
e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combintion of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e.
f. nonwadeable; no habitat assessment conducted

Appendix P-2. Bioassessment results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

CU	0001	0001	0001	0001	0001	0001	0001	0001	0001	0002	0002	0002	0002	0002	0002
Sub-watershed	160	160	160	160	170	220	250	280	300	060	060	160	180	180	180
Station	CFRJ-160	CFRJ-161	DRYJ-160	HGUJ-160	MUDJ-6	SSCD-1	TCD-3	CSC-001	BSC-001	GUES-1	GUES-2	HESM-1	BFFM-2	BFFM-3a	BFFM-4
Subecoregion	68c	68d	68c	68d	68b	68d	68d	68d	68b	68c	68c	71g	71g	71g	71g
Drainage area (mi^2)						42	118				27				
Macroinvertebrate community															
Date (yymmdd)	020626	020625	020626	020625	030625	030610	030610	990708	990708	030625	030625	030715	020618	030715	020618
# EPT families	8	7	8	8	8	7	10	4	8	5	9	3	6	5	6
Assessment	Good	Good	Good	Good	Excellent	Good	Excellent	Fair	Good	Fair	Good	Poor	Fair	Fair	Fair

CU	0002	0002	0002	0002	0004	0005	0005	0005	0005	0005	0006
Sub-watershed	180	210	390	390	080	010	160	160	160	160	010
Station	BVDM-18	GOOM-1	SWNL-2	UTSL-1	BIGL-14	CRWL-2	MCKC-1	PNDC-4	PNDC-4	SHGC-1	BEA-2
Subecoregion	71g	71g	71g	71g	71h	71g	71g	71g	71g	71g	68e
Drainage area (mi^2)	9	13									
Macroinvertebrate community											
Date (yymmdd)	030730	030617	030618	030618	030625	030623	030616	020611	030616	030616	030609
# EPT families	4	4	6	4	11	6	5	4	2	5	4
Assessment	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Poor	Fair	Fair

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake																										
160	CFRJ-160	011127	0941	12	8.1	95.0	10.6	6.3	68.2	380			30	0.7			5				<0.004	0.607	<0.015	0.545		
160	CFRJ-160	011212	0925	8	6.7	60.0	10.6	4.7	63.3	330			32	0.5			<1				0.018	0.513	<0.015	<0.15		
160	CFRJ-160	020116	0947	7	7.3		12.6		36.4																	
160	CFRJ-160	020130	0940	13	7.7	279.0	10.7	3.9	172.0	26			40	0.3			1				<0.004	1.024	<0.015	<0.15		
160	CFRJ-160	020220	0930	13	6.3	205.0	11.2		83.3	19			24	1.1			4									
160	CFRJ-160	020313	1000	11	9.1	128.0	10.7			360			38	1.1			5				0.009	0.537	<0.015	0.353		
160	CFRJ-160	020626	1015	21	7.7	168.0	8.7		4.5	20			82	1.2			4				<0.004	0.069	<0.015	0.321		
160	CFRJ-160	020626	1015	21	7.7	168.0	8.7		4.5	20			82	1.2			4				<0.004	0.069	<0.015	0.321		
160	CFRJ-161	020131	0915	12	7.6	96.0	9.9			25			36	0.2			6				<0.004	0.884	<0.015	<0.15		
160	CFRJ-161	020221	0925	16	7.3	50.0	9.7			180			16	0.9			3				<0.004	1.241	<0.015	<0.15		
160	CFRJ-161	020314	0950	12	8.0	73.0	9.3		62.6	33			26	0.8			<1				0.009	0.958	<0.015	0.303		
160	CFRJ-161	020501	1105	15	7.1	52.0	7.7			>1200			18	2.4			111				0.170	0.409	0.254	1.203		
160	CFRJ-161	020513	1545	19	9.0	96.0	7.8			196			28	0.5			4				<0.004	440.600	<0.015	<0.15		
160	CFRJ-161	020625	1625	27	7.2	66.0	8.4	3.1																		
160	CFRJ-161	020627	0900	22	7.9	67.0	8.3			52			36	1.9			6				0.034	<0.003	<0.015	0.523		
160	CFRJ-162	011128	0851	8	8.2	69.0	9.4	10.7	53.1	380			26	0.6			7				<0.004	0.802	<0.015	0.560		
160	CFRJ-162	011213	0913	13	7.2	40.0	9.0	232.0		>1240			18	1.9			386				0.503	0.358	<0.015	1.834		
160	CFRJ-162	020117	0927	5			11.5		19.8																	
160	CFRJ-162	020131	1025	14	7.3	69.0	10.0			96			40	0.4			3				<0.004	1.489	<0.015	<0.15		
160	CFRJ-162	020221	1020	16	7.5	56.0	11.0			48			18	1.0			1				<0.004	0.642	<0.015	<0.15		
160	DRYJ-160	011127	1115	8	7.9	250.0	10.4	2.9	5.9	34			128	0.4			2				<0.004	0.073	<0.015	0.250		
160	DRYJ-160	011212	1035	13	6.7	178.0	10.5	1.4	7.8	20			98	0.4			7				<0.004	0.051	<0.015	<0.15		
160	DRYJ-160	020116	1049	6			12.3		8.2																	
160	DRYJ-160	020130	1100	14	7.4	460.0	10.0		45.4	6			98	0.4			<1				0.027	0.353	0.061	<0.15		
160	DRYJ-160	020220	1035	13	6.9	210.0	10.1		25.3	82			92	1.2			6				<0.004	0.296	<0.015	<0.15		
160	DRYJ-160	020313	1055	11	8.4	331.0	11.0		30.1	23			88	1.4			5				0.026	0.190	<0.015	0.340		
160	DRYJ-160	020626	0840	19	8.1	360.0	8.8		3.1	10			180	0.3			1				<0.004	<0.003	<0.015	<0.15		
160	DRYJ-160	020626	0840	19	8.1	360.0	8.8		3.1	10			180	0.3			1				<0.004	<0.003	<0.015	<0.15		
160	HGUJ-160	011128	0934	8	7.6	85.0	9.6	6.9	4.3	250			38	0.4			4				<0.004	<0.003	<0.015	0.431		
160	HGUJ-160	011213	0934	13	7.0	45.0	7.1	44.5		>1240			28	1.3			102				0.119	<0.003	<0.015	0.672		
160	HGUJ-160	020117	1015	5			11.0																			
160	HGUJ-160	020131	1000	13	7.0	104.0	8.7		7.4	16			50	0.4			3				<0.004	0.324	<0.015	<0.15		
160	HGUJ-160	020221	0830	14	6.8	95.0	10.0		6.3	20			30	1.1			<1				<0.004	0.114	<0.015	<0.15		
160	HGUJ-160	020314	0915	12	8.3	111.0	9.5		8.9	94			38	0.8			1				0.012	0.090	<0.015	0.259		
160	HGUJ-160	020501	1045	15	6.4	74.0	6.7			>1200			32	1.4			28				0.050	0.166	0.220	0.537		
160	HGUJ-160	020513	1605	19	8.4	93.0	7.8			290			48	0.4			<1				0.055	<0.003	<0.015	0.425		
160	HGUJ-160	020625	1715	24	7.2	131.0	6.3	8.1																		
160	HGUJ-160	020627	0845	22	7.3	130.0	7.5			510			70	0.3			<1				<0.004	<0.003	<0.015	0.259		
160	RCBJ-160	011127	1630	8	6.6	230.0	8.7	20.9	1.3	156			124	0.7			11				<0.004	0.066	<0.015	0.372		
160	RCBJ-160	011212	1457	14	6.7	220.0	9.3	6.4	1.6	40			124	0.4			8				<0.004	<0.003	<0.015	<0.15		
160	RCBJ-160	020116	1500	7			10.8																			
160	RCBJ-160	020130	1520	14	7.1	366.0	7.7			1			144	0.6			2				<0.004	0.124	<0.015	<0.15		
160	RCBJ-160	020220	1450	18	6.6	227.0	10.1			5			110	1.5			131				<0.004	0.049	<0.015	<0.15		
160	RCBJ-160	020313	1440	11	7.4	199.0	9.5			9			114	0.8			3				0.009	0.058	<0.015	0.272		
160	RCBJ-160	020501	1020	15	7.3	219.0	8.3			430			108	0.6			9				<0.004	<0.003	0.069	0.249		
160	RCBJ-160	020514	1040	17	7.4	269.0	10.0			54			148	0.3			3				0.006	<0.003	<0.015	<0.15		
160	RCBJ-160	020626	1520	24	7.3	347.0	8.5			5			162	0.2			4				<0.004	<0.003	<0.015	0.421		
160	WSCJ-160	011127	1501	8	7.1	125.0	7.4	136.0	0.1	800			64	1.1			80				0.054	0.043	<0.015	0.760		
160	WSCJ-160	011212	1335	13	6.4	105.0	9.0	12.2	3.6	40			54	0.5			13				0.008	<0.003	<0.015	0.167		
160	WSCJ-160	020116	1400	6			10.2		2.6																	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake																										
160	WSCJ-160	020130	1420	18	7.3	222.0	9.5		9.4	<1			76	0.4			3				0.011	0.290	<0.015	<0.15		
160	WSCJ-160	020220	1350	14	6.3	150.0	10.0		9.4	<1			50	0.6			2				<0.004	0.162	<0.015	0.204		
160	WSCJ-160	020313	1345	8	7.8	91.0	9.5		11.5	26			40	0.8			3				0.009	0.133	<0.015	0.239		
160	WSCJ-160	020501	0940	15	7.3	84.0	7.5			>1200			20	3.2			116				0.123	0.372	0.316	1.310		
160	WSCJ-160	020514	0945	15	8.1	176.0	8.2		6.6	108			96	0.4			9				<0.004	<0.003	<0.015	0.308		
160	WSCJ-160	020626	1415	24	7.3	535.0	7.6			5			234	0.3			<1				<0.004	<0.003	<0.015	0.166		
160	WSCJ-160	020626	1415	24	7.3	535.0	7.6			5			234	0.3			<1				<0.004	<0.003	<0.015	0.166		
170	MUDJ-3	030320	1305	17	5.1	167.5	10.4	13.7		17		88	100	4.4			8	121			0.070	0.217	<0.015	0.446	<0.004	
170	MUDJ-3	030424	1210	20	8.2	180.0	9.5	18.0		1	<1	89	100	2.4			8	125			<0.004	0.127	<0.015	0.359	<0.004	
170	MUDJ-3	030508	1020	20	7.5	153.0	12.5	35.3		77		62	74	2.3			7	105			0.042	0.171	0.117	0.250	0.005	
170	MUDJ-3	030508	1020	20	7.5	153.0	12.5	35.3		200		64	72	1.9			5	108			0.051	0.185	0.107	0.233	0.005	
170	MUDJ-3	030617	1025	28	8.1	156.0	6.9	4.0		1	<1	66	74	5.1			4	96			0.030	<0.003	<0.015	0.226	<0.004	
170	MUDJ-3	030708	1045	28	7.4	153.4	9.9	3.5		<1		66	174	1.2			<1	95			<0.004	<0.003	<0.015	0.373	<0.004	
170	MUDJ-3	030819	1040	30	8.3	152.0	6.5	4.2		<1		64	78	0.8			4	101			<0.02	<0.003	<0.015	0.402	0.007	
170	MUDJ-3	030819	1040	30	8.3	152.0	6.5	4.2		<1		67	80	0.6			6	92			<0.02	<0.003	<0.015	0.352	<0.005	
170	MUDJ-3	030923	1030	25	8.0	182.0	9.2	8.3		<1	11.48	69	82	0.7			6	106			0.024	0.092	<0.015	0.481	0.006	
170	MUDJ-3	031028	1230	18	7.8	180.0	12.0	7.1		7	12.28	73		0.5			5	112			0.022	0.016	0.052	0.459	<0.004	
170	MUDJ-4	030320	1050	17	8.0	174.0	9.4	10.3		18		95	104	3.9			8	125			<0.004	0.270	<0.015	0.267	<0.004	
170	MUDJ-4	030424	1125	19	7.9	190.0	8.8	8.0		1	12.28	100	112	2.1			8	143			<0.004	0.078	<0.015	0.316	<0.004	
170	MUDJ-4	030508	1040	21	7.5	148.0	10.0	27.1		62		55	68	1.6			9	107			0.049	0.246	0.092	<0.15	0.014	
170	MUDJ-4	030617	0950	28	7.7	147.0	5.7	5.0		1	<1	66	74	5.2			6	82			<0.004	<0.003	<0.015	0.162	<0.004	
170	MUDJ-4	030708	0950	28	7.7	150.0	10.0	1.5		<1	<1	63	66	0.6			2	86			<0.004	<0.003	<0.015	0.283	<0.004	
170	MUDJ-4	030819	1000	31	8.1	171.0	6.1	4.0		<1		67	80	0.7			5	94			<0.02	<0.003	<0.015	0.403	<0.005	
170	MUDJ-4	030923	1115	24	7.9	187.0	8.4	8.9		<1	9.88	76	90	1.3			4	109			0.022	<0.003	<0.015	0.692	0.006	
170	MUDJ-4	031028	1120	17	7.4	180.0	10.7	7.0		<1	4.01	79	98	0.9			5	116			<0.02	0.016	<0.015	0.438	<0.004	
170	MUDJ-5	030320	1145	17	7.1	193.1	8.2	19.2		30		103	116	2.3			13	140			<0.004	0.476	0.072	0.438	<0.004	
170	MUDJ-6	030320	0910	15	7.1	238.2	8.2	11.7		236		105	116	2.7			10	140			<0.004	0.686	<0.015	<0.15	<0.004	
170	MUDJ-6	030424	1130	14	7.9	226.0	10.4	13.6		210	2.96	100	110	<0.1			10	143			0.031	0.592	<0.015	<0.15	<0.004	
170	MUDJ-6	030508	1140	18	7.3	135.0	12.2	52.4		338		60	74	2.6			9	116			0.122	0.339	0.088	0.309	0.080	
170	MUDJ-6	030617	1015	18	7.7	222.0	8.0	45.5		820		99	112	4.7			27	141			0.080	0.801	0.055	<0.15	0.013	
170	MUDJ-6	030708	1025	19	7.7	212.0	7.6	15.8		220	<1	95	106	0.5			13	129			<0.023	0.558	<0.015	0.388	<0.004	
170	MUDJ-6	030819	1025	21	7.1	294.0	7.0	14.7		500		133	148	0.2			10	176			<0.02	0.902	<0.015	<0.15	0.016	
170	MUDJ-6	030923	1040	18	7.8	231.0	8.2	42.0		3100	1.47	98	122	1.0			24	148			0.085	0.519	<0.015	0.527	0.026	
170	MUDJ-6	031028	1130	14	8.5	319.0	6.1	3.0	6.7	236	1.47	154	168	3.5			5	195			<0.02	0.511	<0.015	0.267	0.006	
170	MUDJ-7	030320	0955	13	6.8	112.0	9.9	9.2		228		63	76	2.4			9	84			<0.05	0.221	<0.015	<0.15	<0.004	
170	MUDJ-7	030424	1200	13	7.9	146.0	11.4	14.0		148	1.60	62	66	0.5			10	93			<0.004	0.226	<0.015	<0.15	<0.004	
170	MUDJ-7	030508	1205	16	7.4	21.0	11.3	23.5		540	1.06	47	62	1.1			8	89			0.025	0.271	0.031	<0.15	<0.004	
170	MUDJ-7	030617	1105	18	7.7	91.0	7.8	99.7		620	<1	38	58	4.6			31	78			0.094	0.211	0.035	0.215	<0.004	
170	MUDJ-7	030708	1100	18	8.0	144.0	8.9	12.5		172	<1	61	76	0.5			10	94			<0.004	0.285	<0.015	<0.15	<0.004	
170	MUDJ-7	030819	1105	23	7.2	182.0	5.9	16.6		260		82	72	0.6			111	111			<0.02	0.154	<0.015	0.312	<0.005	
170	MUDJ-7	030923	1115	17	8.1	127.0	8.7	57.2		4900	1.07	53	70	0.9			27	96			0.087	0.264	<0.015	0.501	0.030	
170	MUDJ-7	031028	1240	13	8.8	194.0	5.3	14.5		40	2.97	90	104	1.7			13	121			<0.02	0.011	<0.015	0.446	<0.004	
220	SSCD-1	030108	1250	6	7.7	92.0	12.1			5			33	1.2			7				0.032	4.719	0.039	0.498	0.023	
220	SSCD-1	030212	1240	10	7.3	106.0	12.2	2.4		3			31	0.5			3				0.023	4.195	<0.015	<0.15	0.005	
220	SSCD-1	030312	1130	12	7.0	90.0	11.0	2.4		8			23	1.0			3		6.39		0.044	3.522	0.187	1.560	0.012	
220	SSCD-1	030402	1020	14	8.0	100.0	10.9	1.3		4			28	0.5			5		7.71		0.052	2.588	<0.015	1.250	0.026	
220	SSCD-1	030506	1345	19	6.8	44.0	8.1	470.0		2000			14	1.8			449	41	3.71		0.623	0.471	0.214	1.130	0.109	
220	SSCD-1	030610	1550	24	7.4	99.9	7.9	1.6	26.0	20			32	1.8			7	70	7.35		0.063	1.340	<0.015	<0.15	0.023	
220	SSCD-1a	030108	1205	6	7.5	76.0	12.5			10			30	1.0			4				0.014	4.488	0.076	<0.15	0.010	
220	SSCD-1a	030108	1205	6	7.5	76.0	12.5			14			31	1.0			4				0.026	4.410	0.082	0.328	0.015	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake																										
220	SSCD-1a	030212	1210	7	7.6	106.0	11.6	2.3		9			30	1.6			5				0.029	4.169	<0.015	0.206	0.005	
220	SSCD-1a	030212	1210	7	7.6	106.0	11.6	2.3		11			29	1.5			4				0.016	3.848	0.091	<0.15	0.010	
220	SSCD-1a	030312	1215	11	6.9	85.0	11.3	3.3		10			25	0.7			8		5.64		0.043	3.464	0.195	1.020	0.008	
220	SSCD-1a	030312	1215	11	6.9	85.0	11.3	3.3		13			25	0.7			7		5.65		0.012	2.728	0.174	2.050	0.009	
220	SSCD-1a	030402	0820	13	7.7	101.0	10.7	1.3		14			26	0.3			4		6.37		0.028	2.208	<0.015	1.270	0.013	<0.05
220	SSCD-1a	030506	1255	20	6.1	17.0	9.0	500.0		2000			12	3.6			689	50	3.68		0.679	0.479	0.264	1.010	0.141	
220	SSCD-1a	030611	1440	24	7.7	83.4	8.3	1.8	9.7	40			26	1.3			4	64	6.20		0.030	1.160	0.074	<0.15	0.016	
220	SSCD-1a	030611	1440	24	7.7	83.4	8.3	1.8	9.7	40			28	1.1			7	49	6.12		0.039	1.150	<0.015	<0.15	0.007	
220	SSCD-2	030108	1500	8	6.6	66.0	11.7			2			26	1.4			9				0.018	3.766	0.082	<0.15	0.012	
220	SSCD-2	030212	1420	8	7.4	90.0	11.1	1.7		1			27	0.9			5				0.032	3.476	0.129	<0.15	0.007	
220	SSCD-2	030312	1050	11	7.1	78.0	11.9	2.4		11			23	1.0			5		5.87		0.027	2.289	0.437	1.960	0.017	
220	SSCD-2	030401	1450	15	7.9	85.0	10.8	1.4	19.5	8			24	0.8			6		6.38		0.045	2.111	<0.015	1.390	0.014	0.07
220	SSCD-2	030506	1420	20	6.4	42.0	8.5	174.0		2200			12	1.5			193	38	3.87		0.242	0.571	0.055	<0.15	0.061	
220	SSCD-2	030611	1620	25	6.7	80.9	8.9	1.7		110			28	1.1			6	50	6.18		0.022	1.380	<0.015	<0.15	0.005	
250	TCD-1	030108	1540	8	6.5	59.0	11.6			5			26	1.7			5				0.071	4.784	<0.015	0.368	0.012	
250	TCD-1	030212	1500	7	7.5	80.0	10.7	1.5		2			24	1.3			8				0.012	3.995	0.188	0.265	0.008	
250	TCD-1	030312	0945	11	7.0	71.0	11.6	2.1		26			21	1.6			3		5.72		<0.055	3.378	0.099	2.050	0.017	
250	TCD-1	030401	1410	14	7.6	69.0	10.9	1.7		15			20	1.2			7		6.10		0.047	2.182	<0.015	1.200	0.016	
250	TCD-1	030506	1505	19	7.3	50.0	8.1	521.0		2000			11	1.6			407	60	3.89		0.461	0.649	0.081	<0.15	0.078	
250	TCD-1	030610	1450	21	7.0	68.5	9.0	1.4		33			22	1.1			5		5.61	2.25	0.022	1.070	<0.015	<0.15	0.006	
250	TCD-2	030109	1040	7	7.4		11.5			20			25	1.6			6				0.013	3.322	0.032	0.462	0.012	
250	TCD-2	030213	0900	7	8.4	79.0	11.9	2.3		26			24	1.3			6				0.028	2.996	<0.015	<0.15	0.008	
250	TCD-2	030313	0930	12	7.9	78.0	10.3	3.8		23			21	1.1			10		5.39		0.056	1.994	0.113	1.560	0.020	
250	TCD-2	030401	1240	12	5.7	186.0	12.5	2.2		8			22	1.6			7		5.59		0.040	1.533	<0.015	1.530	0.015	<0.05
250	TCD-2	030507	1045	19	7.4	79.0	8.3	244.0		3400			14	3.0			213	51	4.02		0.286	0.808	0.065	<0.15	0.043	
250	TCD-2	030611	1100	21	7.2	76.0	8.3	2.3		43			27	0.6			4		5.39	2.51	0.026	0.701	<0.015	<0.15	<0.004	
250	TCD-3	030109	0940	7	7.3		11.6			15			26	1.2			7				0.013	3.647	0.046	0.180	0.011	
250	TCD-3	030401	1300	14	7.1	9.0	12.3	2.4		8			22	1.9			3		5.87		0.044	1.672	0.039	1.530	0.015	
250	TCD-3	030507	1125	19	7.1	55.0	8.5	134.0		2000			15	4.3			109	53	4.15		0.166	0.885	0.054	<0.15	0.045	
250	TCD-3	030611	1140	21	7.2	79.3	8.2	3.3		33			27	0.5			4	61	5.42		0.034	0.821	<0.015	<0.15	<0.004	
250	TCD-4	030108	1135	6	7.8	56.0	11.9			10			27	1.4			4				0.015	3.759	0.127	0.356	0.014	
250	TCD-4	030312	1340	13	7.3	78.0	10.8	3.0		3			22	1.3			8		5.82		0.042	2.227	0.131	1.440	0.020	
250	TCD-4	030402	1100	14	7.0	84.0	10.9	1.8		14			21	1.2			7		6.05		0.049	1.754	0.077	1.560	0.023	<0.05
250	TCD-4	030506	1145	20	7.5	81.0	6.9	983.0		2000			18	9.4			745	58	5.16		0.734	0.882	2.160	2.380	0.181	
250	TCD-4	030611	1350	26	7.3	79.8	9.0	2.5		40			26	1.3			5	53	5.70		0.039	0.942	<0.015	<0.15	0.010	
280	CSC -001	990511	1320	18	6.4	75.0	8.8	5.0	43.2	396			26		0.5		7			2.51	<0.004	2.169	<0.015	0.465		
280	CSC -001	990608	1045	21	6.3	77.6	6.9	4.0	7.3	450					0.1		2			4.17	<0.004	0.858	<0.015	0.522		
280	CSC -001	990708	0951	22	6.4	73.0	7.8	5.9	62.4																	
280	CSC -001	990714	0900	18	6.4	191.2	7.9	8.3	82.9	710					1.1		<1			4.13	0.044	2.032	0.040	0.546		
280	CSC -001	990804	0815	23	6.9	66.7	6.5	4.0	7.7	80					0.7		9			4.77	0.028	0.908	<0.015	0.681		
280	CSC -001	990907	1115	23	8.0	96.1	2.3			88					1.1		6			7.60	0.040	0.037	<0.015	0.713		
300	BSC -001	990511	1215	18	7.2	106.0	8.3	9.0	83.1	>240			78		0.8		45			1.70	0.104	1.142	<0.015	0.609		
300	BSC -001	990616	1120	20	6.9	185.4	6.6	12.0	52.4	6800							22			2.93	0.071	0.987	<0.015	0.274		
300	BSC -001	990707	0750	23	7.4		7.2		89.1	490							5			2.11	0.043	1.481	<0.015	0.387		
300	BSC -001	990708	1231	23	7.0	161.0	7.2	7.7	48.6																	
300	BSC -001	990803	1225	23	7.6	180.3	6.9	8.8	32.9	360							8			2.04	<0.004	0.801	<0.015	0.245		
300	BSC -001	990908	0940	21	6.8		6.6			236					0.1		<1			2.53	0.022	0.516	<0.015	0.768		
300	BSC -002	990511	1030	18	7.5	202.0	8.5	9.9		132			106		0.5		15			0.95	<0.004	0.804	<0.015	0.260		
300	BSC -002	990616	0940	19	7.3	218.0	6.1	7.2		261							8			2.21	0.038	1.036	<0.015	0.380		
300	BSC -002	990708	0750	23	7.3		6.8			228							6			1.45	0.039	1.025	<0.015	0.214		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030001 - Guntersville Lake																										
300	BSC -002	990803	1250	23	7.2	58.0	7.0	5.6		220							20			1.72	<0.004	0.794	<0.015	0.363		
300	BSC -002	990908	1015	19	6.9		5.7			290					1.3		6			2.23	0.041	0.478	<0.015	0.623		
06030002 - Wheeler Lake																										
060	GUES-1	030326	1200	13	7.1	124.0	10.7	2.8		11		61	53	2.0			15	80			0.028	0.221	0.151	0.848	0.015	
060	GUES-1	030408	1345	15	6.5	120.0	10.2	6.5		70		54	42	0.7			9	77			0.012	0.193	<0.015	0.207	0.007	
060	GUES-1	030514	1330	16	8.1	147.5	9.2	4.9		43	0.80	55	58	<1			3	98			0.014	0.208	<0.015	<0.15	0.012	
060	GUES-1	030612	1030	15	7.5	142.7	8.8	5.8		150		65	69	1.1			6	107			0.017	0.260	0.027	<0.15	<0.004	
060	GUES-1	030708	1245	19	7.4	112.0	9.3	5.9		120		41	52	<1			9	83			0.006	0.161	<0.015	<0.15	<0.004	
060	GUES-1	030813	1420	19	7.2	177.0	8.3	2.7		100	0.80	77	79	<1			3	122			0.029	0.197	<0.015	<0.15	<0.004	
060	GUES-1	030902	1350	22	7.6	220.0	6.6	2.7		180		13	12	1.2			1	132			0.013	0.180	<0.015	<0.15	<0.004	
060	GUES-1	031014	1310	16	8.2	222.0	6.1	2.2		110		81	100	1.9			5	133			0.040	0.146	<0.015	<0.15	<0.004	
060	GUES-2	030326	1123	13	7.3	122.0	10.7	2.2	22.9	4		52	49	2.1			6	76			0.038	0.182	<0.015	0.398	0.012	
060	GUES-2	030408	1305	14	6.0	107.0	10.3	6.2	88.7	70		51	40	0.9			8	85			0.005	0.199	<0.015	<0.15	0.012	
060	GUES-2	030514	1245	16	8.2	111.4	9.6	4.3	74.2	37	4.01	42	53	<1			5	78			0.010	0.195	0.147	<0.15	0.021	
060	GUES-2	030612	1055	15	7.6	143.4	9.3	2.6	20.8	37		65	70	1.1			6	84			0.012	0.209	0.056	<0.15	0.009	
060	GUES-2	030708	1215	17	7.9	110.0	9.6	5.0	33.1	97		40	48	<1			2	70			0.018	0.130	<0.015	<0.15	0.008	
060	GUES-2	030813	1345	17	7.2	162.0	9.6	2.2	13.1	35	1.07	73	75	<1			2	104			0.026	0.142	<0.015	<0.15	<0.004	
060	GUES-2	030902	1325	27	7.6	235.0	10.2	2.0		58	<0.1	117	13	1.0			1	112			0.029	0.101	<0.015	<0.15	<0.004	
060	GUES-2	031014	1300	16	8.9	201.0	8.6	1.6		150		90	86	1.2			10	115			0.041	0.108	<0.015	<0.15	0.004	
160	HESM-1	030320	1020	16	7.3	74.0	8.0	37.0		1200		34	52	3.4			9	64			0.169	0.607	<0.015	0.709	0.030	
160	HESM-1	030410	1035	10	7.6	125.0	11.5	9.7	72.6	168	5.34	44	54	1.4			4	92			<0.056	0.976	0.056	0.162	0.007	
160	HESM-1	030520	1100	18	7.0	104.9	9.5	17.0	98.5	440	2.13		54	0.5			10				0.070	1.358	0.018	<0.15	0.019	
160	HESM-1	030617	1115	22	7.2	281.4	10.8	237.0	55.6	4100		25	38	5.9			83	138			0.302	1.720	<0.015	0.831	0.032	
160	HESM-1	030709	1030	23	7.3	100.0	7.7	11.0	44.0	520		31	46	0.7			8	77			0.059	1.040	<0.015	0.395	0.030	
160	HESM-1	030710	1100	24	7.7	104.0	9.0	12.6	40.3	600																
160	HESM-1	030714	1010	23	7.8	110.0	9.5	11.6	21.3	410																
160	HESM-1	030715	1120	22	7.7	275.8	7.9	11.2	26.3	600																
160	HESM-1	030715	1020	23	7.5	80.0	8.1	9.8	26.1	600																
160	HESM-1	030716	1025	23	7.7	105.0	10.6	10.2	22.0	500																
160	HESM-1	030804	1015	22	7.7	109.0	8.1	4.2	11.4	212		39	48	0.3			1	67			0.021	1.033	<0.015	0.161	0.005	
160	HESM-1	030904	1100	25	7.6	113.0	9.2	2.7		640		42	50	0.5			3	66			<0.02	0.687	<0.015	0.255	0.019	
160	HESM-1	030908	1145	24	7.7	107.0	11.2	2.1		164		40	50	0.5			1	77			<0.02	0.526	<0.015	0.310	0.005	
160	HESM-1	030910	1040	22	7.4	97.1	8.6	2.0		348																
160	HESM-1	030911	1041	22	7.6	109.4	9.6	1.7		200																
160	HESM-1	030918	1055	22	8.3	114.0	10.1	3.3		92																
160	HESM-1	031015	1030	15	7.2	100.0	9.7	2.0		112	2.08	39	52	1.0			2	70			<0.02	0.403	<0.015	0.237	0.008	
160	HESM-1	031015	1030	15	7.2	100.0	9.7	2.0		116	0.69	39	48	0.6			<1	73			<0.02	0.404	<0.015	0.279	0.009	
160	HESM-2	030320	1115	16	7.2	82.0	10.2	29.0		2000		36	50	3.4			8	92			0.115	0.742	<0.015	0.579	0.023	
160	HESM-2	030410	0925	10	7.8	130.0	11.3	10.6	64.2	760	4.27	43	62	1.3			3	105			0.138	1.093	0.066	<0.15	0.007	
160	HESM-2	030520	1215	18	7.0	103.6	9.7	11.0	56.1	520	2.67		54	0.5			7				0.058	1.527	0.021	<0.15	<0.004	
160	HESM-2	030617	1015	22	7.1	121.0	5.8	129.0	40.4	9100		28	44	3.2			53	116			0.215	1.410	0.060	1.220	0.040	
160	HESM-2	030709	1115	23	7.1	99.0	7.7	9.0		1130		29	46	0.4			5	84			0.045	1.220	<0.015	0.262	0.024	
160	HESM-2	030710	1155	24	7.7	116.0	8.9	11.1		800																
160	HESM-2	030714	0925	22	7.6	128.0	8.2	14.0		430																
160	HESM-2	030715	0930	22	8.2	184.0	8.0	5.6		800																
160	HESM-2	030716	0935	23	8.3	111.0	7.8	7.1		560																
160	HESM-2	030804	1045	22	7.5	99.0	8.2	3.3		300		37	48	0.3			2	74			<0.05	1.272	<0.015	0.252	0.007	
160	HESM-2	030904	1030	23	7.9	114.0	7.6	7.2		250		41	52	0.5			27	68			0.051	0.988	<0.015	0.451	<0.004	
160	HESM-2	030908	1115	21	7.4	116.0	8.2	4.0		140		44	56	0.4			4	73			<0.02	0.896	0.033	0.182	0.013	
160	HESM-2	030910	1015	21	7.4	92.0	7.2	4.0		290																

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
160	HESM-2	030911	1021	22	7.3	83.1	7.3	2.3		144																
160	HESM-2	030918	1020	19	8.5	119.0	7.0	5.0		96																
160	HESM-2	031015	1000	14	7.2	98.0	9.0	2.0		410	3.74	42	54	1.2			5	79			<0.02	0.698	<0.015	0.270	0.011	
160	MTNM-1	030710	1005	22	7.8	216.0	7.7	39.3		40		90	108	0.7			17	141			0.200	1.820	<0.015	0.322		
160	MTNM-1	030714	1050	21	7.6	2.4	8.6	17.2		470																
160	MTNM-1	030715	1110	22	7.9	200.0	7.6	153.0		1780																
160	MTNM-1	030716	1115	22	8.2	220.0	9.8	50.8		250																
160	MTNM-1	030717	1120	22	7.7	228.0	7.8	32.5		310																
160	MTNM-1	030904	1145	22	7.5	210.0	7.5	20.5		1300		78	96	0.6			14	127			0.738	2.901	0.190	0.553	0.581	
160	MTNM-1	030910	1145	21	7.4	86.9	7.7	7.0		580																
160	MTNM-1	030911	1147	20	7.5	125.0	8.3	6.4		152																
160	MTNM-1	030918	1120	20	8.0	215.0	8.7	50.2		62																
160	MTNM-1	030930	1100	15	7.9	230.0	8.3	13.2		128																
160	MTNM-2	030710	1045	20	7.6	290.0	9.9	97.3	60.3	860		134	146	<0.1			54	187			0.209	1.280	<0.015	0.353		
160	MTNM-2	030714	1030	20	7.5	303.0	9.8	60.0	46.9	250																
160	MTNM-2	030715	1040	20	7.6	251.0	8.9	40.0	42.1	560																
160	MTNM-2	030716	1045	20	7.4	288.0	11.0	25.2	52.6	172																
160	MTNM-2	030717	1050	20	7.5	282.0	9.9	21.0	33.7	640																
160	MTNM-2	030904	1115	22	7.3	231.0	8.2	8.0	21.1	1200		94	110	0.8			11	146			0.929	2.498	0.198	1.030	0.744	
160	MTNM-2	030910	1050	22	7.3	94.8	8.3	4.0	37.1	128																
160	MTNM-2	030911	1046	21	7.2	99.5	8.9	2.4	30.0	92																
160	MTNM-2	030918	1100	19	7.6	243.0	8.9	2.9	11.8	27																
160	MTNM-2	030930	1030	15	7.8	272.0	9.3	26.7		46																
160	MTNM-3	030710	1120	20	7.9	294.0	11.4	7.5	40.4	260		142	162	0.6			4	185			0.086	1.360	<0.015	0.282		
160	MTNM-3	030714	0945	18	7.5	310.0	11.4	4.6	42.6	88																
160	MTNM-3	030715	0950	18	7.9	261.0	9.9	0.0	41.0	310																
160	MTNM-3	030716	0955	17	7.8	301.0	10.4	3.6	37.7	156																
160	MTNM-3	030717	1000	17	7.4	294.0	12.9	2.8	34.2	230																
160	MTNM-3	030904	0940	18	8.1	251.0	7.9	4.4	8.8	700		110	128	0.5			4	151			0.060	1.786	<0.015	0.224	0.137	
160	MTNM-3	030910	1115	18	7.3	100.9	9.5	3.0	11.6	290																
160	MTNM-3	030911	1116	18	7.4	94.8	8.9	11.0	14.2	620																
160	MTNM-3	030918	1035	17	8.1	241.0	10.1	15.8	15.6	92																
160	MTNM-3	030930	1000	14	8.5	276.0	9.7	9.0	19.4	80																
180	BFFM-1	020109	1030	8	6.5	30.0	12.0	4.7	23.0	21			40	1.6			6				<0.004	<0.003	<0.015	0.607		
180	BFFM-1	020123	1100	14	7.5	30.0	10.2	117.0		2300			36	2.5			71				0.192	0.250	<0.015	0.957		
180	BFFM-1	020212	1100	7	8.1	40.0	10.9	10.8	26.7	66			28	0.8			<1				0.016	0.658	<0.015	<0.15		
180	BFFM-1	020402	1055	17	6.5	75.0	8.5	25.6		92			24	1.1			136				0.016	181.750	<0.015	<0.15		
180	BFFM-1	020424	1100	20	7.0	65.0	8.8	4.0	0.9	32			48	0.3			7				<0.004	0.167	<0.015	<0.15		
180	BFFM-1	020522	1110	16	7.2	80.0	9.0	3.6		112			40	1.1			3				0.023	0.585	<0.015	1.299		
180	BFFM-1	020612	1100	26	6.9	75.0	6.0	5.6		380			36	0.8			8				<0.004	0.277	<0.015	0.215		
180	BFFM-2	011127	1330	16	8.5	65.0	8.3	5.1	35.1	240			50	0.8			5				0.054	0.734	<0.015	0.590		
180	BFFM-2	020109	1245	6	6.8	45.0	7.7	4.0	47.3	45			42	1.2			3				<0.004	1.402	<0.015	0.400		
180	BFFM-2	020123	1150	15	6.0	30.0	10.1	252.0		3900			40	2.4			124				0.317	0.432	<0.015	1.171		
180	BFFM-2	020212	1300	9	6.5	55.0	12.5	4.0	75.5	42			32	0.9			2				0.020	1.567	<0.015	<0.15		
180	BFFM-2	020402	1120	17	7.1	70.0	8.9	12.9		320			28	0.6			8				0.069	1.204	<0.015	0.333		
180	BFFM-2	020424	1215	20	7.3	80.0	10.0	4.0	20.0	112			70	<0.1			4				0.023	1.423	0.031	<0.15		
180	BFFM-2	020522	1145	18	7.4	65.0	10.0	5.2	30.6	72			48	0.7			3				0.015	1.752	<0.015	<0.15		
180	BFFM-2	020612	1150	26	7.4	100.0	7.8	8.7	10.9	170			50	0.8			5				<0.004	1.279	<0.015	0.161		
180	BFFM-2	020618	1030	22	7.2	83.0	7.8	11.1	9.6																	
180	BFFM-3A	011127	1550	16	8.4	65.0	8.2	6.3		180			70	0.8			10				0.041	0.668	<0.015	0.717		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
180	BFFM-3A	020109	1330	7	7.3	45.0	12.0	4.5		20			44	1.5			<1				<0.004	1.284	<0.015	0.454		
180	BFFM-3A	020123	1336	13	6.3	40.0	11.4	238.0		2300			42	1.8			49				0.229	0.467	<0.015	0.811		
180	BFFM-3A	020212	1540	10	6.7	50.0	11.7	4.1		13			32	0.9			4				0.019	1.480	<0.015	<0.154		
180	BFFM-3A	020402	1345	20	7.2	80.0	8.9	11.0		196			30	0.7			6				0.026	1.272	<0.015	<0.15		
180	BFFM-3A	020424	1410	25	7.5	100.0	9.9	5.5		22			66	0.5			13				0.023	1.151	0.016	0.171		
180	BFFM-3A	020522	1430	22	7.4	80.0	10.1	6.7		94			50	0.7			6				0.014	1.537	<0.015	<0.15		
180	BFFM-3A	020612	1415	29	7.4	110.0	7.8	7.3		114			54	0.4			10				0.004	1.108	<0.015	0.584		
180	BFFM-4	011128	0835	15	8.5	7800.0	8.1	8.7		100			70	0.8			9				0.035	0.932	<0.015	0.434		
180	BFFM-4	020109	1505	8	7.0	88.0	10.8	5.4		19			84	1.3			<1				<0.004	1.905	<0.015	0.259		
180	BFFM-4	020123	1400	16	6.0	40.0	10.0	785.0		490			42	1.6			72				0.409	0.361	<0.015	1.087		
180	BFFM-4	020212	1615	11	6.2	100.0	11.3	3.9		19			62	0.9			<1				<0.004	1.946	<0.015	0.258		
180	BFFM-4	020402	1440	19	17.2	90.0	9.0	13.3		140			44	0.4			20				0.028	1.391	<0.015	<0.15		
180	BFFM-4	020424	1515	22	7.5	160.0	9.1	3.4		39			116	0.2			6				<0.004	1.937	<0.015	<0.15		
180	BFFM-4	020522	1450	18	7.3	130.0	9.7	7.0		90			90	0.7			7				0.019	2.210	<0.015	<0.15		
180	BFFM-4	020612	1435	25	7.5	180.0	8.0	6.2		168			98	0.4			7				<0.004	2.136	<0.015	<0.15		
180	BFFM-4	020618	1230	21	7.6	174.0	8.4	8.5	28.6																	
180	BFFM-5	011128	0720	16	8.0		8.5	5.3	125.8	85			78	0.4			<1				0.030	1.169	<0.015	0.647		
180	BFFM-5	020109	1555	9	7.1	98.0	11.5	5.9		57			86	1.3			14				<0.004	1.936	<0.015	<0.15		
180	BFFM-5	020123	1425	13	6.0	50.0	11.6	353.0		1800			44	1.6			111				0.230	0.607	<0.015	1.158		
180	BFFM-5	020212	0900	11	6.1	100.0	11.5	3.7		21			70	0.5			2				0.020	1.997	<0.015	<0.15		
180	BFFM-5	020402	1530	18	7.1	110.0	9.9	12.2		108			48	0.8			8				0.021	1.403	<0.015	<0.15		
180	BFFM-5	020424	1600	22	7.4	160.0	10.1	229.0		20			120	0.4			3				<0.004	2.042	<0.015	<0.15		
180	BFFM-5	020522	1530	19	7.3	90.0	10.3	5.6		35			94	0.9			7				0.012	1.991	<0.015	<0.15		
180	BFFM-5	020612	1520	25	7.6	170.0	10.0	4.0		104			100	0.3			4				<0.004	2.132	<0.015	<0.15		
180	BVDM-17	011127	1640	15	7.9	110.0	7.8	10.4		96			92	0.6			7				0.040	0.927	<0.015	0.517		
180	BVDM-17	020109	1420	9	6.5	108.0	10.5	4.4	41.7	23			90	1.1			2				<0.004	1.835	<0.015	0.306		
180	BVDM-17	020123	1320	15	6.2	40.0	11.7	219.0		2800			52	1.9			45				0.146	0.680	<0.015	0.944		
180	BVDM-17	020212	1510	12	6.0	110.0	11.0	4.4	58.4	12			74	0.7			2				0.014	1.867	<0.015	<0.15		
180	BVDM-17	020402	1300	19	7.1	120.0	8.7	18.7		136			58	1.3			10				0.041	1.285	<0.015	0.264		
180	BVDM-17	020422	1440	20	7.2	230.0	8.8	1.4	14.4	42			158	0.1			<1				<0.004	2.011	<0.015	0.267		
180	BVDM-17	020522	1340	21	7.2	160.0	9.5	8.2	20.6	64			108	0.5			31				0.028	1.773	<0.015	0.184		
180	BVDM-17	020612	1300	20	7.2	250.0	8.0	1.3		880			146	0.6			<1				<0.004	2.704	<0.015	<0.15		
180	BVDM-18	020123	1124	14	6.8	35.0	9.6	176.0		1160			36	1.9			49				0.176	0.381	<0.015	0.739		
180	BVDM-18	020212	1400	11	6.1	50.0	14.8	8.4		35			34	0.7							0.028	1.223	0.023	0.261		
180	BVDM-18	020402	1145	18	6.9	60.0	8.6	20.7		112			38	1.2			14				0.053	0.765	<0.015	0.342		
180	BVDM-18	020424	1245	25	7.7	100.0	10.5	6.3		160			80	0.4			25				0.029	1.128	<0.015	0.314		
180	BVDM-18	020522	1222	21	7.6	80.0	10.2	9.8		280			72	<0.1			4				0.023	1.274	<0.015	0.403		
180	BVDM-18	020612	1235	29	7.7	150.0	7.9	4.3		>620			74	1.2			7				<0.004	1.253	<0.015	<0.15		
190	FLIM-6	030325	1245	17	8.0	186.0	10.9	6.0		77		71	84	1.3			7	113			<0.004	1.170	<0.015	<0.15	<0.004	
190	FLIM-6	030422	1000	19	7.5	183.0	8.1	10.0		420	1.86	89	104	1.2			11	140			0.057	1.170	<0.015	<0.15	<0.004	
190	FLIM-6	030515	0915	18	7.9	77.3	4.6	170.0		148	1.00	77	94	1.1			18	119			0.052	1.364	0.045	<0.15	0.008	
190	FLIM-6	030610	0900	21	7.4	157.0	8.1	8.0		230	1.06	78	86				11	116			0.041	1.610	<0.015	<0.15	0.006	
190	FLIM-6	030630	0950	23	7.5	115.0	8.3	18.2		180	<1	61	82	0.8			35	106			<0.054	1.540	<0.015	0.323	0.030	
190	FLIM-6	030728	0945	24	7.5	170.0	7.4	19.0		144		81	94	0.3			15	135			0.060	1.696	<0.015	0.225	0.021	
190	FLIM-6	030812	1000	23	6.8	154.5	7.4	13.0		106		5	98	0.4			10	128			0.021	1.657	0.089	0.215	0.036	
190	FLIM-6	030916	1000	21	6.6	194.6	6.7	6.6		132		81	98	0.3			8	117			0.086	1.685	<0.015	0.435	0.056	
190	FLIM-6	031016	1015	16	7.3	160.5	7.7	4.9		140	<1	80	94	1.2			3	120			0.112	1.502	<0.015	0.171	0.041	
190	FLIM-7	030325	1200	16	7.2	194.0	11.2	6.3		100		74	86	2.1			9	113			<0.004	1.094	<0.015	<0.15	<0.004	
190	FLIM-7	030422	1100	19	7.7	182.0	8.0	12.0		540	5.34	88	96	1.3			16	129			0.068	1.255	0.027	0.198	<0.004	
190	FLIM-7	030515	1100	19	7.4	162.8	5.0	28.0		47	1.86	80	98	1.1			12	120			0.079	0.987	<0.015	0.217	0.014	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
190	FLIM-7	030610	0945	21	7.7	164.0	10.7	12.0		210	<1	68	88				15	123			0.053	1.580	<0.015	<0.15	0.005	
190	FLIM-7	030630	1030	24	7.6	150.9	8.4	21.4		132	<1	65	74	0.8			20	114			0.037	1.420	<0.015	0.399	0.028	
190	FLIM-7	030728	1020	24	7.6	191.0	7.5	22.0		144		81	96	0.3			16	120			0.062	1.644	<0.015	0.263	0.020	
190	FLIM-7	030812	1100	24	6.0	190.5	7.9	17.0		160		85	96	0.3			20	120			0.051	1.614	0.103	1.000	0.035	
190	FLIM-7	030916	1045	22	6.6	200.7	6.6	8.2		88		81	96	0.6			8	114			0.067	1.596	<0.015	0.273	0.050	
190	FLIM-7	031016	1045	16	26.9	158.2	7.7	6.7		40	0.53	82	98	1.2			9	121			0.056	1.477	0.040	0.253	0.041	
200	HURM-1	030326	0850	16	7.7	295.5	8.9	8.5		76		137	152	1.8			8	171			0.050	0.522	0.261	0.283	0.007	
200	HURM-1	030410	0915	11	7.8	323.0	14.8	7.3		330	3.91	159	180	1.6			7	203			<0.004	0.428	0.136	<0.15	<0.004	
200	HURM-1	030515	0930	17	7.7	269.0	8.7	7.9		204	4.80			1.1			10				0.037	0.718	<0.015	<0.15	<0.004	
200	HURM-1	030611	0940	22	7.8	300.0	6.6	5.1		156	1.00	135	150				12	177			0.048	0.875	0.064	<0.15	<0.004	
200	HURM-1	030630	1000	23	7.8	300.0	5.1	9.3		208	10.68	138	150	1.2			14	180			0.035	0.747	<0.015	0.462	0.002	
200	HURM-1	030707	1115	22	8.8	306.0	8.0	16.7		300																
200	HURM-1	030709	1045	23	7.7	305.0	8.1	20.0		172																
200	HURM-1	030714	1145	23	7.3	312.0	7.7	21.0		192																
200	HURM-1	030715	1150	23	8.1	318.0	8.5	16.8		270																
200	HURM-1	030728	0930	23	7.7	311.0	6.7	9.5		120	2.13		160	0.4			10				<0.021	0.778	<0.015	0.252	0.003	
200	HURM-1	030812	0930	22	7.9	307.0	6.8	6.2		236	2.13		158	0.5			9				<0.05	0.810	0.128	0.372	0.014	
200	HURM-1	030904	1215	23	7.4	154.9	5.7	11.2		580	1.60	146	162	0.8			27	193			0.036	0.703	0.151	0.868	0.019	
200	HURM-1	030910	1050	21	7.9	317.0	6.9	13.5		290																
200	HURM-1	030911	1200	21	7.7	313.0	8.3	9.8		172																
200	HURM-1	030918	1122	19	7.6	333.0	6.5	13.2		370																
200	HURM-1	030924	0930	19	8.5	309.0	6.6	14.2		1200	<1		148	0.8			11				0.134	0.796	0.159	0.656	0.030	
200	HURM-1	031015	0930	16	8.5	333.0	5.7	7.1		152	3.77	156	164	1.3			4	203			0.072	0.513	0.686	1.120	0.038	
200	HURM-2	030707	0945	21	8.4	278.0	8.4	69.7	33.9	1060		127	140	0.5			32	184			0.050	0.714	<0.015	0.309		
200	HURM-2	030709	1130	23	7.8	320.0	9.3	13.9	26.3	220																
200	HURM-2	030714	1035	23	7.0	322.0	8.5	12.0	3.5	236																
200	HURM-2	030715	1045	23	7.9	304.0	8.7	63.0		820																
200	HURM-2	030716	1050	23	7.5	223.0	7.0	24.0		1200																
200	HURM-2	030904	1115	25	7.8	149.4	6.3	4.9		540		150	166	0.5			4	162			<0.02	0.314	<0.015	0.262	0.010	
200	HURM-2	030910	1030	22	7.6	317.0	7.7	4.3		84																
200	HURM-2	030911	1140	23	7.5	310.0	8.0	4.4		128																
200	HURM-2	030918	1030	20	7.6	83.9	7.6	4.7		60																
200	HURM-2	030930	1040	15	8.3	329.0	8.7	6.2		64																
200	HURM-3	030707	1025	21	7.6	289.0	8.2	23.9	20.7	1800		134	146	0.7			17	182			0.029	0.805	<0.015	0.334		
200	HURM-3	030709	1100	22	7.7	337.0	9.3	9.9		470																
200	HURM-3	030714	1105	21	7.3	312.0	8.8	9.0	22.8	430																
200	HURM-3	030715	1115	22	8.1	197.0	9.1	249.0		1200																
200	HURM-3	030716	1120	22	7.4	268.0	7.8	12.0	14.5	540																
200	HURM-3	030904	1100	23	7.5	322.6	6.1	3.8		600		157	160	0.6			2	191			0.024	0.757	<0.015	0.258	0.014	
200	HURM-3	030910	1010	20	7.6	322.0	7.5	3.3		184																
200	HURM-3	030911	1120	23	7.1	347.0	7.1	2.7		66																
200	HURM-3	030918	1050	18	7.5	325.0	8.6	2.1		370																
200	HURM-3	030930	1020	14	8.7	341.0	9.5	5.0		104																
210	FLIM-1	030320	0930	16	7.3	79.0	5.0	66.0		1200		36	50	5.4			47	94			0.125	0.601	<0.015	1.130	0.310	
210	FLIM-1	030410	1300	11	7.7	101.0	11.6	14.3		250		64	74	1.6			11	115			0.053	0.864	0.350	<0.15	<0.004	
210	FLIM-1	030410	1300	11	7.7	101.0	11.6	14.3		380		64	80	1.1			11	118			0.032	0.825	0.018	<0.15	<0.004	
210	FLIM-1	030513	1145	18	7.4	142.0	9.6	18.9		176		55	72	1.1			7	100			0.055	0.094	0.033	<0.15	0.016	
210	FLIM-1	030618	1115	21	7.7	130.0	6.2	85.0		1200		38	56	6.3			42	101			0.154	1.300	0.088	0.288	0.046	
210	FLIM-1	030707	0904	22	8.0	140.0	8.4	58.0		150																
210	FLIM-1	030708	1200	23	7.5	145.0	8.3	27.0	362.4	2500		59	70	0.6			30	110			0.104	0.771	<0.015	0.430	0.052	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
210	FLIM-1	030709	1215	24	7.9	152.0	10.1	24.3	246.8	400																
210	FLIM-1	030714	0945	23	6.6	167.0	9.0	18.0	97.9	292																
210	FLIM-1	030715	0955	23	8.3	165.0	9.2	27.7		400																
210	FLIM-1	030805	1030	23	7.4	176.0	8.2	10.0	125.1	57		71	82	0.1			8	114			0.110	1.830	<0.015	1.000	0.105	
210	FLIM-1	030904	1030	24	6.6	163.6	7.3	6.2		200		64	80	0.5			5	117			0.264	1.799	<0.015	0.185	0.226	
210	FLIM-1	030908	1030	21	7.4	159.0	9.3	5.9	81.3	310		63	72	0.3			8	111			0.213	1.589	<0.015	0.292	0.183	
210	FLIM-1	030910	0930	21	8.0	167.0	8.1	6.1	73.4	64																
210	FLIM-1	030911	1000	21	6.8	156.0	8.4	3.9	173.7																	
210	FLIM-1	030918	0940	20	8.3	98.4	9.0	4.3	57.5	82																
210	FLIM-1	030930	0950	15	7.7	162.0	9.3	4.0	55.8	46																
210	FLIM-1	031016	1130	14	7.6	149.0	10.0	2.0	85.4	52		60	76	0.7			1	96			0.074	1.323	<0.015	0.190	0.061	
210	FLIM-2	030320	1300	17	7.4	80.0	9.2	56.0		1200		34	54	4.2			36	94			0.169	0.706	<0.015	1.079	0.120	
210	FLIM-2	030410	1245	11	7.6	168.0	10.9	16.9		310		62	74	1.4			11	115			0.054	0.955	0.040	<0.15	0.004	
210	FLIM-2	030513	1115	18	7.3	147.0	6.8	24.6		200		55	70	1.1			16	102			0.073	1.305	0.059	<0.15	0.018	
210	FLIM-2	030618	1045	21	7.8	149.0	6.2	103.3		1200		50	68	5.0			48	114			0.154	1.590	0.036	0.222	0.033	
210	FLIM-2	030707	0925	22	8.7	150.0	8.7	48.2		340																
210	FLIM-2	030708	1115	22	7.4	144.0	7.5	41.0		1200		54	68	0.5			40	114			0.124	1.030	<0.015	0.359	0.055	
210	FLIM-2	030708	1115	22	7.4	144.0	7.5	41.0		1200		57	70	0.5			37	112			0.125	1.020	<0.015	0.460	0.055	
210	FLIM-2	030709	1155	23	7.9	159.0	9.1	32.3		320																
210	FLIM-2	030714	1010	22	7.0	172.0	8.5	19.0		112																
210	FLIM-2	030715	1020	22	7.9	140.0	9.3	402.1		1200																
210	FLIM-2	030805	1115	23	7.5	183.0	8.1	15.0	225.9	80		74	84	0.3			11	110			0.053	2.054	0.069	1.000	0.052	
210	FLIM-2	030904	1130	23	7.7	181.4	7.6	5.1		320		72	80	0.3			4	117			0.122	1.949	<0.015	0.183	0.104	
210	FLIM-2	030908	1015	21	7.2	176.0	8.5	4.7	150.9	82		73	82	0.5			7	110			0.093	1.766	<0.015	0.169	0.085	
210	FLIM-2	030910	1000	22	7.6	183.0	8.3	5.4		86																
210	FLIM-2	030911	1040	22	7.0	180.0	8.2	3.7	145.6	56																
210	FLIM-2	030918	1020	20	7.8	95.9	8.7	4.4	96.0	77																
210	FLIM-2	031016	1030	15	7.4	170.0	10.0	3.0	148.1	46		69	82	0.7			2	108			0.052	1.669	<0.015	0.211	0.044	
210	FLIM-3	030326	0830	17	6.8	134.0	9.7	6.2		36		61	78	<0.1			4	95			0.136	1.267	<0.015	<0.15	<0.004	
210	FLIM-3	030410	1000	12	7.5	156.0	13.7	35.4		530		63	80	1.5			17	119			<0.004	0.920	0.095	0.314	0.014	
210	FLIM-3	030514	0930	18	7.5	159.0	9.1	22.9		116				0.9			23				<0.004	1.375	0.058	<0.15	0.026	
210	FLIM-3	030611	1000	22	7.7	177.0	7.7	13.5		50		71	84				14	105			0.050	1.810	<0.015	<0.15	0.007	
210	FLIM-3	030630	1030	23	7.6	155.0	7.5	19.1		54		60	78	0.8			17	114			0.060	1.560	<0.015	0.370	0.031	
210	FLIM-3	030707	1104	22	8.3	147.0	8.1	54.0		640																
210	FLIM-3	030709	1030	24	8.0	161.0	8.0	31.5		280																
210	FLIM-3	030714	1130	24	7.4	177.0	8.3	23.0		80																
210	FLIM-3	030715	1135	24	8.1	180.0	9.5	33.1		276																
210	FLIM-3	030728	1000		7.6	177.0	7.4	18.7		148			84	0.2			17				0.046	1.579	<0.015	<0.15	0.027	
210	FLIM-3	030812	1000	23	7.9	181.0	7.7	16.4		84			86	0.3			11				0.058	1.924	0.049	0.202	0.040	
210	FLIM-3	030904	1200	24	7.7	181.2	7.2	7.4		250		72	92	0.3			9	117			0.097	1.871	<0.015	0.258	0.077	
210	FLIM-3	030910	1100	22	7.8	187.0	8.5	8.3		66																
210	FLIM-3	030911	1120	23	7.7	185.0	8.6	4.5																		
210	FLIM-3	030918	1130	21	7.7	189.0	8.6	7.8		50																
210	FLIM-3	030924	0945	19	7.7	88.0	7.6	40.5		1240			40	0.8			28				0.122	0.578	<0.015	0.623	0.045	
210	FLIM-3	030930	1100	16	7.8	178.0	8.7	6.6		74																
210	FLIM-3	031015	0945	17	8.0	179.0	8.9	4.1		84		73	86	0.6			5	115			0.062	1.554	<0.015	<0.15	0.043	
210	FLIM-4	030326	0925	16	6.9	317.4	8.9	13.5		230		146	160	2.4			13	1857			<0.004	0.664	<0.015	<0.15	<0.004	
210	FLIM-4	030410	1200	11	7.6	310.0	14.5	16.4		440		149	162	0.7			9	200			<0.004	0.116	0.068	<0.15	<0.004	
210	FLIM-4	030410	1200	11	7.6	310.0	14.5	16.4		260		146	164	1.0			8	195			<0.004	0.477	0.048	<0.15	<0.004	
210	FLIM-4	030514	1045	17	7.4	274.0	8.3	24.9		390				0.7			14				0.031	0.659	0.064	<0.15	<0.004	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
210	FLIM-4	030611	1100	22	7.5	320.0	5.8	18.3		330		139	154				13	189			0.033	0.793	<0.015	<0.15	0.004	
210	FLIM-4	030624	1100	22	7.5	341.0	6.7	15.0		152			182	0.9			8				<0.004	0.767	<0.015	<0.15	<0.004	
210	FLIM-4	030729	1045		7.4	293.0	7.6	13.0		350			160	0.4			13				<0.02	0.708	<0.015	0.292	<0.004	
210	FLIM-4	030811	1030	22	7.6	326.0	7.1	12.6		168			170	0.3			10				<0.05	0.795	0.068	0.367	0.008	
210	FLIM-4	030924	1115	19	7.9	294.0	7.1	17.7		480			148	0.3			18				0.043	0.740	<0.015	0.367	0.008	
210	FLIM-4	031015	1100	17	7.1	232.0	8.1	7.5		210		110	122	1.0			3	152			0.051	1.129	<0.015	0.232	0.025	
210	FLIM-5	030326	1030	17	7.9	147.8	9.3	6.6		39		72	82	5.2			6				<0.004	1.184	<0.015	<0.15	<0.004	
210	FLIM-5	030410	1045	12	7.6	181.0	13.4	48.5		590		78	86	1.3			16	134			0.056	0.809	0.067	0.246	<0.005	
210	FLIM-5	030514	1000	18	7.6	177.0	8.4	15.4		188				0.6			17				0.053	1.211	0.060	<0.15	0.033	
210	FLIM-5	030611	1030	22	7.8	189.0	7.7	3.0		55		74	90				8	114			0.043	1.610	<0.015	<0.15	<0.005	
210	FLIM-5	030630	1100	23	7.7	158.0	5.5	11.0		78		61	76	0.8			15	94			0.059	1.430	<0.015	0.381	0.025	
210	FLIM-5	030728	1030		7.8	192.0	7.3	8.2		152			92	1.2			14				0.066	1.465	<0.015	0.182	0.025	
210	FLIM-5	030812	1030	24	8.0	190.0	7.7	9.0		75			90	0.2			10				0.049	1.874	0.045	0.201	0.037	
210	FLIM-5	030924	1000	20	8.2	98.0	7.4	27.0		740			44	0.9			18				0.119	0.566	<0.015	0.732	0.051	
210	FLIM-5	031015	1015	18	7.8	188.0	9.0	11.2		86		78	88	0.7			4	113			0.092	1.482	<0.015	<0.15	0.040	
210	GOOM-1	030326	0940	14	7.8	178.5	10.6	6.2	21.5	90		103	112	<0.1			5	133			<0.004	0.643	<0.015	<0.15	<0.004	
210	GOOM-1	030410	1100	12	7.6	212.0	14.6	11.5		184		98	112	1.0			5	124			<0.004	0.350	0.025	<0.15	<0.004	
210	GOOM-1	030515	1000	15	7.6	198.0	9.6	15.6		228				0.9			10				<0.004	0.655	<0.015	<0.15	0.007	
210	GOOM-1	030624	1030	19	7.8	280.0	8.5	8.2		560			148	0.5			<1				<0.004	1.200	<0.015	<0.15	<0.004	
210	GOOM-1	030729	1015	18	7.6	188.0	9.2	9.0		290			114	0.2			5				<0.02	0.591	<0.015	<0.15	<0.004	
210	GOOM-1	030811	1000	19	8.1	254.0	8.3	10.7		630			128	0.3			8				<0.05	0.778	<0.015	0.209	0.010	
210	GOOM-1	030924	1045	18	7.8	300.0	7.0	15.3		760			152	0.2			13				0.062	1.196	<0.015	0.272	0.026	
210	GOOM-1	031015	1030	14	7.7	336.0	3.1	4.9		80		164	170	3.3			9	164			0.065	<0.003	0.025	0.655	0.006	
210	GOOM-2	030326	1100	16	8.0	166.4	13.0	8.8		48		173	94	2.3			18	118			0.023	1.029	<0.015	<0.15	<0.004	
210	GOOM-2	030410	1030	9	7.3	166.0	12.8	26.3		100		78	98	1.4			3	136			<0.004	0.887	0.194	0.240	<0.004	
210	GOOM-2	030515	1100	17	7.5	248.0	8.3	4.7		2720				1.4			6				0.045	0.771	0.077	<0.15	<0.004	
210	GOOM-2	030624	1000	20	7.9	302.0	8.4	0.8		320			152	0.4			<1				<0.004	1.360	<0.015	<0.15	<0.004	
210	GOOM-2	030729	0945	22	7.7	250.0	8.1	1.0		136			125	0.3			2				<0.02	0.672	<0.015	<0.15	<0.004	
210	GOOM-2	030811	0930	21	8.3	256.0	7.8	0.9		360			128	0.3			2				<0.05	0.242	0.076	0.209	0.007	
210	GOOM-2	030924	1015	17	8.3	240.0	6.7	2.4		820			116	0.8			2				0.080	<0.003	<0.015	0.304	0.023	
210	GOOM-2	031015	1000	14	7.6	344.0	4.6	0.7		64		167	176	2.4			1	211			<0.02	<0.003	0.029	0.316	0.006	
210	YBCM-1	030325	1225	17	7.3	290.0	11.0	16.0	1.1	92		124	146	3.6			8	176			0.064	0.294	<0.015	0.335	0.004	
210	YBCM-1	030422	1030	18	7.8	276.0	8.2	12.0	3.0	104		145	160	1.9			9	198			0.038	0.333	<0.015	0.242	<0.004	
210	YBCM-1	030515	1000	18	7.3	15.6	3.7	168.0	19.5	1200		74	86	5.2			83	167			0.537	0.277	<0.015	1.469	0.225	
210	YBCM-1	030630	1015	25	7.2	306.2	7.3	4.9		370		151	160	0.9			4	197			0.063	0.472	0.828	0.335	0.062	
210	YBCM-1	030728	1000	25	7.5	258.0	6.5	6.0		46		130	146	0.5			3	196			0.031	1.251	<0.015	0.716	0.011	
210	YBCM-1	030812	1030	24	7.6	248.7	5.9	5.0		35		125	138	1.0			10	175			0.022	0.235	0.091	0.710	0.024	
240	HSBM-240	011128	0945	19	8.0		6.6	7.9		610			162	0.4			4				<0.004	1.072	<0.015	0.525		
240	HSBM-240	020110	1048	11	7.6	251.0	11.4	2.4		16			184	1.1			5				<0.004	2.189	<0.015	<0.15		
240	HSBM-240	020213	1105	11	8.0	250.0	12.0	2.0		12			178	0.8			2				0.028	1.955	<0.015	<0.15		
240	HSBM-240	020403	1045	15	8.0	280.0	9.7	3.2		108			176	0.3			3				<0.004	1.578	<0.015	<0.15		
240	HSBM-240	020425	1045	18	7.7	250.0	8.0	6.0		430			160	1.3			7				<0.004	1.229	<0.015	0.306		
240	HSBM-240	020523	1055	20	7.8	300.0	8.8	4.5		94			178	0.6			4				0.015	1.614	<0.015	0.247		
240	HSBM-240	020613	1035	25	7.8	290.0	5.9	4.8		100			158	3.8			6				<0.004	1.065	<0.015	<0.15		
240	HSBM-240a	011128	1140	18	8.2		5.1	7.8		228			158	1.0			4				0.053	0.341	<0.015	0.533		
240	HSBM-242a	011128	1430	21	8.4		11.6	3.6		270			184	0.5			5				<0.004	1.619	<0.015	0.204		
240	HSBM-242a	020110	1020	12	7.4	256.0	10.5	2.2		188			180	0.9			4				<0.004	2.394	<0.015	<0.15		
240	HSBM-242a	020123	1540	18	7.3	240.0	10.9	201.0		760			156	1.2			9				<0.004	1.111	<0.015	<0.15		
240	HSBM-242a	020213	1005	12	7.9	245.0	13.1	3.3		29			174	0.5			3				0.059	1.936	<0.015	0.197		
240	HSBM-242a	020403	1015	13	8.2	260.0	9.9	3.1		260			170	1.0			4				<0.004	1.757	<0.015	<0.15		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
240	HSBM-242a	020425	1000	16	8.1	220.0	11.2	4.4		>620			156	2.0			3				0.020	1.183	<0.015	0.373		
240	HSBM-242a	020523	1013	22	8.0	300.0	10.1	6.1		188			176	0.2			11				0.023	1.808	<0.015	<0.15		
240	HSBM-242a	020613	1000	24	7.8	300.0	7.1	17.6		>620			156	4.7			35				0.019	1.511	<0.015	<0.15		
240	HSBM-243	020110	0900	14	6.3	300.0	10.0	1.4	48.3	>620			192	1.1			4				<0.004	2.352	<0.015	0.359		
240	HSBM-243	020213	0900	13	6.9	289.0	10.2	2.0	65.3	>620			184	1.1			4				0.023	2.027	<0.015	0.189		
240	HSBM-243	020403	0900	10	7.4	270.0	8.6	1.4	69.5	>620			196	1.8			3				<0.004	1.699	<0.015	<0.15		
240	HSBM-243	020425	0900	20	7.5	300.0	10.0	2.6	28.0	>620			198	0.7			5				0.024	1.985	<0.015	<0.15		
240	HSBM-243	020523	0900	20	7.5	300.0	10.6	1.3	30.4	66			190	0.7			5				0.010	2.031	<0.015	<0.15		
240	HSBM-243	020613	0900	23	7.9	350.0	9.1	2.3	17.5	>620			176	6.3			7				<0.004	2.173	<0.015	<0.15		
270	CTCM-26	030603	1025	19	8.4	197.0	7.0	9.3		400		76	90	0.6			16	128			0.032	985.000	<0.015	0.319	<0.004	
270	CTCM-26	030609	0945	21	8.0	171.0	8.5	29.5		620																
270	CTCM-26	030616	0950	23	7.5	180.0	7.7	32.4		710																
270	CTCM-26	030619	0905	22	7.4	182.0	6.3	50.8		1520																
270	CTCM-26	030625	1000	23	7.8	198.0	6.5	31.0		220																
270	CTCM-26	030814	1110	26	7.7	213.0	5.9	17.0		200			104	0.2			13				0.037	0.347	0.051	0.459	0.013	
270	CTCM-26	030818	1000	26	7.6	216.0	6.8	14.9		270																
270	CTCM-26	030820	1106	26	7.7	187.5	6.3	27.0		310																
270	CTCM-26	030825	1135	26	7.3	209.0	5.8	23.0		620																
270	CTCM-26	030826	1145	28	7.4	203.0	5.7	14.7		520																
270	CTCM-37	030603	1100	19	8.0	185.0	8.0	11.3		3400		70	84	0.5			18	156			<0.05	1.037	<0.015	0.300	<0.004	
270	CTCM-37	030609	1000	21	8.0	163.0	8.6	21.2		620																
270	CTCM-37	030616	1010	22	7.7	174.0	7.1	39.0		280																
270	CTCM-37	030619	0920	22	7.7	178.0	6.9	55.9		1580																
270	CTCM-37	030625	1008	23	7.7	193.0	6.6	40.9		830																
270	CTCM-37	030814	1054	24	7.3	207.0	5.3	13.0		250			106	0.3			10				0.033	0.347	<0.015	0.450	0.015	
270	CTCM-37	030818	1015	25	7.6	207.0	4.2	17.6		250																
270	CTCM-37	030820	1100	25	7.6	186.4	5.0	95.0		1440																
270	CTCM-37	030825	1105	25	7.3	0.2	5.5	16.7		92																
270	CTCM-37	030826	1130	26	7.5	207.0	5.6	11.7		132																
270	CTCM-38	030603	1130	19	8.0	194.0	8.0	8.0		330		77	82	0.7			17	111			0.060	0.909	<0.015	0.373	<0.004	
270	CTCM-38	030609	1010	21	7.8	176.0	8.3	33.0		620																
270	CTCM-38	030616	1020	23	7.8	187.0	7.8	34.6		280																
270	CTCM-38	030619	0925	22	8.0	209.0	8.3	53.3		1980																
270	CTCM-38	030625	1030	23	7.9	214.0	6.7	36.7		380																
270	CTCM-38	030814	1035	24	7.5	209.0	5.8	12.0		125			102	0.4			9				0.039	0.378	<0.015	0.427	0.017	
270	CTCM-38	030818	1030	25	7.7	208.0	4.5	13.6		148																
270	CTCM-38	030820	1048	26	7.6	224.7	5.4	19.0		58																
270	CTCM-38	030825	1050	25	7.3	0.2	5.4	14.8		52																
270	CTCM-38	030826	1115	26	7.4	215.0	5.8	7.8		41																
270	MLPM-1	030603	1245	21	8.1	117.0	8.4	6.8		320																
270	MLPM-1	030609	1115	22	8.1	119.0	10.9	5.8		40		38	50				5	84			0.094	0.869	0.029	0.409	0.040	
270	MLPM-1	030616	1115	23	7.8	139.0	7.1	5.5		19																
270	MLPM-1	030619	1030	23	8.1	138.0	7.3	140.0		27																
270	MLPM-1	030625	1115	23	8.0	196.0	8.0	2.8		176																
270	MLPM-1	030814	0926	24	7.8	193.0	8.8	2.0		175			74	0.3			2				0.053	0.819	<0.015	0.370	0.043	
270	MLPM-1	030818	1130	25	7.7	214.0	5.2	7.5		60																
270	MLPM-1	030820	0951	25	7.8	236.0	7.4	1.3		26																
270	MLPM-1	030825	1030	24	7.6	244.0	8.3	4.7		9																
270	MLPM-1	030826	1100	25	7.6	139.0	7.9	2.0		6																
270	MUDM-1	030603	1200	18	8.0	121.0	8.0	7.6		2300		35	44	0.6			7	74			0.041	1.534	<0.015	0.366	<0.004	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
270	MUDM-1	030609	1030	20	7.8	115.0	8.6	19.4		630																
270	MUDM-1	030616	1040	21	8.0	132.0	8.6	13.2		930																
270	MUDM-1	030619	1000	20	8.1	145.0	8.4	13.9		2040																
270	MUDM-1	030625	1100	20	8.2	164.0	7.7	12.3		216																
270	MUDM-1	030814	0953	25	7.6	162.0	4.1	18.0		75			70	1.7			14				0.058	0.154	0.135	0.959	0.011	
270	MUDM-1	030818	1045	28	7.4	186.0	3.3	19.6		320																
270	MUDM-1	030820	1012	26	7.0	192.8	4.0	38.0		900																
270	MUDM-1	030825	0930	27	7.1	189.0	6.7	22.5		250																
270	MUDM-1	030826	1030	28	7.0	196.0	4.8	20.0		760																
270	TWNM-24	030325	0950	14	7.3	228.0	11.0	7.8	28.4	128		94	108	2.0			5	130			<0.004	0.261	<0.015	<0.15	<0.004	
270	TWNM-24	030430	0800	18	7.8	251.0	7.4	9.0	19.4	144		109	120	1.6			5	154			<0.004	0.349	<0.015	<0.15	<0.004	
270	TWNM-24	030522	1100	18	6.1	179.8	12.0	14.0		900		78	88	<0.1			18	120			0.052	0.301	<0.015	0.399	<0.004	
270	TWNM-24	030630	1130	23	7.4	187.2	4.4	19.4		224		84	98	1.0			18	137			0.184	0.305	<0.015	0.654	0.018	
270	TWNM-24	030729	1130	24	7.4	263.0	10.0	8.2		63		123	132	0.6			11	169			<0.02	0.247	<0.015	0.352	<0.004	
270	TWNM-24	030813	1130	24	7.1	232.1	7.5	9.0		530		107	120	0.7			5	141			0.044	0.400	<0.015	0.680	0.012	
270	TWNM-24	030917	1015	18	6.4	336.8	4.8	1.8		62		150	168	0.3			2	201			0.059	1.075	<0.015	0.416	0.008	
270	TWNM-24	031016	1110	14	7.0	308.3	2.9	3.3		54		152	158	2.2			5	187			<0.02	0.015	0.043	0.460	0.008	
270	TWNM-25	030325	0855	13	6.5	225.0	10.6	4.4	22.4	53		90	104	2.4			4	124			<0.004	0.343	<0.015	<0.15	<0.004	
270	TWNM-25	030430	0900	17	4.6	214.0	7.9	7.0	8.6	172		114	126	1.0			3	156			<0.004	0.466	0.030	<0.15	<0.004	
270	TWNM-25	030522	1030	18	6.1	179.8	12.0	14.0		260		82	88	<0.1			10	122			0.046	0.315	<0.015	0.210	<0.004	
270	TWNM-25	030630	1200	22	7.5	184.6	8.6	9.0		192		101	104	0.7			7	155			0.026	0.466	<0.015	0.506	0.012	
270	TWNM-25	030729	1200	22	7.5	267.0	9.4	3.9		184		126	138	0.2			1	162			<0.02	0.585	<0.015	0.268	0.003	
270	TWNM-25	030813	1200	23	7.6	271.2	7.5	4.0		620		133	146	0.8			3	184			<0.05	0.386	<0.015	0.513	0.034	
270	TWNM-25	030917	1030	20	6.9	301.9	2.8	3.2		40		7	152	0.9			7	67			0.034	0.018	<0.015	0.729	0.006	
270	TWNM-25	031016	1130	15	7.2	330.3	5.0	3.4		62		160	176	2.1			4	201			0.026	0.534	<0.015	0.458	0.007	
270	WFCM-28	030603	1210	17	7.8	153.0	8.1	20.0		200		55	64	0.8			7	88			<0.004	1.019	<0.015	0.288	<0.004	
270	WFCM-28	030609	1050	19	8.6	140.0	9.9	9.0		620																
270	WFCM-28	030616	1045	20	7.8	149.0	8.3	12.5		610																
270	WFCM-28	030619	0950	21	8.3	114.0	8.0	22.2		1020																
270	WFCM-28	030625	1045	23	8.0	127.0	8.3	13.0		620																
270	WFCM-28	030814	1009	23	7.6	176.0	6.1	6.0		62			96	0.5			2				<0.02	0.156	0.051	0.342	0.008	
270	WFCM-28	030818	1100	24	7.5	190.0	3.5	5.6		136																
270	WFCM-28	030820	1021	23	7.5	70.5	6.1	158.0		620																
270	WFCM-28	030825	0950	23	7.2	189.0	6.1	13.9		290																
270	WFCM-28	030826	1040	24	7.3	295.0	6.1	9.3		270																
320	FMCL-1	030605	1230	18	7.4	122.0	9.4	3.1	5.8	148		51	62	0.4			3	75			<0.004	1.570	<0.015	0.167	<0.004	
320	FMCL-1	030610	1240	21	7.5	126.0	8.3	4.5	3.4	252																
320	FMCL-1	030612	1100	21	7.6	112.0	7.8	39.1	17.3	580																
320	FMCL-1	030617	1315	22	7.5		8.3	14.0		188																
320	FMCL-1	030623	1135	21	7.7	126.0	7.6	6.8	5.1	420																
320	FMCL-1	030814	1155	22	8.6	172.5	10.6	6.6	5.2	196		50	68	0.3			1	91			<0.02	0.967	<0.015	0.554	0.009	
320	FMCL-1	030818	1230	23	7.8	103.8	4.9	2.5	0.0	196																
320	FMCL-1	030820	1000	23	5.7	132.8	8.2	3.5	5.4	160																
320	FMCL-1	030825	1122	22	7.5	132.0	8.0	4.0	2.9	196																
320	FMCL-1	030826	1130	22	7.4	132.0	8.5	2.6	4.0	140																
320	PINL-319	000419	1205	16	7.4	72.0	10.0	4.3	31.9	52			58	0.7			12				0.010	0.907	<0.015	0.209		
320	PINL-319	000503	1115	20	7.6	120.1	9.0	6.8	4.7	88			60	0.5			6				0.010	1.147	<0.015	0.116		
320	PINL-319	000613	1100	23	8.0	123.0	8.0	6.4	2.9	188			80	0.4			8				<0.004	0.963	<0.015	<0.15		
320	PINL-319	000705	1100	23	8.0	127.0	8.0	4.4	2.4	160			62	0.6			<1				0.039	0.848	<0.015	<0.15		
320	PINL-319	001011	1130	11	9.3	131.0	11.5	1.5	1.5	68			74	0.8			<1				<0.004	1.024	<0.015	<0.15		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
320	PINL-319	001213	1140	6	7.8	133.0	12.0	0.8	3.9				66	4.4							<0.004	0.701	<0.015	<0.15		
320	PINL-319	010131	1140	10	7.7	89.0	10.5	23.0	19.9	112			48	0.2			5				<0.004	1.112	<0.015	0.613		
320	PINL-319	010328	1245	10	7.9	99.0	8.8	3.0	12.9	28			42	0.2			4				0.060	1.190		<0.15		
320	PINL-320	000419	1430	18	7.4	74.0	10.0	5.4	135.2	27			62	0.6			9				0.010	0.902	<0.015	0.240		
320	PINL-320	000503	1400	20	7.9	87.0	9.0	9.2	64.9	37			44	0.4			8				0.016	0.920	<0.015	0.234		
320	PINL-320	000613	1430	24	7.9	119.0	6.8	5.3	5.3	39			74	0.6			10				<0.004	1.040	<0.015	<0.15		
320	PINL-320	000705	1400	26	8.7	119.0	7.0	4.3	8.3	38			56	0.8			4				0.049	0.419	<0.015	0.111		
320	PINL-320	001011	1420	12	8.6	134.0	10.8	3.6	3.4	96			74	0.8			2				0.009	0.739	<0.015	0.173		
320	PINL-320	001213	1410	6	0.6	116.0	11.5	0.8	21.2				50	2.9							<0.004	0.442	<0.015	<0.15		
320	PINL-320	010131	1413	10	6.5	71.0	9.8	36.1		172			40	0.7			16				<0.004	0.974	<0.015	0.565		
320	PINL-320	010328	1425	10	7.9	77.0	9.7	3.2	191.6	10			29	0.2			2				0.060	1.250		0.310		
320	PINL-321	000419	1305	16	7.6	72.0	10.0	5.1	52.2	88			46	1.1			9				0.017	0.735	<0.015	0.366		
320	PINL-321	000503	1315	21	7.9	77.0	9.0	21.3	28.8	96			40	0.5			15				<0.02	0.699	<0.015	0.380		
320	PINL-321	000613	1330	26	8.2	105.0	7.2	7.9	1.7	70			50	0.5			10				<0.004	0.396	<0.015	0.138		
320	PINL-321	000705	1300	26	8.3	106.0	7.0	4.7	1.6	49			46	0.7			7				<0.004	0.791	<0.015	0.240		
320	PINL-321	001011	1310	13	8.5	108.0	11.0	2.8	2.8	50			62	0.9			3				<0.004	0.305	<0.015	0.066		
320	PINL-321	001213	1340	5	7.8	103.0	12.1	1.3	15.0				54	1.1							<0.004	0.602	<0.015	0.088		
320	PINL-321	010131	1308	10	7.8	69.0	10.1	16.1	192.0	400			40	0.8			11				0.031	0.887	<0.015	0.556		
320	PINL-321	010328	1325	10	8.0	73.0	8.3	2.3		47			28	<0.1			3				0.060	1.380	<0.015	0.200		
320	PINL-322	000419	1000	16	7.5	68.0	10.0	7.7	66.0	108			40	1.9			8				<0.004	0.718	<0.015	0.202		
320	PINL-322	000503	1030	20	7.7	71.6	9.0	3.6	50.8	92			34	0.8			11				0.014	0.642	<0.015	0.406		
320	PINL-322	000614	1000	23	8.6	88.0	7.0	3.6	4.9	61			54	0.8			6				<0.004	0.611	<0.015	0.084		
320	PINL-322	000705	0945	24	8.5	92.0	8.0	3.2	5.7	60			38	0.9			2				<0.004	0.607	<0.015	0.102		
320	PINL-322	001011	1030	11	9.9	86.0	10.3	0.9	1.8	100			62	0.6			1				<0.004	1.437	<0.015	<0.15		
320	PINL-322	001213	1030	6	8.7	91.0	12.1	0.8	7.6				38	2.5							<0.004	0.375	<0.015	0.161		
320	PINL-322	010131	1100	9	8.7	69.0	10.0	20.9		192			32	0.4			9				<0.004	0.826	<0.015	0.722		
320	PINL-322	010328	1210	9	8.3	67.0	8.0	2.0	72.9	28			24	0.4			3				0.030	1.080	<0.015	<0.15		
320	PINL-323	000412	0945	14	7.5	64.0	10.0	9.5	102.2	300			36	1.0			7				0.007	0.885	<0.015	0.307		
320	PINL-323	000502	0920	18	7.3	62.0	10.0	3.1	49.5	530			50	0.9			9				0.014	0.810	<0.015	0.488		
320	PINL-323	000614	1110	23	7.4	71.0	7.0	31.5	62.7	>240			38	1.0			13				0.121	0.689	<0.015	0.645		
320	PINL-323	000711	0930	27	7.4	109.0	8.4	0.9	3.4	45			58	0.5			4				0.027	0.463	<0.015	0.033		
320	PINL-323	001010	1040	12	8.8	84.0	11.5	8.6		62			60	1.2			3				<0.004	1.747	<0.015	<0.15		
320	PINL-323	001212	0940	6	8.8	95.0	11.7	0.1	6.9	23			50	<0.1							<0.004	0.317	0.033	0.203		
320	PINL-323	010125	0945	4	8.5	80.0	12.0	2.8	60.5	60			44	<0.1			3				<0.004	1.496	<0.015	0.043		
320	PINL-323	010327	1015	9	8.4	69.0	9.8	0.4	26.9	116			26	1.1			2				0.060	1.203	<0.015	0.320		
320	PINL-324	000412	1155	14	7.5	63.0	10.0	206.0	72.6	72			36	0.9			4				0.013	0.702	<0.015	0.420		
320	PINL-324	000502	1100	18	6.9	61.0	10.0	2.4	46.5	41			50	0.9			9				0.016	0.498	<0.015	0.475		
320	PINL-324	000614	1155	23	7.1	71.0	7.0	22.6	34.7	>240			44	1.1			13				<0.004	0.578	<0.015	0.608		
320	PINL-324	000711	1020	27	7.6	103.0	9.0	6.1					58	0.5			4				0.025	0.155	<0.015	0.042		
320	PINL-324	001010	1210	11	8.0	69.0	8.9	0.4		21			66	4.5			7				0.005	0.026	<0.015	0.411		
320	PINL-324	001212	1030	6	8.4	92.0	11.4	0.6	6.9	59			42	<0.1							<0.004	0.180	<0.015	0.192		
320	PINL-324	010125	1030	4	8.4	76.0	12.1	3.6	38.2	42			44	0.2			2				<0.004	1.258	<0.015	0.049		
320	PINL-324	010327	1110	9	8.4	64.0	9.0	0.5	48.5	42			24	2.0			3				0.080	0.890	<0.015	0.300		
320	PINL-325	000412	1455	15	7.4	78.0	9.0	3.1	15.1	370			42	1.2			8				0.051	0.450	<0.015	0.564		
320	PINL-325	000502	1210	19	6.8	82.0	9.0	9.3	6.4	176			54	0.9			13				0.069	0.239	<0.015	0.580		
320	PINL-325	000614	1020	21	7.1	99.0	4.4	70.0		208			60	1.3			19				<0.004	0.137	<0.015	0.454		
320	PINL-325	000711	1110	24	7.4	121.0	7.0	3.1		35			80	1.6			6				0.063	0.098	0.022	0.492		
320	PINL-325	001010	1245	11	8.1	45.0	12.5	12.8		5			56	3.7			5				0.049	0.123	<0.015	0.721		
320	PINL-325	001212	1105	7	8.1	144.0	8.0	0.9		31			64	<0.1							<0.004	0.190	<0.015	0.321		
320	PINL-325	010125	1110	4	8.4	87.0	11.4	6.4	18.0	92			46	0.9			7				0.014	5.440	<0.015	0.199		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
320	PINL-325	010327	1155	10	8.2	82.0	10.2	2.0	17.4	<1			31	1.1			3				0.100	0.707	<0.015	0.770		
320	PINL-326	000412	1345	15	7.2	101.0	9.0	12.7	4.4	340			42	1.3			13				0.083	0.587	0.131	0.685		
320	PINL-326	000502	1245	21	7.2	181.0	9.0	18.5	3.6	510			78	1.2			28				0.214	1.036	0.042	0.780		
320	PINL-326	000614	0930	23	7.3	431.0	3.0	5.3		133			120	2.6			5				0.303	1.337	1.877	2.787		
320	PINL-326	000711	1305	27	7.1	443.0	3.3	12.1		1020			138	4.2			14				0.425	0.292	1.948	4.050		
320	PINL-326	001010	1340	11	7.4	26.0	8.0	6.1		82			120	4.3			6				0.117	0.851	0.186	0.948		
320	PINL-326	001212	1155	5	7.9	319.0	11.2	5.6		24			96	1.7							0.369	4.765	<0.015	0.743		
320	PINL-326	010125	1145	4	8.1	119.0	11.2	11.0	2.9	>600			52	1.3			6				0.077	39.100	0.064	0.412		
320	PINL-326	010327	1225	10	7.9	143.0	8.7	6.5	5.4	510			52	1.5			3				0.280	1.581	0.030	1.690		
330	FTC -001	990512	1120	19	7.3		6.9													2.90						
330	FTC -002	990512	1015	19	7.2		7.0													2.00						
350	MTC -001	990514	1400	20	7.4	188.2	7.5	15.3	13.8	100			94		0.3		14			2.42	<0.004	0.378	<0.015	0.490		
350	MTC -001	990610	1000	24	6.9	216.0	5.8	10.7	2.7	50			116		1.1		9			4.02	<0.024	0.217	<0.015	0.536		
350	MTC -001	990713	1030	24	7.2	203.0	6.8	8.0	19.3	45			118		1.1		7			4.67	0.025	0.204	<0.015	0.422		
350	MTC -001	990818	1000			265.0	4.1	7.1		14			130		1.6		8			6.23	0.031	0.084	<0.015	0.479		
350	MTC -002	990512	1500	19	7.48	185.5	7.1	15		160			92		0.7		18			2.29	<0.004	0.449	<0.015	0.695		
350	MTC -002	990610	0930	22	6.61	210.0	4.8	23		156			118		2.1		46			3.81	0.038	0.302	0.032	0.417		
350	MTC -002	990713	1000	28	7.23	171.6	6.9	21		720			97		1.2		12			4.5	0.036	0.351	<0.015	0.49		
350	MTC -002	990818	1200			229.0	4.1	14.9		27			110		1.4		8			2.38	0.026	0.344	<0.015	0.424		
350	MTC -002	990914	0945	22.9	6.86	209.0	3.4	27		24			108				31			3.03	0.006	0.042	<0.015	0.289		
350	WFC -001	990512	1300	20	8.3		7.6													2.49						
390	SWNL-1	030331	1440	14	6.7	72.2	10.2	4.5	14.0	27		29	34	8.7			4	58			<0.004	0.114	<0.015	<0.15	<0.004	
390	SWNL-1	030422	1125	18	7.5	82.0	9.8	4.2	4.2	50		37	46	1.0			4	60			<0.004	0.284	0.031	<0.15	<0.004	
390	SWNL-1	030520	1045	18	7.2	57.0	11.0	9.7	105.6	820		24	40	1.0			12	66			0.064	0.329	<0.015	0.530	<0.004	
390	SWNL-1	030625	1050	23	5.9	129.0	7.7	2.9		148		54	30	0.3			3	86			<0.004	0.361	<0.015	<0.15	<0.004	
390	SWNL-1	030717	1055	25	7.4	158.0	7.4	2.8				71	78	0.4			3	99			<0.02	0.255	<0.015	0.205	<0.004	
390	SWNL-1	030805	1110	26	7.4	181.0	7.8	1.8		108		81	88	0.2			2	107			<0.05	0.262	0.073	0.376	<0.005	
390	SWNL-1	030915	1025	22	6.9	85.8	7.5	1.1		240		96	104	0.4			3	123			<0.02	0.212	<0.015	0.176	0.009	
390	SWNL-1	030915	1025	22	6.9	85.8	7.5	1.1		250		96	104	0.4			1	126			<0.02	0.217	<0.015	0.216	0.009	
390	SWNL-1	031016	1045	14	7.8	188.0	9.8	0.9		230		88	94	0.8			2	117			<0.02	0.083	<0.015	0.294	0.005	
390	SWNL-2	030320	1257	19	8.0	119.0	3.4	10.0		390		40	66	1.9			8	69			0.338	1.505	0.094	0.822	1.060	
390	SWNL-2	030416	1335	23	8.6	243.0	13.2	9.4	9.4	68	4.80	67	82	1.6			3	149			0.955	2.798	0.621	<0.15	0.835	
390	SWNL-2	030528	1330	25	8.5			12.3		124		60	72	0.9			3	131			0.544	2.859	0.016	<0.15	0.511	
390	SWNL-2	030612	1216	25	8.1	257.0	11.8	4.9		960		66	80	0.1			11	155			0.827	3.860	1.350	1.690	0.759	
390	SWNL-2	030728	1150	26	8.4	339.0	8.6	21.7	12.0	120		82	110	0.5			4	205			1.680	6.468	<0.015	0.488	1.528	
390	SWNL-2	030813	1127	26	8.3	257.0	9.9	6.9	22.8	800		71	90	0.6			1	161			1.020	2.399	<0.015	0.713	1.000	
390	SWNL-2	030915	1130	23	8.1	0.3	11.1	3.5	13.1	40		85	118	0.6			2	213			1.850	5.201	<0.015	0.418	1.720	
390	SWNL-2	031030	1145	18	8.2	135.9	13.0	5.6	10.5	32		86	120	0.9			2	294			2.180	9.130	<0.015	0.190	2.180	
390	UTSL-1	030331	1545	18	8.1	191.5	9.0	4.6	3.3	52		75	90	8.9			3	114			<0.004	1.628	0.051	<0.15	<0.004	
390	UTSL-1	030422	1208	21	7.9	192.0	11.3	5.3	2.7	252		82	104	1.0			5	189			<0.004	1.957	<0.015	<0.15	<0.004	
390	UTSL-1	030520	1145	18	7.4	134.0	11.6	14.0	34.5	1200		56	66	1.9			14	107			0.083	1.200	0.046	0.398	0.006	
390	UTSL-1	030625	1120	26	6.7	212.0	9.7	4.8	2.5	220		84	98	0.6			5	132			<0.004	2.230	<0.015	<0.15	<0.004	
390	UTSL-1	030717	1135	26	7.8	222.0	9.6	4.0	2.0	240		90	102	0.4			4	117			<0.02	1.494	<0.015	<0.15	<0.004	
390	UTSL-1	030805	1145	26	7.4	205.0	10.5	3.2	2.0	420		81	98	0.5			5	128			<0.05	1.965	0.062	0.161	<0.005	
390	UTSL-1	030915	1100	22	7.3	189.0	9.8	2.9		66		82	100	0.3			2	128			<0.02	1.906	<0.015	<0.15	0.004	
390	UTSL-1	031016	0835	13	8.1	217.0	9.7	4.9		132		84	102	0.8			<1	135			<0.02	2.002	<0.015	<0.15	0.005	
440	FIRL-1	030604	1200	18	7.9	98.0	10.0	3.2	8.6	147		36	40	0.8			1	57			0.066	1.070	<0.015	0.237	<0.004	
440	FIRL-1	030611	1140	21	7.8	111.0	9.7	6.6	6.9	108																
440	FIRL-1	030618	1200	20	7.9	113.0	8.3	2.2	6.1	125																
440	FIRL-1	030624	1200	21	7.0	114.2	9.5	2.0	7.6	156																

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030002 - Wheeler Lake																										
440	FIRL-1	030626	1200	21	7.8	117.0	8.4	2.6	7.6	64																
440	FIRL-1	030814	1135	21	7.7	96.0	8.9	4.6	27.6	210		36	56	0.3			<1	71			<0.02	0.645	<0.015	0.253	0.018	
440	FIRL-1	030818	1130	23	7.6	109.0	9.8	2.1	11.9	140																
440	FIRL-1	030820	1130	22	7.9	112.0	8.5	2.1	10.1	160																
440	FIRL-1	030825	1115	22	8.3	658.0	10.1	1.8	9.3	138																
440	FIRL-1	030826	1135	22	8.0	125.0	11.3	7.5	12.5	88																
440	FIRL-2	030604	1135	18	7.1	107.0	6.4	3.1	1.8	180		40	52	0.6			3	63			0.032	0.819	<0.015	0.398	0.006	
440	FIRL-2	030611	1115	20	7.4	120.0	7.3	8.6	5.0	25																
440	FIRL-2	030618	1115	20	7.4	95.0	6.0	1.8	6.3	119																
440	FIRL-2	030624	1115	20	6.4	96.0	7.6	2.0	2.8	98																
440	FIRL-2	030626	1140	20	7.5	101.0	6.2	2.0	4.2	104																
440	FIRL-2	030814	1110	21	8.0	85.0	8.6	2.5	5.0	62		29	42	0.3			<1	60			0.026	0.648	<0.015	0.334	0.017	
440	FIRL-2	030818	1115	22	7.4	83.0	7.4	1.4		88																
440	FIRL-2	030820	1115	22	7.8	96.0	6.3	1.7		50																
440	FIRL-2	030825	1100	21	8.1	572.0	7.2	0.9		46																
440	FIRL-2	030826	1105	21	8.0	181.0	8.2	0.3		28																
440	SCDL-11	030604	1230	18	7.6	107.0	8.5	4.4	77.8	67		46	54	0.6			3	67			<0.004	0.928	<0.015	0.203	<0.004	
440	SCDL-11	030611	1045	20	7.8	117.0	8.8	5.6	20.9	212																
440	SCDL-11	030618	1045	21	8.1	119.0	7.1	6.3	23.8	220																
440	SCDL-11	030624	1100	20	6.8	117.6	8.5	5.0	35.8	260																
440	SCDL-11	030626	1120	22	7.7	122.0	7.4	5.1	15.1	390																
440	SCDL-11	030814	1040	21	7.8	113.0	7.8	5.2	34.5	144		44	56	0.2			13	75			<0.02	0.634	<0.015	0.233	0.015	
440	SCDL-11	030818	1045	23	7.4	121.0	8.1	4.4	41.3	132																
440	SCDL-11	030820	1100	23	7.6	126.0	7.0	4.1	46.4	124																
440	SCDL-11	030825	1045	23	8.1	177.0	8.3	2.6	38.0	780																
440	SCDL-11	030826	1055	23	7.8	159.0	9.1	3.2	14.5	610																
440	SCDL-12	030604	1100	18	7.5	105.0	5.8	4.0		190		40	54	0.7			6	65			<0.004	1.005	<0.015	0.290	<0.004	
440	SCDL-12	030611	0945	20	8.0	114.0	7.9	5.8	21.8	220																
440	SCDL-12	030618	1020	21	7.9	118.0	6.3	3.7	19.9	175																
440	SCDL-12	030624	1000	20	7.3	118.6	7.5	5.0	25.9	270																
440	SCDL-12	030626	1050	22	7.8	120.0	7.5	12.1	19.2	700																
440	SCDL-12	030814	1015	21	7.4	112.0	7.3	5.0	27.3	212		44	56	0.3			10	71			<0.02	0.668	<0.015	0.198	0.001	
440	SCDL-12	030818	1015	23	7.3	92.0	7.2	4.8	31.9	300																
440	SCDL-12	030820	1030	23	7.6	126.0	6.6	3.4	27.9	320																
440	SCDL-12	030825	1030	23	8.2	628.0	7.2	2.6	21.5	750																
440	SCDL-12	030826	1040	23	7.9	1.5	8.2	3.0	17.3	176																
440	SCDL-13	030604	1030	12	7.4	103.0	7.0	2.9	7.6	67		40	40	0.4			4	63			<0.004	1.122	<0.015	<0.15	<0.004	
440	SCDL-13	030611	0925	20	8.1	112.0	8.1	3.6	10.7	152																
440	SCDL-13	030618	0950	20	8.0	112.0	7.0	2.8	8.3	94																
440	SCDL-13	030624	1020	20	6.9	76.6	8.1	3.0	8.1	116																
440	SCDL-13	030626	1025	21	7.8	118.0	6.9	3.6	6.1	152																
440	SCDL-13	030814	1000	21	7.6	112.0	7.7	5.0	10.7	330		43	60	0.2			<1	73			0.020	0.777	<0.015	0.201	0.014	
440	SCDL-13	030818	1000	22	7.3	122.0	7.3	3.0	15.6	180																
440	SCDL-13	030820	1000	22	7.8	125.0	4.5	2.9	13.5	132																
440	SCDL-13	030825	1000	22	7.9	140.0	7.5	0.9	9.3	104																
440	SCDL-13	030826	1005	22	8.0	193.0	8.4	0.8	8.7	490																
06030004 - Lower Elk River																										
060	SHOL-1	030605	1115	19	7.8	194.0	11.7	4.8	14.9	80		89	96	0.3			5	108			0.153	0.240	<0.015	<0.158	0.095	
060	SHOL-1	030610	1125	21	8.0	204.0	9.1	6.1	17.1	45																
060	SHOL-1	030612	0940	21	7.8	203.0	8.6	6.9	40.8	169																

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030004 - Lower Elk River																										
060	SHOL-1	030617	1145	23	7.9		8.8	6.0		136																
060	SHOL-1	030623	1055	21	7.9	208.0	8.2	7.8	36.8	124																
060	SHOL-1	030814	1045	24	8.5	193.1	10.7	6.6	40.0	920		102	110	0.4			4	145			0.221	0.314	<0.015	0.402	0.127	
060	SHOL-1	030818	0920	25	8.4	211.0	2.2	7.7	20.5	86																
060	SHOL-1	030820	1130	27	6.1	143.0	8.0	4.4	12.0	88																
060	SHOL-1	030825	1030	25	7.4	247.0	7.3	4.0	9.3	25																
060	SHOL-1	030826	1040	25	7.4	247.0	7.0	6.0	9.6	108																
060	SHOL-2	030605	1045	18	7.7	105.0	10.0	5.1	13.5	104		84	100	0.5			5	110			0.150	0.309	<0.015	<0.156	0.094	
060	SHOL-2	030610	1051	22	7.7	188.0	8.9	5.0	8.9	124																
060	SHOL-2	030612	1010	21	7.8	195.0	8.2	6.2	38.2	280																
060	SHOL-2	030617	1130	25	7.6		8.1	4.0		204																
060	SHOL-2	030623	1030	20	8.1	211.0	8.7	6.6	12.6	212																
060	SHOL-2	030814	1010	23	7.8	220.0	9.6	5.5	22.5	610		106	116	0.4			5	144			0.191	0.330	<0.015	0.665	0.132	
060	SHOL-2	030818	0945	25	7.7	229.0	2.1	4.9	15.8	116																
060	SHOL-2	030820	1100	27	7.5	209.0	7.8	2.3	9.6	320																
060	SHOL-2	030825	0955	24	7.1	237.0	6.6	5.0	5.9	104																
060	SHOL-2	030826	1005	25	7.3	217.0	6.6	4.0	0.0	164																
080	BIGL-14	030331	1215	14	5.3	73.4	11.2	2.4	16.7	12		25	40	8.9			1	51			0.018	1.100	<0.015	<0.15	<0.004	
080	BIGL-14	030331	1215	14	5.3	73.4	11.2	2.4	16.7	9		25	32	8.7			3	52			<0.004	1.098	<0.015	<0.15	<0.004	
080	BIGL-14	030423	1005	13	7.7	65.0	11.0	2.4	10.5	36		29	40	0.3			2	70			<0.004	1.371	<0.015	<0.15	<0.004	
080	BIGL-14	030512	0935	17	7.6	105.8	10.4	7.3	36.9	280		25	26	1.4			8	58			0.037	0.946	0.032	<0.15	0.006	
080	BIGL-14	030624	1135	21	6.1	46.0	8.2	4.2		49		7	23	0.5			<1	49			<0.004	1.280	<0.015	<0.15	<0.004	
080	BIGL-14	030728	1000	21	7.2	97.0	9.7	2.3	16.8	360		37	50	0.4			<1	54			<0.02	1.197	<0.015	<0.15	<0.004	
080	BIGL-14	030804	1012	20	7.3	87.0	9.4	3.2	7.4	216		38	46	0.4			3	70			<0.05	1.264	0.059	<0.152	<0.005	
080	BIGL-14	030916	0940	16	6.3	99.6	9.8	1.4		136		41	52	0.2			2	65			<0.02	1.278	<0.015	0.197	0.008	
080	BIGL-14	031020	0948	14	6.9	79.0	10.6	1.7		66		42	56	0.8			2	58			<0.02	1.116	<0.015	<0.15	0.006	
080	BIGL-15	030331	1310	16	5.5	77.5	10.7	2.7	8.9	11		26	36	8.7			<1	52			0.030	1.224	<0.015	<0.15	<0.004	
080	BIGL-15	030423	1050	15	7.4	72.0	10.7	1.5	6.2	40		33	44	0.1			<1	72			<0.004	1.575	<0.015	<0.15	<0.004	
080	BIGL-15	030512	1005	17	7.2	104.2	10.2	5.0	21.5	320		22	32	1.1			3	60			0.044	1.172	0.039	<0.15	0.007	
080	BIGL-15	030624	1043	18	6.0	92.0	9.1	1.9	6.2	60		34	56	0.9			<1	75			<0.004	1.740	<0.015	<0.15	<0.004	
080	BIGL-15	030624	1043	18	6.0	92.0	9.1	1.9	6.2	44		33	54	0.5			<1	77			<0.004	1.710	<0.015	<0.15	<0.004	
080	BIGL-15	030728	1120	19	7.2	98.0	10.6	1.4	3.5	80		39	50	0.4			3	69			<0.02	1.374	<0.015	<0.15	<0.004	
080	BIGL-15	030804	1110	19	7.7	88.0	9.9	2.3	3.9	176		40	48	0.3			2	67			<0.05	1.470	0.095	1.000	<0.005	
080	BIGL-15	030916	1000	16	6.9	98.3	9.6	1.0		61		40	48	0.3			4	68			<0.02	1.511	<0.015	<0.15	0.011	
080	BIGL-15	031020	1015	15	7.1	101.2	10.2	1.0		40		42	46	0.9			2	71			<0.02	1.372	<0.015	<0.15	0.011	
080	BIGL-16	030331	1410	15	6.1	45.6	10.2	3.4		12		7	20	10.2			2	38			<0.004	1.369	<0.015	<0.15	<0.004	
080	BIGL-16	030423	1130	15	6.6	18.0	11.2	3.5		60		7	20	0.1			4	52			<0.004	1.165	<0.015	<0.15	<0.004	
080	BIGL-16	030512	1030	16	6.9	93.2	9.2	4.6	2.9	206		14	34	0.9			5				0.029	1.307	0.034	<0.15	<0.004	
080	BIGL-16	030624	0950	19	5.5	87.0	9.3	2.4	12.7	92		31	50	0.5			<1	64			<0.004	1.490	<0.015	<0.15	<0.004	
080	BIGL-16	030728	1215	24	7.1	104.1	8.7	4.5		204		7	24	0.3			2	47			<0.02	0.418	<0.015	0.185	<0.004	
080	BIGL-16	030804	1150	23	7.0	44.0	7.1	4.3		330		11	20	0.3			3	44			<0.05	0.247	<0.015	0.285	<0.005	
150	ELKL-1	011219	1200	13	7.0	207.0	8.6	48.7		>1200	<1		120	1.1			36				0.330	0.804	<0.015	0.524	0.146	
150	ELKL-1	020221	1015	11	7.5	161.0	11.4	16.1		9	33.11		106	2.0			11				0.130	0.675	<0.015	0.193	0.030	
150	ELKL-1	020328	1110	12	7.7	208.0	10.8	34.0		232	<1		104	1.5			23				0.139	0.732	<0.015	<0.15	0.030	
150	ELKL-1	020425	1200	22	8.4	199.0	14.3	10.7		19	<1		124	2.7			14				0.113	<0.003	0.028	0.542	0.006	
150	ELKL-1	020516	1145							9	<1		120	4.3			11				0.128	0.301	<0.015	0.957	0.028	
150	ELKL-1	020530	1230	25	8.7	177.0	29.1	19.1		<1	26.10		86	3.0			7				0.059	<0.003	<0.015	0.675	0.014	
150	ELKL-1	020611	1110	28	8.4	207.0	6.7	8.8		<1	<1		96	2.6			6				0.150	<0.003	<0.015	1.024	0.039	
150	ELKL-1	020620	1100	28	9.0	190.0	11.0	13.1		<1	<1		90	4.1			10				0.139	<0.003	<0.015	0.904	0.037	
150	ELKL-3	011219	1057	14	7.0	205.0	8.4	50.7		>1200	0.44		126	1.3			35				0.334	0.805	<0.015	0.676	0.158	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030004 - Lower Elk River																										
150	ELKL-3	020221	1100	11	7.8	171.0	11.3			13	50.20		116	2.0			12				0.135	0.690	<0.015	0.240	0.037	
150	ELKL-3	020328	1020	12	7.7	208.0	10.8	34.0		180	<1		100	1.5			13				0.125	0.741	<0.015	<0.15	0.030	
150	ELKL-3	020425	1045	22	8.3	201.0	16.1	8.0		13	<1		134	2.5			11				0.096	<0.003	0.028	0.591	<0.004	
150	ELKL-3	020516	1115							3	<1		110	7.6			11				0.164	0.153	<0.015	1.786	0.005	
150	ELKL-3	020530	1130	25	8.8	166.0	16.0	5.5		<1	18.10		88	2.1			5				0.023	<0.003	<0.015	0.457	0.004	
150	ELKL-3	020611	1030	28	8.6	194.0	7.9	5.4		<1	44.50		110	4.1			8				0.086	<0.003	<0.015	0.567	0.033	
150	ELKL-3	020620	1000	28	9.1	181.0	10.9	7.1		<1	<1		80	3.9			9				0.080	<0.003	<0.015	0.760	0.019	
06030005 - Pickwick Lake																										
010	BGNL-32	000425	1145	17	7.8	189.0	9.0	11.4		60			122	0.3			9				0.026	1.205	<0.015	0.263		
010	BGNL-32	000510	1315	21	7.8	273.0	7.0	6.7		57			150	0.9			17				0.035	2.187	<0.015	0.097		
010	BGNL-32	000621	1345	25	7.3	251.0	4.7	8.2		92			118	0.4			5				0.070	1.175	<0.015	0.329		
010	BGNL-32	000718	1415	24	7.7	311.0	6.0	2.0		20			158	0.3			5				0.033	1.966	<0.015	0.296		
010	BGNL-32	001017	1330	15	8.0	341.0	4.9	4.4		108			176	1.0			6				0.013	0.965	<0.015	0.142		
010	BGNL-32	001214	1235	6	7.9	210.0	10.7	46.0		3240			102	0.7			203				0.082	0.669	<0.015	0.348		
010	BGNL-32	010315	1050	12	7.6	144.0	11.5	94.9		2120			61	1.3			94				0.200	0.934	0.210	1.220		
010	BGNL-33	000425	0915	15	7.9	165.0	8.0	10.9		57			102	0.6			12				0.023	0.384	<0.015	0.337		
010	BGNL-33	000510	1015	22	7.5	217.0	6.0	6.1	17.8	92			106	0.7			11				0.041	0.129	0.007	0.401		
010	BGNL-33	000621	0945	24	7.7	220.0	5.0	5.3	10.3	32			78	0.4			7				0.073	0.143	<0.015	0.380		
010	BGNL-33	000718	1100	26	7.8	189.0	4.0	8.7	1.5	104			92	1.0			10				0.060	<0.003	<0.015	0.381		
010	BGNL-33	001017	1129	17	8.7	249.0	7.1	2.6		38			114	2.0			5				0.011	0.030	<0.015	0.340		
010	BGNL-33	001214	1025	6	8.6	286.0	11.1	19.8					120	1.5							0.030	0.600	<0.015	0.459		
010	BGNL-33	010130	1120	9	8.7	122.0	9.8	29.4		1860			68	3.5			57				0.335	1.018	0.053	1.328		
010	BGNL-33	010315	1315	12	7.7	129.0	10.6	95.5		>2400			55	1.8			99				0.330	0.410	0.020	1.750		
010	BGNL-34	000425	1100	15	7.8	159.0	9.0	14.3		164			112	0.4			10				0.025	0.375	<0.015	0.342		
010	BGNL-34	000510	1200	22	7.8	215.0	7.0	7.7		260			116	0.9			11				0.043	0.346	<0.015	0.340		
010	BGNL-34	000621	1145	27	7.5	202.0	5.4	7.1		101			90	0.4			5				0.077	0.200	0.013	0.394		
010	BGNL-34	000718	1220	25	7.7	207.0	5.0	2.8		55			102	0.4			1				0.065	0.205	0.017	0.364		
010	BGNL-34	001017	1230	16	8.2	251.0	4.7	15.6		71			120	1.2			3				0.014	0.065	<0.015	0.409		
010	BGNL-34	001214	1150	6	8.1	214.0	11.9	36.0					102	2.9							0.046	0.552	<0.015	0.641		
010	BGNL-34	010130	1150	10	8.0	127.0	10.1	141.0		3420			72	3.5			31				0.357	1.064	0.090	1.551		
010	BGNL-34	010315	1225	12	7.8	161.0	10.6	102.8		>2400			67	1.5			125				0.180	0.967	0.060	1.080		
010	BGNL-35	000425	1130	16	8.0	180.0	9.0	24.4		172			116	0.3			9				0.025	0.890	<0.015	0.595		
010	BGNL-35	000510	1215	20	7.7	255.0	7.0	8.1		112			158	0.7			8				0.048	1.438	<0.015	0.316		
010	BGNL-35	000621	1315	25	7.4	125.0	3.6	10.0		92			106	0.6			46				0.113	0.318	0.019	0.536		
010	BGNL-35	000718	1240	25	7.4	144.0	7.0	7.1		33			130	0.7			9				0.048	0.739	<0.015	0.436		
010	BGNL-35	001017	1245	16	8.0	297.0	6.2	5.3		4			152	5.0			5				0.037	0.788	<0.015	0.993		
010	BGNL-35	001215	1215	7	7.9	269.0	10.5	11.7					126	1.1							0.028	0.722	<0.015	0.451		
010	BGNL-35	010130	1210	10	8.1	138.0	9.9	200.5		3640			78	3.2			147				0.360	1.086	0.102	1.581		
010	BGNL-35	010315	1115	12	7.5	131.0	11.8	108.0		>2400			54	1.5			98				0.230	0.832	0.120	1.340		
010	BGNL-37	000425	1300	17	7.8	212.0	9.0	9.9		27			130	0.1			7				0.031	2.048	<0.015	0.335		
010	BGNL-37	000510	1400	21	7.9	266.0	9.0	4.8		15			154	0.7			6				0.031	2.452	<0.015	0.173		
010	BGNL-37	000621	1415	25	7.6	263.0	7.6	11.8		76			128	0.7			9				0.105	1.865	<0.015	0.328		
010	BGNL-37	000718	1345	24	7.8	305.0	10.6	7.0		23			148	0.6			2				0.024	1.778	<0.015	<0.15		
010	BGNL-37	001017	1430	18	7.9	307.0	10.1	3.7		48			156	1.0			3				<0.004	1.051	<0.015	0.071		
010	BGNL-37	001214	1302	8	7.8	292.0	11.1	3.6					138	0.3							<0.004	1.573	<0.015	0.104		
010	BGNL-37	010130	1325	10	7.4	187.0	10.1	714.0		720			108	1.4			73				0.141	1.691	0.027	0.922		
010	BGNL-37	010315	1010	13	7.6	175.0	11.7	36.2		1040			75	1.3			30				0.180	1.690	0.070	0.800		
010	CRB -001	990525	0945	19	8.0	329.0	6.7	3.3		55			182		0.4		3			1.65	<0.004	0.899	<0.015	0.182		
010	CRB -001	990609	1100	23	7.2	339.0	13.6	8.1		50			176		1.2		62			1.91	0.028	0.821	<0.015	0.250		
010	CRB -001	990630	1140	23	7.3	265.2	7.4	10.0		300			155		0.4		9			3.86	0.046	0.967	0.020	0.750		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake																										
010	CRB -001	990810	1030	26	7.2	299.0	5.3	3.9	0.0	22			170		1.6		8			2.05	0.014	0.510	0.072	1.167		
010	CRB -001	990908	1000	26	6.9	290.0	5.7	6.3	0.0	>1200			172		4.1		10			6.35	0.248	0.183	1.418	1.944		
010	CRCL-1	000425	1000	15	8.0	107.0	9.0	19.5	13.5	232			66	0.6			18				0.028	0.446	0.052	0.445		
010	CRCL-1	000510	1115	21	7.7	152.0	7.0	10.9	2.3	77			82	0.9			12				0.046	0.280	0.019	0.394		
010	CRCL-1	000621	1130	24	8.1	223.0	4.8	20.9	0.9	420			102	0.7			8				0.072	0.199	<0.015	0.483		
010	CRCL-1	000718	1200	23	7.4	211.0	4.0	13.3	0.6	>600			96	0.6			9				0.064	0.325	0.159	0.619		
010	CRCL-1	001214	1106	6	8.2	171.0	11.7	44.9					82	2.1							0.109	0.826	<0.015	0.808		
010	CRCL-1	010130	1133	8	8.5	108.0	11.6	27.0		124			56	1.6							<0.004	1.798	0.044	0.890		
010	CRCL-1	010315	1250	14	7.7	93.0	11.0	54.0		2240			34	2.3			49				0.250	0.808	0.140	1.340		
010	CRWL-1	030318	1213	15	7.7	256.3	9.7	17.8	20.1	1200		142	133	1.6			9	35			0.082	0.402	0.164	2.340	0.038	
010	CRWL-1	030415	1223	20	6.9	343.0	11.5	2.9	3.5	15		206	171	1.3			10	210			0.045	0.050	0.053	<0.15	0.012	
010	CRWL-1	030430	1045	21	7.8	342.0	7.2	2.9	2.2	193		135	197	0.5			6	211			0.031	0.069	0.032	0.354	0.009	
010	CRWL-1	030610	1125	23	7.9	349.0	8.0	2.5	3.8	330		169	186	0.5			5	190			0.027	0.308	<0.015	<0.15	0.010	
010	CRWL-1	030708	1200	28	6.6	342.6	6.3	2.1	2.7	24		154	184	1.0			7	218			0.017	0.243	<0.015	<0.15	0.016	
010	CRWL-1	030805	1305	27	6.7	354.0	9.5	2.7	1.9	120	1.42	152	160	0.9			11	177			0.025	0.668	<0.015	<0.15	<0.004	
010	CRWL-1	030805	1305	27	6.7	354.0	9.5	2.7	1.9		1.87	159	176	1.4			3	214			0.023	0.658	<0.015	<0.15	<0.004	
010	CRWL-1	030903	1120	27	8.0	335.0	6.8	2.1	0.6	63		168	168	0.5			3	205			0.034	0.200	<0.015	<0.15	0.006	
010	CRWL-1	031021	1250	21	7.4	372.0	9.3	2.2		27		169	207	2.5			13	299			0.061	0.016	<0.015	0.692	0.015	
010	CRWL-2	030318	1400	15	7.8	264.7	9.1	16.4	25.2	2367		125	132	2.3			13	141			0.115	0.768	0.078	0.946	0.066	
010	CRWL-2	030415	1320	22	7.6	358.0	10.5	5.1	5.8	3		197	164	2.1			5	271			0.181	1.110	0.045	0.160	0.130	
010	CRWL-2	030430	1140	21	7.6	369.9	7.1	3.4	5.0	50		156	193	1.5			5	182			0.197	1.282	0.038	<0.15	0.163	
010	CRWL-2	030610	1200	24	7.7	360.0	8.0	3.1	12.0	130		159	175	1.0			14	217			0.109	0.966	<0.015	<0.15	0.071	
010	CRWL-2	030708	1310	27	6.7	363.0	8.2	3.4	6.3	53		141	183	2.4			9	251			0.162	1.484	<0.015	<0.15	0.151	
010	CRWL-2	030805	1415	26	7.6	377.0	8.7	2.4	3.0	33	2.40	146	161	1.6			11	227			0.325	2.810	<0.015	<0.15	0.292	
010	CRWL-2	030903	1205	27	7.8	386.0	6.3	1.8	2.9	49		148	165	0.3			2	287			0.424	3.300	<0.015	<0.15	0.390	
010	CRWL-2	031021	1300	20	7.6	412.0	7.6	1.4		60		171	179	2.4			10	224			0.615	4.660	<0.015	0.254	0.749	
010	MDFL-1	030319	1000	16	7.6	225.6	8.0	95.2		2000		106	110	2.9			17	153			0.266	0.551	0.120	2.540	0.097	
010	MDFL-1	030319	1000	16	7.6	225.6	8.0	95.2		2000		107	106	2.8			9	143			0.244	0.578	0.174	2.020	0.077	
010	MDFL-1	030415	1550	23	8.2	256.0	13.0	4.3	13.9	40		38	165	2.2			7	275			0.087	0.690	0.086	<0.15	0.038	
010	MDFL-1	030430	1446	24	7.8	351.2	8.4	6.7	10.3	25		167	195	0.9			6	223			0.123	0.928	0.161	0.324	0.070	
010	MDFL-1	030610	1450	27	8.1	338.0	10.6	3.9	19.7	50		153	170	0.6			6	208			0.078	0.996	0.022	<0.15	0.038	
010	MDFL-1	030708	1540	28	6.9	335.0	7.1	2.5		9		140	175	1.0			6	236			0.064	0.955	0.020	<0.15	0.050	
010	MDFL-1	030805	1520	28	8.1	329.0	12.3	7.3		30	2.94	140	149	2.0			10	212			0.116	1.170	<0.015	<0.15	0.080	
010	MDFL-1	030903	1500	26	8.2	325.0	10.6	64.2		190		133	151	1.6			11	233			0.116	0.739	<0.015	<0.15	0.080	
010	MDFL-1	031021	1435	21	8.0	385.0	13.6	3.6		22		90	184	2.8			18	248			0.214	1.380	<0.015	0.806	0.177	
010	MDFL-2	030319	0925	16	7.5	208.1	8.1	62.0		5300		106	97	2.8			78	171			0.161	0.470	0.109	1.680	0.047	
010	MDFL-2	030415	1430	20	7.7	299.0	8.3	4.8	25.0	70		173	137	1.9			10	209			0.083	0.457	0.068	<0.15	0.026	
010	MDFL-2	030430	1330	22	7.5	291.2	8.5	9.0	24.2	90		132	153	0.9			7	191			0.086	0.699	<0.015	0.747	0.046	
010	MDFL-2	030610	1340	24	7.8	306.0	6.8	5.7	34.4	87		138	150	0.5			6	197			0.092	0.813	<0.015	<0.15	0.045	
010	MDFL-2	030708	1420	27	6.7	300.0	6.4	5.0	24.1	110		133	154	2.9			7	195			0.059	0.726	<0.015	<0.15	0.054	
010	MDFL-2	030805	1425	26	7.8	333.0	6.0	7.5		270	2.14	148	159	0.9			6	213			0.064	0.695	<0.015	<0.15	0.030	
010	MDFL-2	030903	1250	27	7.7	300.0	5.3	2.5	12.0	61		100	133	0.7			3	21			0.091	0.252	<0.015	<0.15	0.057	
010	MDFL-2	031021	1340	18	7.7	380.0	7.1	2.7	3.6	32		138	179	2.2			14	256			0.095	0.127	<0.015	0.574	0.047	
010	MFBN-001	990520	1000	20	7.1	298.0	6.3	7.6	23.4	45			140		1.4		7			3.46	0.094	0.363	<0.015	0.410		
010	MFBN-001	990609	0830	23		233.0	4.5	13.1	21.5	128			120		1.0		16			6.11	0.183	0.883	<0.015	0.772		
010	MFBN-001	990630	0930	24	7.0	193.8	5.8	24.0		670			108		0.6		23			6.94	0.138	0.522	0.020	0.830		
010	MFBN-001	990810	1430	28	8.3	283.0	7.3	8.5	1.4	35			150		1.4		18			4.18	0.035	0.050	<0.015	1.079		
010	MFBN-001	990908	1330	26	8.1	297.0	6.2	2.7	1.9	250			142		<0.1		9			6.59	0.016	0.033	<0.015	0.824		
010	MFBN-002	990520	1530	21	7.3	291.0	6.9	5.6	11.7	24			138		1.9		3			3.97	0.096	0.337	<0.015	0.440		
010	MFBN-002	990609	0930	25	7.3	372.0	4.5	15.1		280			148		1.2		10			5.67	0.141	0.559	0.043	0.590		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake																										
010	MFBN-002	990630	1020	24	7.3	255.0	5.8	15.0		350			139		0.6		15			6.23	0.108	0.699	0.030	0.870		
010	MFBN-002	990810	1340	26	8.1	285.0	4.6	5.5		2			140		1.0		15			4.81	0.063	0.060	<0.015	1.012		
010	MFBN-002	990908	1230	29	8.8	350.0	12.6	1.8		45			120		0.4		<1			6.90	0.046	0.048	<0.015	0.801		
010	MFBN-003	990520	1230	21	7.3	276.0	7.7	7.0	4.5	112			138		2.3		4			4.91	0.101	1.278	<0.015	0.682		
010	MFBN-003	990609	1000	26	7.0	283.0	6.7	7.7	13.9	490			152		1.1		7			4.39	0.136	0.474	<0.015	0.438		
010	MFBN-003	990630	1048	23	7.5	255.0	6.7	14.0		420			145		0.9		18			5.39	0.096	0.800	0.010	0.690		
010	MFBN-003	990707	1035	28	7.6	327.0	6.0	5.3																		
010	MFBN-003	990810	1330	33	8.8	293.0	11.1	2.3		2			140		1.3		5			4.83	0.194	0.028	<0.015	0.913		
010	MFBN-003	990908	1250	27	8.4		4.5	n/a		5										7.12	0.160	0.209	0.040	1.048		
010	MFBN-004	990525	0900	20	7.69	319	5.1	2.3	3.7	92			150		0.7		2			42.01	0.23	0.458	<0.015	0.597		
010	MFBN-004	990609	1030	24	7.22	323	7.8	6.3	6.6	200			166		1.4		46			3.7	0.503	0.338	0.058	0.565		
010	MFBN-004	990810	1215	27	8.44	328	8.7	2.8	0.9	60			142		1.3		4			4.65	1.116	0.772	<0.015	0.918		
010	MFBN-004	990908	1030	25	7.21	357	7.8	1.9	0.4	7			106		0.5		6			5.42	0.573	0.21	0.043	0.922		
010	MFBN-004	990630	1112	24	7.53	255	7.1	8		169			147		0.4		10			4.76	0.149	0.422	0.05	0.65		
010	MOWW-001	990810	1100	27	7.25	362	6.5	1.2		60			120		1.4		4			5.76	2.842	1.041	0.194	1.371		
010	MOWW-001	990908	1020	27	6.95	353	5.8	1.7		640			90		0.7		3			5.54	1.965	0.772	0.474	1.544		
010	MOWW-001	990519	1210	21.7	6.44		7.3			12			134		3		4			5.47	0.672	0.335	0.431	1.638		
010	MOWW-001	990630	1215	23	7.16	255	6.6	3		31			147		0.4		4			4.24	0.331	0.557	0.07	0.73		
160	MCKC-1	030320	1026	15	7.3	47.0	6.5	17.0	5.6	530		14	26	1.7			3	58			0.045	0.839	<0.015	<0.15	0.085	
160	MCKC-1	030416	1100	16	7.4	62.0	9.6	7.6	1.6	120	<1	17	32	0.2			8	48			<0.004	0.888	<0.015	<0.15	<0.004	
160	MCKC-1	030528	1145	19	6.5			11.2	1.2	168	3.20	22	34	0.5			3	47			0.068	0.834	0.024	0.015	<0.004	
160	MCKC-1	030612	0942	20	7.9	94.9	8.7	37.2	2.1	640	3.20	23	32	0.8			5	77			0.047	1.090	<0.015	<0.15	<0.004	
160	MCKC-1	030728	1023	22	8.1	74.0	6.7	8.4	2.6	340		23	36	0.3			4	56			<0.02	0.804	<0.015	<0.15	<0.004	
160	MCKC-1	030813	0952	22	7.9	58.0	9.3	13.5	2.4	620		16	28	0.8			5	65			0.087	0.448	0.546	0.692	0.037	
160	MCKC-1	030915	1015	22	7.5	0.1	8.0	10.2		128		32	42	0.4			4	73			<0.02	0.867	<0.015	0.208	0.012	
160	MCKC-1	031030	1036	17	7.0	106.1	10.2	22.4		6		50	60	2.3			28	94			0.051	0.280	0.025	0.640	0.006	
160	MCKC-2	030320	1012	15	6.9	52.0	6.6	37.0		1500		22	30	2.3			19	68			0.070	0.623	<0.015	0.313	0.177	
160	MCKC-2	030416	1030	21	7.3	108.0	12.3	20.1		54	9.07	43	50	4.2			21	71			0.091	0.300	<0.015	0.849	<0.004	
160	MCKC-2	030528	1013	24	7.5			20.8		92	29.37	34	38	0.7			29	59			0.085	0.350	0.017	0.538	<0.004	
160	MCKC-2	030612	0910	24	7.5	76.2	6.4	21.9		88	40.58	43	28	2.5			21	71			0.077	0.290	<0.015	0.459	<0.004	
160	MCKC-2	030728	1005	28	7.5	108.0	5.4	49.4		124		43	50	1.5			39	74			0.094	0.090	<0.015	0.900	<0.004	
160	MCKC-2	030813	0932	22	8.0	68.0	6.8	51.6		620		20	30	1.8			32	56			0.185	0.364	<0.015	1.130	0.063	
160	MCKC-2	030915	1030	25	7.6	0.1	7.5	31.0		18		57	66	0.6			44	86			0.108	0.012	<0.015	0.860	0.007	
160	MCKC-2	031030	1010	15	7.3	114.6	11.5	1.9		136		32	46	<0.1			3	63			<0.02	1.588	<0.015	0.459	0.010	
160	OXYC-1	000418	1400							114			64	0.7			5				0.061	0.558	0.093	0.434		
160	OXYC-1	000516	1511	28	7.2	2030.0	6.0	6.5	18.9	520			96	0.8			5				0.067	0.310	0.036	0.606		
160	OXYC-1	000606	1200	29	7.7	1253.0	7.0	6.7	25.7	10				0.4			8				<0.004	0.235	<0.015	0.244		
160	OXYC-1	000621	1500							13			66	0.3			58				0.088	0.133	<0.015	0.281		
160	OXYC-1	000712	1330	32	7.5	949.0	7.4	2.7	18.9	>620			88	0.9			11				0.222	0.172	0.032	0.396		
160	OXYC-1	001018	1300	24	7.6	798.0	6.6	1.8	18.1	92			76	1.0			3				0.038	0.035	<0.015	0.239		
160	OXYC-1	010123	1620	11	6.7	1312.0	11.9	11.6	20.2	20			98	9.5			5				0.074	0.549	0.010	0.280		
160	OXYC-1	010301	1100	14	7.8	725.0	11.9	6.6	7.7	8			82	1.8			3				0.015	0.550	<0.015	0.569		
160	OXYC-1	010322	1300	18	8.0	1522.0	14.9	2.6																		
160	OXYC-1	010418	1215	19	7.3	456.0	10.5	1.1	13.8	46			64	0.8			6				0.090	0.403	<0.015	0.906		
160	OXYC-1	010524	0915	24	8.1	217.4	5.3	3.5	29.9	29			68	1.1			5				0.070	0.178	0.062	0.662		
160	OXYC-1	010627	1120	28	7.5	163.5	4.6	2.5	64.8				64	1.0			13				0.080	0.095	0.184	<0.15		
160	OXYC-1	010719	1145	32	7.5	1405.0	13.1	1.6	93.1				43	1.5			16				0.030	0.188	0.135	0.326		
160	OXYC-1	010815	1320	32	7.5	950.0	6.2	0.1	29.2	45			63	2.3			3				0.040	0.045	0.070	<0.15		
160	OXYC-1	010919	1015	27	7.4	665.0	4.7	5.3	25.9	50			66	0.8			12				0.100	0.107	0.020	0.430		
160	OXYC-1	011024	0930	22	7.6	660.0	5.8	4.1	14.8	160			92	0.2			4				0.066	0.202	<0.015	0.320		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake																										
160	PNDC010	010417	0940	16	8.2	327.0	9.3	13.2		50			82	1.4			9					0.603	<0.015	0.954		
160	PNDC010	010524	0900	21	9.1	1087.0	8.3	2.5		62			92	1.4			8					0.592	<0.015	0.954		
160	PNDC010	010626	0935	26	9.7	523.0	7.5	2.4					86	0.8			7					0.677	0.084	0.316		
160	PNDC010	010718	1005	28	9.3	786.0	13.3	3.9		55			73	0.4			11					0.671	0.131	0.321		
160	PNDC010	010814	1245	28	6.4	401.0	7.9			>600			63	1.1			22					0.055	0.190	0.370		
160	PNDC010	010919	1034	25	7.7	627.0	6.5	27.2		200			80	0.7			8					0.930	0.150	<0.15		
160	PNDC010	011023	1020	21	8.0	613.0	8.5	9.7		54			150	2.6			6					0.969	0.127	0.509		
160	PNDC011	010418	0930	13	5.6	30.0	8.2	9.0		13			72	0.7			13					0.555	0.118	<0.15		
160	PNDC011	010524	1000	22	8.1	297.0	6.2	17.0		480			104	1.6			9					0.263	0.054	1.100		
160	PNDC011	010626	1425	27	8.6	309.0	5.5	2.2					97	1.4			18					0.360	0.157	<0.15		
160	PNDC011	010718	1345	29	7.8	296.0	12.0	11.7		42			79	0.9			20					0.269	<0.015	0.520		
160	PNDC011	010814	1135	28	7.8	287.0	5.3						84	1.0			11					0.610	0.040	0.370		
160	PNDC011	010918	1120	25	7.5	4.0	6.1	7.1		260			85	0.7			16					0.315	0.030	<0.15		
160	PNDC011	011024	1030	20	7.6	416.0	6.8	4.1		21			104	2.2			6					0.414	<0.015	0.779		
160	PNDC-1	000418	0920	16	7.4	215.0	3.0	10.0		13			108	1.1			4				0.012	1.456	<0.015	0.223		
160	PNDC-1	000516	0856	19	7.3	201.0	3.0	1.9		62			120	<0.1			11				0.034	0.407	0.007	0.493		
160	PNDC-1	000606	1030	22	8.4	229.0	3.0	5.0		56			134	0.7			7				<0.004	0.110	0.029	0.310		
160	PNDC-1	000712	0855	27	7.3	206.0	2.7	0.9		84			112	0.6			2				0.031	0.028	<0.015	0.139		
160	PNDC-1	001018	1040	18	7.6	204.0	2.0	40.3		34			104	3.0			30				0.087	0.005	0.029	0.650		
160	PNDC-1	010124	1145	7	7.4	173.0	10.1	41.2		30			92	0.7			6				0.041	1.276	0.021	0.328		
160	PNDC-1	010228	1350	13	7.6	193.0	16.3	3.1		26			100	0.6			<1				<0.004	1.881	<0.015	0.072		
160	PNDC-1	010322	1025	12	8.1	114.0	15.8	24.7		316			51	2.5			30				0.090	1.039	0.090	0.730		
160	PNDC-1	010418	1105	16	7.1	174.0	12.1	3.2		24			87	0.7			3				0.060	1.580	0.024	<0.15		
160	PNDC-1	010524	1100	18	7.9	248.0	5.4	25.2		160			104	1.2			18				0.080	0.527	<0.015	0.410		
160	PNDC-1	010627	1015	20	8.0	224.0	1.2	2.4					104	6.0			8				0.060	0.992	0.205	<0.15		
160	PNDC-1	010719	1020	21	9.5	262.0	9.9	9.8					84	1.5			10				0.030	1.400	0.089	<0.15		
160	PNDC-1	010815	1349	25	9.0	233.0	9.1	1.1		13			108	0.6			7				<0.004	0.729	0.170	0.300		
160	PNDC-1	010919	1230	22	7.5	241.0	5.2	6.1		600			100	0.2			10				0.050	0.771	0.070	<0.15		
160	PNDC-1	011024	1150	19	7.6	253.0	3.3	1.6		29			124	0.5			<1				<0.004	0.949	<0.015	0.165		
160	PNDC-1	030430	0930	20	7.0	207.4	2.5	4.2		42		85	95	3.7			5	116			0.063	0.987	0.023	<0.15	0.008	
160	PNDC-1	030514	0930	22	6.8	187.5	4.3	6.5		83		72	80	2.9			14	140			0.075	1.071	0.039	<0.15	0.013	
160	PNDC-1	030709	0945	26	6.9	260.0	2.8	4.0		67		76	103	4.9			13	142			0.029	0.908	0.035	<0.15	0.005	
160	PNDC-1	030730	1010	21	6.9	204.3	3.3	6.9		240		73	97	1.2			4	176			0.079	0.919	<0.015	<0.15	0.014	
160	PNDC-1	030827	1055	25	7.2	245.6	3.7	9.1		110		110	103	3.3			10	169			0.025	0.807	<0.015	<0.15	0.005	
160	PNDC-1	030910	1015	22	7.1	234.7	2.1	4.1		450		116	105	3.0			13	104			0.035	0.826	<0.015	<0.15	0.003	
160	PNDC-1	031106	1005	18	7.1	233.7	2.6	6.0		40		108	130	0.9			7	142			0.040	0.807	<0.015	0.226	0.007	
160	PNDC-100	010123	0805	5	8.2	703.0	13.1	17.2		96			80	2.1			11				0.170	1.314	0.268	0.744		
160	PNDC-100	010227	1030	13	8.0	369.0	8.9	8.5		25			92	1.4			2				0.082	1.417	0.144	0.419		
160	PNDC-100	010322	0915	11	8.4	573.0	13.0	11.1		172			78	1.6			18				0.140	1.345	0.210	0.850		
160	PNDC-101	010124	0850	5	7.7	290.0	10.2	13.4		140			86	3.3			9				0.136	0.562	0.046	0.617		
160	PNDC-101	010228	1115	12	7.3	255.0	9.1	9.9		22			98	1.9			3				0.102	0.936	0.076	0.568		
160	PNDC-101	010321	1200	10	7.4	214.0	14.3	17.6		1460			80	2.3			12				0.110	1.009	0.070	1.110		
160	PNDC-2	000418	1030	17	7.5	247.0	6.0			21			82	2.0			4				0.069	0.528	0.062	0.847		
160	PNDC-2	000516	0958	22	7.3	231.0	2.0	16.6		15			130	1.1			14				0.050	0.116	0.071	0.651		
160	PNDC-2	000606	1215	24	8.2	245.0	8.0	2.9	1.1	17			140	0.4			4				<0.004	0.006	<0.015	0.196		
160	PNDC-2	000712	0920	28	7.4	242.0	3.0	0.9		76			120	0.3			10				0.030	<0.003	<0.015	0.111		
160	PNDC-2	010124	1030	5	7.6	142.0	9.8	33.3		100			84	1.1			5				0.065	0.989	<0.015	0.403		
160	PNDC-2	010228	1250	12	7.4	191.0	11.4	2.5		48			98	0.9			<1				<0.004	1.470	<0.015	0.335		
160	PNDC-2	010321	1320	9	7.4	121.0	11.6	36.9		640			51	1.7			16				0.110	0.819	0.070	0.590		
160	PNDC-2	010418	1030	14	6.6	159.0	8.7	3.2		5			80	0.2			3				0.070	0.967	<0.015	0.260		

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake																										
160	PNDC-2	010524	1015	21	8.1	232.0	4.1	4.8		18			117	2.4			4				0.060	0.275	<0.015	0.843		
160	PNDC-2	010627	0930	22	8.3	230.0	3.5	2.5					107	0.6			5				0.050	0.787	0.141	<0.15		
160	PNDC-2	010719	1055	25	10.5	253.0	10.2	0.6					81	1.3			5				<0.004	0.928	<0.015	<0.15		
160	PNDC-2	010815	1330	26	9.7	231.0	5.3	1.1		8			105	0.8			4				<0.004	0.585	0.110	<0.15		
160	PNDC-2	010919	1200	22	7.3	254.0	2.7	1.7		84			91	1.6			8				0.040	0.054	0.020	0.170		
160	PNDC-2	011024	1115	18	7.8	211.0	4.7	1.8		1			102	0.6			3				<0.004	0.005	<0.015	0.471		
160	PNDC-2	030313	1230	16	7.6	212.0	8.5	12.8	22.2	1		105	91	1.5			8	134			0.077	1.065	0.121	1.630	0.011	
160	PNDC-2	030430	0900	22	7.2	278.3	5.4	24.2		15		102	109	2.1			30	157			0.203	0.321	<0.015	<0.15	0.035	
160	PNDC-2	030514	0915	21	7.1	223.4	4.1	11.4		33		85	89	1.0			11	170			0.130	0.397	0.032	<0.15	0.050	
160	PNDC-2	030709	0930	29	7.0	277.0	4.8	9.6		83		81	101	2.1			27	131			0.139	0.129	<0.015	0.284	0.052	
160	PNDC-2	030730	0950	26	7.2	268.4	3.4	6.9		28		80	103	0.7			12	229			0.118	0.157	<0.015	<0.15	0.036	
160	PNDC-2	030827	1030	30	7.5	291.9	4.7	6.7		21		104	91	2.4			10	180			0.101	0.104	<0.015	0.424	0.037	
160	PNDC-2	030910	0915	23	7.6	310.5	5.4	9.3		36		101	91	2.6			20	134			0.179	0.154	<0.015	<0.15	0.062	
160	PNDC-2	031106	0950	20	7.6	370.5	7.8	5.9		36		118	94	2.1			4	224			0.236	0.238	<0.015	0.709	0.105	
160	PNDC-3	000418	1200	18	7.1	247.0	6.0			27			94	2.1			5				0.069	0.522	0.050	0.869		
160	PNDC-3	000516	1052	21	7.2	289.0	3.0	20.3		128			138	1.3			19				0.129	0.136	0.092	1.145		
160	PNDC-3	000606	1430	25	8.0	353.0	3.0	48.5		35			136	1.4			22				0.137	0.006	0.140	1.287		
160	PNDC-3	000712	1035	29	7.2	379.0	4.1	25.5		76			134	4.0			116				0.321	<0.003	0.342	2.212		
160	PNDC-3	010123	1450	7	6.3	231.0	10.1	17.9		84			84	3.1			6				0.108	0.489	<0.015	0.609		
160	PNDC-3	010227	1450	13	8.1	253.0	7.2	4.6		40			106	0.4			<1				0.041	0.699	<0.015	0.443		
160	PNDC-3	010321	1025	9	7.4	240.0	12.8	55.0		430			86	2.1			7				0.090	0.766	0.110	0.720		
160	PNDC-3	010417	1500	20	7.4	227.0	4.9	6.2		20			93	1.2			4				0.150	0.492	0.246	<0.15		
160	PNDC-3	010524	1135	21	9.3	299.0	5.5	21.2		540			106	2.2			9				0.110	0.229	<0.015	0.738		
160	PNDC-3	010626	1340	28	8.8	284.0	7.4	2.4					107	2.1			9				0.080	0.233	0.165	<0.15		
160	PNDC-3	010718	1315	30	8.0	296.0	11.1	1.9					86	1.6			13				0.030	0.155	<0.015	<0.15		
160	PNDC-3	010814	1050	27	8.6	291.0	3.0	10.1		80			86	2.4			4				0.030	0.175	0.120	<0.15		
160	PNDC-3	011024	1005	19	7.6	314.0	2.2	2.4		16			108	0.7			1				0.031	0.017	<0.015	0.435		
160	PNDC-3	030430	0815	22	7.2	283.9	3.6	7.4		60		104	119	1.7			4	175			0.064	0.266	<0.015	<0.15	0.013	
160	PNDC-3	030514	0845	22	7.2	228.8	3.9	8.0		83		80	94	1.8			10	176			0.093	0.234	0.030	<0.15	0.015	
160	PNDC-3	030709	0900	28	7.0	288.0	2.8	12.8		90		92	117	2.4			16	178			0.079	0.015	<0.015	2.090	0.018	
160	PNDC-3	030730	0925	26	7.2	263.5	2.2	4.9		13		89	102	0.6			3	194			0.080	0.086	<0.015	<0.15	0.009	
160	PNDC-3	030827	0950	29	7.3	295.6	1.2	4.5		90		112	98	4.0			4	175			0.065	0.092	<0.015	<0.15	0.021	
160	PNDC-3	030910	0945	24	7.3	316.4	1.9	5.3		180		107	96	3.1			17	188			0.074	0.217	<0.015	<0.15	0.014	
160	PNDC-3	031106	0930	18	7.2	297.3	1.8	8.8		170		113	110	7.3			6	193			0.149	<0.003	<0.015	0.703	<0.004	
160	PNDC-4	000418	1300	19	8.0	268.0	6.0		40.6	<1			94	1.6			5				0.055	0.475	<0.015	0.668		
160	PNDC-4	000516	1325	22	7.3	302.0	4.0	11.4	13.7	148			140	1.0			10				0.106	0.194	0.042	0.896		
160	PNDC-4	000606	1030	20	7.8	333.0	5.0	7.9	1.3	128			128	0.8			5				<0.004	0.334	0.111	0.793		
160	PNDC-4	000712	1100	26	7.5	413.0	2.4	17.4		25			164	1.6			13				0.038	0.042	0.078	0.688		
160	PNDC-4	010123	1215	4	5.6	240.0	10.2	17.0	31.4	120			90	2.0			10				0.104	0.533	<0.015	0.560		
160	PNDC-4	010227	1258	12	7.8	269.0	6.9	3.3	27.1	12			108	1.6			<1				0.034	0.635	<0.015	0.797		
160	PNDC-4	010321	0930	9	7.0	275.0	13.2	12.6		212			82	2.0			7				0.090	0.682	0.040	0.500		
160	PNDC-4	010417	1310	18	7.9	239.0	4.3	6.5		14			90	0.8			6				0.150	0.508	0.146	<0.15		
160	PNDC-4	010524	0940	20	8.3	302.0	8.2	15.0	35.4	164			114	1.1			15				0.100	0.266	<0.015	0.548		
160	PNDC-4	010626	1110	24	9.2	288.0	4.4	2.4	41.9				111	0.8			5				0.070	0.270	<0.015	<0.15		
160	PNDC-4	010718	1130	27	8.2	297.0	9.0	0.7	30.6				85	1.2			10				<0.02	0.236	<0.015	<0.15		
160	PNDC-4	010814	0935	26	9.3	302.0	3.4	0.7	34.1	88			89	2.0			113				0.030	0.120	0.140	0.210		
160	PNDC-4	010919	1100	22	7.3	439.0	3.4	7.1		140			125	1.1			36				0.040	0.156	0.110	0.420		
160	PNDC-4	011023	1135	18	7.3	589.0	5.3	10.1		61			90	3.4			15				0.046	0.005	<0.015	0.358		
160	PNDC-4	030313	1017	15	7.6	281.0	7.5	4.3	38.4	35		121	104	1.7			10	150			0.080	0.883	0.276	1.250	0.019	
160	PNDC-4	030429	1825	25	7.5	284.8	5.5	5.7	31.4	18		101	117	1.5			5	174			0.062	0.326	<0.015	<0.15	0.022	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030005 - Pickwick Lake																										
160	PNDC-4	030514	0810	23	7.2	236.4	4.3	5.6		57		85	96	1.0			8	165			0.079	0.227	0.090	<0.15	0.020	
160	PNDC-4	030709	0820	29	6.9	307.0	3.4	5.5	19.0	43		104	114	1.6			9	168			0.041	0.101	<0.015	<0.15	0.019	
160	PNDC-4	030730	0835	25	7.2	267.1	3.5	3.6	16.8	12		86	102	0.4			5	192			0.044	0.159	<0.015	<0.15	0.019	
160	PNDC-4	030827	0855	28	7.4	301.8	3.0	2.7	6.3	23		114	99	2.0			2	206			0.033	0.115	<0.015	<0.15	0.010	
160	PNDC-4	030910	0845	22	7.4	315.8	3.7	4.4		43		114	101	2.1			5	186			0.029	0.132	<0.015	<0.15	<0.004	
160	PNDC-4	031106	0900	19	7.3	457.0	0.8	11.9		47		212	175	5.6			15	326			0.197	0.015	<0.015	1.180	<0.004	
160	PNDC-5	000418	1130	19	7.1	89.0	6.0	2.7		12			30	2.4			6				0.076	0.014	0.044	0.819		
160	PNDC-5	000516	1108	20	7.1	240.0	0.0	36.6		840			120	2.8			33				0.270	0.011	1.068	2.667		
160	PNDC-5	000712	1005	29	7.2	190.0	6.0	138.0		540			56	7.8			84				0.883	0.013	0.823	8.123		
160	PNDC-5	010123	1105	4	6.1	91.0	9.7	27.4		12			86	2.3			6				0.071	1.063	0.038	0.735		
160	PNDC-5	010228	1015	11	7.7	94.0	5.3	1.1		<1			48	1.7			<1				<0.004	<0.003	<0.015	0.961		
160	PNDC-5	010321	0827	7	7.1	75.0	10.9	0.6		25			15	1.4			7				0.080	0.015	0.040	1.000		
160	PNDC-5	010417	1355	19	7.3	92.0	3.2	1.0		2			24	1.3			3				0.220	<0.003	<0.015	0.774		
160	PNDC-5	030313	1100	16	7.6	294.0	8.3	4.2	58.0	57		108	104	1.9			9	171			0.104	1.199	0.116	0.283	0.038	
160	PNDC-5	030429	1740	21	7.5	298.1	5.9	4.0	26.3	44		102	117	0.6			5	177			0.087	0.791	0.526	0.606	0.050	
160	PNDC-5	030513	1825	23	7.3	247.0	5.6	4.9		37		73	95	1.1			7	153			0.135	0.777	0.515	<0.15	0.084	
160	PNDC-5	030709	0725	28	7.1	285.0	3.0	3.5		42		93	110	1.1			6	179			0.118	0.718	0.094	0.257	0.094	
160	PNDC-5	030709	0725	28	7.1	285.0	3.0	3.5																		
160	PNDC-5	030730	0805	24	7.2	273.9	3.7	2.7		23		83	103	0.6			9	246			0.098	0.613	<0.015	<0.15	0.049	
160	PNDC-5	030827	0820	26	7.3	306.3	2.6	2.7		41		104	102	2.8			5	94			0.155	0.843	<0.015	0.290	0.127	
160	PNDC-5	030910	0810	22	7.4	358.8	2.5	1.9		27		98	100	2.7			11	205			0.162	2.020	<0.015	0.210	0.135	
160	PNDC-5	031106	0850	20	7.0	345.0	3.1	2.6		12		93	97	1.8			8	184			0.210	3.140	3.280	3.320	0.172	
160	SHGC-1	030320	0926	14	6.8	40.0	7.5	23.0	6.9	980		15	86	1.5			7	56			0.060	0.567	<0.015	0.354	0.189	
160	SHGC-1	030416	1145	16	7.0	79.0	8.6	8.2	1.5	236		27	30	<0.1			4	55			<0.004	0.900	<0.015	<0.15	<0.004	
160	SHGC-1	030528	0933	19	6.0			6.1	2.4	132	<1	23	30	0.4			1	64			<0.004	0.902	<0.015	<0.15	<0.004	
160	SHGC-1	030612	1018	20	7.7	84.4	7.7	0.0	1.5	124	<1	31	28	0.8			3	72			<0.004	1.280	<0.015	<0.15	<0.004	
160	SHGC-1	030728	0940	22	7.7	90.0	5.9	3.5		140		31	36	0.2			2	62			0.022	0.043	0.018	0.218	0.005	
160	SHGC-1	030813	1015	22	7.9	66.0	8.6	14.0	4.4	620		18	34	0.8			6	63			0.091	0.391	0.364	0.855	0.037	
160	SHGC-1	030915	1000	20	7.2	0.1	6.7	1.2		88		58	66	0.3			1	84			<0.02	0.937	<0.015	<0.15	0.008	
160	SHGC-1	031030	0952	15	7.1	90.7	9.2	1.1		26		50	62	<0.1			2	82			<0.02	1.459	<0.015	<0.15	0.014	
160	WISE-4	000418	1000	18	6.8	223.0	7.0	4.0		18			80	1.9			18				0.094	0.563	0.109	0.745		
160	WISE-4	000516	1034	22	7.5	287.0	6.0	26.7		60			320	1.5			28				0.221	0.173	0.105	1.306		
160	WISE-4	000606	1400	25	8.6	319.0	8.4	6.2		340			110	1.3			31				0.254	0.185	<0.015	1.157		
160	WISE-4	000712	0955	30	7.7	340.0	7.0	13.9		100			100	1.2			10				0.148	0.136	0.054	0.880		
160	WISE-4	001018	1115	21	7.7	329.0	8.3	7.5		20			98	3.5			15				0.206	0.072	<0.015	0.884		
160	WISE-4	010124	0830	5	9.5	530.0	10.9	4.3		40			130	1.0			8				0.350	0.900	0.202	1.084		
160	WISE-4	010301	1224	12	7.7	623.0	10.3	5.9		82			126	7.9			3				0.454	0.521	0.292	1.368		
160	WISE-4	010322	1251	12	8.0	387.0	12.2	4.5																		
160	WISE-4	010418	1145	16	6.5	323.0	9.9	14.0					84								0.190	0.588	0.217	1.400		
160	WISE-4	010524	0945	22	8.2	364.0	7.7	35.0		104			94	2.1			15				0.170	0.375	0.113	1.030		
160	WISE-4	010627	1045	26	8.0	357.0	7.2	2.5					85	0.7			15				0.170	0.409	0.070	<0.15		
160	WISE-4	010719	1115	28	8.9	404.0	17.2	2.7					60	2.4			8				0.210	0.321	0.127	0.321		
160	WISE-4	010815	1400	29	8.7	387.0	7.4	1.1		140			84	1.5			7				0.110	0.266	0.490	0.490		
160	WISE-4	010919	1145	25	7.7	433.0	6.9	11.6		>600			80	0.9			18				0.340	0.333	0.060	0.240		
160	WISE-4	011024	1100	20	7.7	419.0	7.0	4.1		8			106	2.3			5				0.104	0.259	<0.015	0.562		
06030006 - Bear Creek																										
010	BEA-1	030305	1330	9	8.3	59.0	12.3	15.0		48		10	30	1.3			14	116			0.073	1.974	0.166	0.303	0.026	
010	BEA-1	030402	1145	13	7.0	82.0	11.7	24.5		4		9	18	5.7			8	43			<0.004	0.728	0.072	0.191	<0.004	
010	BEA-1	030507	1015	18	6.9	66.0	9.8	49.7		6		13	28	0.6			9	52			<0.004	0.499	0.085	0.160	0.265	
010	BEA-1	030626	1120	26	7.0	86.0	8.5	20.4		200		13	24	1.2			9	46			0.026	0.169	0.029	0.525	<0.004	

Appendix P-3. Water Quality results from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Chlorophyll a (mg/m^3)	Alk (mg/l)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	COD (mg/L)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	TOC (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)	Atrazine IA (ug/l)
06030006 - Bear Creek																										
010	BEA-1	030731	1130	25	5.9	93.0	7.2	8.7		25		26	36	1.3			12	58			<0.02	0.078	0.461	0.771	0.004	
010	BEA-1	030811	1110	26	6.3	88.0	6.8	0.0		240		25	38	0.8			6	62			<0.05	0.090	0.563	0.969	0.005	
010	BEA-1	030916	1050	26	7.3	79.0	7.3	4.7		1		20	34	0.4			4	40			<0.02	0.060	0.159	0.871	<0.004	
010	BEA-1	031009	1055	21	7.0	81.0	8.1	1.3		3		19	32	0.8			3	45			<0.02	0.049	0.186	0.934	0.004	
010	BEA-2	030305	1130	9	8.0	65.0	12.3	14.7		66		9	326	0.9			4	60			0.088	0.970	0.191	0.357	0.027	
010	BEA-2	030402	1215	15	7.5	81.0	12.1	15.0		13		9	18	5.3			8	45			0.076	0.715	0.040	0.294	<0.004	
010	BEA-2	030507	1050	18	6.9	8.0	9.7	4.0		210		14	28	0.8			12	49			<0.004	0.455	0.085	0.387	<0.004	
010	BEA-2	030626	1150	26	7.0	81.0	9.2	11.0	46.9	16		16	24	0.5			1	51			0.022	0.343	<0.015	<0.15	<0.004	
010	BEA-2	030731	1230	25	7.1	85.0	9.2	2.0	21.0	73		22	30	0.6			1	59			<0.02	0.443	<0.015	0.464	<0.004	
010	BEA-2	030811	1145	26	6.6	71.0	8.9	0.0	13.1	48		17	26	0.3			1	55			<0.05	0.453	0.038	0.608	0.008	
010	BEA-2	030916	1115	23	7.1	82.0	8.9	0.2	12.9	84		155	34	0.3			3	51			<0.02	0.424	<0.015	0.446	<0.004	
010	BEA-2	030916	1115	23	7.1	82.0	8.9	0.2	12.9	93		152	36	0.2			1	35			<0.02	0.417	<0.015	0.420	<0.004	
010	BEA-2	031009	1145	20	7.1	85.0	10.5	0.9		48		24	32	0.1			<1	48			<0.02	0.327	<0.015	0.314	<0.004	
010	BLB -001	990629	1015	27	6.6	61.2	3.7	14.0		3600			24		2.6		16			3.70	0.064	0.105	<0.015	1.200		
010	BLB -001	990727	1043				5.0	6.2		10			36		1.2		7			4.41	0.027	<0.003	<0.015	0.673		
010	BLB -001	990825	1200	26	7.0	87.4	3.7	10.4	0.0	<1			40		3.4		29			4.06	0.021	0.039	<0.015	0.476		
010	BLB -001	990921	1058	25	8.4	61.0	5.5	9.7	0.0				28				10			3.82	0.040	0.142	<0.015	0.739		
010	GSB -001	990525	1245	19	7.6	31.6	7.5	2.6		17			18		0.4		6			1.35	<0.004	0.248	<0.015	0.200		
010	GSB -001	990623	1215	20	7.3	126.6	5.7	4.0		61			60		0.5		6			2.30	<0.004	0.639	0.034	<0.15		
010	GSB -001	990720	1230	23	7.0	124.7	7.5	3.3		25			66		0.7		<1			1.86	0.089	0.247	<0.015	<0.15		
010	LDB -001	990525	1115	19	7.3	10900.0	5.5	1.7		7			418		<0.1		5			2.10	0.082	0.147	<0.015	0.322		
010	LDB -001	990623	1345	21	6.8	919.0	5.2	5.8		39			500		0.6		6			2.40	0.021	0.280	<0.015	<0.15		
010	LDB -001	990720	1318	29	6.7	722.0	6.8	3.3		62			272		0.6		1			2.33	0.085	0.248	<0.015	<0.15		
010	LDB -001	990825	1540	24	7.2	935.0	6.6	3.2	0.0	25			600		0.2		<1			2.45	<0.004	0.111	<0.015	<0.155		
010	LDB -001	990922	1530	15	6.8	684.0	7.4	1.9	0.0	15					0.5		1			2.19	0.013	0.047	0.032	0.189		
010	MLB -001	990629	1100	23	6.6	132.6	0.2	14.0	0.0	7200			43		4.0		15			6.24	0.604	2.630	0.120	1.100		
010	MLB -001	990727	1111				2.9	14.6		52			26		5.9		41			4.73	0.271	0.176	<0.015	1.662		
010	MLB -001	990825	1200	23	6.3	147.8	0.3	45.0		<1			60		7.9		145			9.60	1.049	<0.003	1.027	2.095		
010	MLB -001	990921	1146	25	7.2	51.8	3.4	4.9	0.0	17			24				22			3.71	0.126	0.087	0.111	0.860		
010	PYB -001	990629	0930	19	5.8	30.6	6.1	16.0	0.2	31			9		1.0		15			1.58	0.036	0.202	<0.015	0.800		
010	PYB -001	990727	1007				5.8	34.0		37			16		0.5		126			1.70	0.138	0.102	<0.015	0.548		

Appendix P-4. Metals Data from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030001 - Guntersville Lake																																	
160	CFRJ-160	011127	0941			<0.2	0.246	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.162	0.478	<0.3	<0.3	<2	<2	<0.02	0.028									<0.03	<0.03
160	CFRJ-160	011212	0925			<0.2	0.200	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.238	0.028	<0.3	<0.3	<2	<2	<0.02	0.028									<0.03	<0.03
160	CFRJ-160	020130	0940			<0.2	0.129	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.126	0.332	<0.3	<0.3	<2	<2	0.025	0.038	<0.03	<0.03							<0.03	<0.03
160	CFRJ-160	020220	0930																	<2	<2	<0.02	0.024	<0.03	<0.03							<0.03	<0.03
160	CFRJ-160	020313	1000			<0.2	0.330	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.168	0.598	<0.3	<0.3	<2	<2	<0.023	0.066	<0.03	<0.03							<0.03	<0.03
160	CFRJ-160	020626	1015			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.042	0.118	<0.5	<0.3	<2	<2	0.048	0.066	<0.03	<0.03							<0.03	<0.03
160	CFRJ-160	020626	1015			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.042	0.118	<0.5	<0.3	<2	<2	0.048	0.066	<0.03	<0.03							<0.03	<0.03
160	CFRJ-161	020131	0915			<0.2	0.146	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.41	0.517	<0.3	<0.3	<2	<2	0.088	0.108	<0.03	<0.03							<0.03	<0.03
160	CFRJ-161	020221	0925			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.115	0.347	<0.3	<0.3	<2	<2	0.069	0.073	<0.03	<0.03							<0.03	<0.03
160	CFRJ-161	020314	0950			<0.2	0.157	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.179	0.306	<0.3	<0.3	<2	<2	0.07	0.073	<0.03	<0.03							<0.03	<0.03
160	CFRJ-161	020501	1105			<0.2	4.790	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.41	3.51	<0.3	<0.3	<2	<2	0.38	0.364	<0.03	<0.03							<0.03	<0.03
160	CFRJ-161	020513	1545			<0.2	0.124	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.158	0.552	<0.3	<0.3	<2	<2	0.107	0.111	<0.03	<0.03							<0.03	<0.03
160	CFRJ-161	020627	0900			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.371	0.749	<0.5	1.16	<2	<2	0.304	0.422	<0.03	<0.03							<0.03	<0.03
160	CFRJ-162	011128	0851			<0.2	0.414	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.194	0.604	<0.3	<0.3	<2	<2	0.13	0.128									<0.03	<0.03
160	CFRJ-162	011213	0913			<0.2	9.680	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.313	8.08	<0.3	<0.3	<2	<2	0.166	0.538									<0.03	<0.03
160	CFRJ-162	020131	1025			<0.2	0.780	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.133	0.249	<0.3	<0.3	<2	<2	0.071	0.074	<0.03	<0.03							<0.03	<0.03
160	CFRJ-162	020221	1020			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.18	0.539	<0.3	<0.3	<2	<2	0.092	0.098	<0.03	<0.03							<0.03	<0.03
160	DRYJ-160	011127	1115			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.221	0.221	<0.3	<0.3	<2	<2	0.028	0.023									<0.03	<0.03
160	DRYJ-160	011212	1035			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.031	0.142	<0.3	<0.3	<2	<2	<0.02	<0.02									<0.03	<0.03
160	DRYJ-160	020130	1100			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.078	0.07	0.227	<0.3	<0.3	<2	<2	0.157	0.193	<0.03	<0.03							<0.03	<0.03
160	DRYJ-160	020220	1035			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.033	0.519	<0.3	<0.3	<2	<2	0.22	0.305	<0.03	<0.03							<0.03	<0.03
160	DRYJ-160	020313	1055			<0.2	0.252	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.055	0.648	<0.3	<0.3	<2	<2	0.247	0.412	<0.03	<0.03							<0.03	<0.03
160	DRYJ-160	020626	0840			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.052	<0.5	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03							<0.03	<0.03
160	DRYJ-160	020626	0840			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.052	<0.5	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03							<0.03	<0.03
160	HGUJ-160	011128	0934			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.471	1.45	<0.3	<0.3	<2	<2	0.487	0.49									<0.03	<0.03
160	HGUJ-160	011213	0934			<0.2	2.790	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.723	14.2	<0.3	<0.3	<2	<2	0.539	2.32									<0.03	<0.03
160	HGUJ-160	020131	1000			<0.2	0.080	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.039	0.234	0.854	<0.3	<0.3	<2	<2	0.203	0.225	<0.03	<0.03							<0.03	<0.03
160	HGUJ-160	020221	0830			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.217	0.63	<0.3	<0.3	<2	<2	0.262	0.268	<0.03	<0.03							<0.03	<0.03
160	HGUJ-160	020314	0915			<0.2	0.204	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.242	0.92	<0.3	<0.3	<2	<2	0.26	0.274	<0.03	<0.03							<0.03	<0.03
160	HGUJ-160	020501	1045			<0.2	1.900	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.621	3.38	<0.3	<0.3	<2	<2	0.775	0.787	<0.03	<0.03							<0.03	<0.03
160	HGUJ-160	020513	1605			<0.2	0.098	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.586	2.01			<2	<2	0.695	0.715	<0.03	<0.03							<0.03	<0.03
160	HGUJ-160	020627	0845			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.354	1.4	<0.5	0.91	<2	<2	0.722	0.91	<0.03	<0.03							<0.03	<0.03
160	RCBJ-160	011127	1630			<0.2	0.307	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.605	1.4	<0.3	<0.3	<2	<2	1.07	1.07									<0.03	<0.03
160	RCBJ-160	011212	1457			<0.2	<0.2	15	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	1.31	1.31	<0.3	<0.3	<2	<2	1.2	1.2									<0.03	<0.03
160	RCBJ-160	020130	1520			<0.2	0.064	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.236	0.623	<0.3	<0.3	<2	<2	0.509	0.517	<0.03	<0.03							<0.03	0.031
160	RCBJ-160	020220	1450			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.429	0.831	<0.3	<0.3	<2	<2	0.646	0.608	<0.03	<0.03							<0.03	<0.03
160	RCBJ-160	020313	1440			<0.2	0.156	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.736	1.26	<0.3	<0.3	<2	<2	0.808	0.851	<0.03	<0.03							0.024	0.022
160	RCBJ-160	020501	1020			<0.2	0.273	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.177	0.76	<0.3	<0.3	<2	<2	0.497	0.451	<0.03	<0.03							0.019	0.022
160	RCBJ-160	020514	1040			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.203	0.43	<0.3	<0.3	<2	<2	0.437	0.435	<0.03	<0.03							<0.03	<0.03
160	RCBJ-160	020626	1520			<0.2	0.612	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.174	2.14	<0.5	<0.3	<2	<2	0.856	1.05	<0.03	<0.03							0.049	<0.03
160	WSCJ-160	011127	1501			<0.2	0.565	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.609	2.54	<0.3	<0.3	<2	<2	1.27	1.38									<0.03	<0.03
160	WSCJ-160	011212	1335			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	1.19	2.47	<0.3	<0.3	<2	<2	1.14	1.33									<0.03	<0.03
160	WSCJ-160	020130	1420			<0.2	0.092	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.022	0.657	1.02	<0.3	<0.3	<2	<2	0.521	0.502	<0.03	<0.03							<0.03	<0.03
160	WSCJ-160	020220	1350			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	1.22	1.71	<0.3	<0.3	<2	<2	0.898	0.864	<0.03	<0.03							<0.03	<0.03
160	WSCJ-160	020313	1345			<0.2	0.336	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.756	1.37	<0.3	<0.3	<2	<2	0.431	0.457	<0.03	<0.03							<0.03	<0.03
160	WSCJ-160	020501	0940			<0.2	6.750	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.676	6.09	<0.3	<0.3	<2	<2	0.484	0.473	<0.03	<0.03							<0.03	0.015
160	WSCJ-160	020514	0945			<0.2	0.204	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.737	1.95	<0.3	<0.3	<2	<2	0.785	0.822	<0.03	<0.03							<0.03	<0.03
160	WSCJ-160	020626	1415			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.412	1.17	<0.5	<0.3	<2	<2	2.2	2.82	<0.03	<0.03							<0.03	<0.03
160	WSCJ-160	020626	1415			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.412	1.17	<0.5	<0.3	<2	<2	2.2	2.82	<0.03	<0.03							<0.03	<0.03
170	MUDJ-3	030708	1045		<0.015		0.140		16		<0.003		<0.015		<0.02		0.211		<0.3		<2		0.05		<0.03		<2		16		<1		<0.03
170	MUDJ-4	030708	0950		<0.015		0.108		19		<0.003		<0.015		<0.02		0.15		<0.3		<2		0.054		<0.03		<2		<10		<1		<0.03
170	MUDJ-6	030708	1025		<0.015		1.062		25		<0.003		<0.015		<0.02		0.826		<0.3		<2		0.119		<0.03		<2		<10		<1		<0.03
170	MUDJ-7	030708	1100		<0.015		0.611		<15		<0.003		<0.015		<0.02		0.622		<0.3		<2		0.074		<0.03		<2		<10		<1		<0.03
280	CSC -001	990511	1320						<10		<0.003		<0.015		<0.02		0.523		<0.3		<2		0.053										<0.03

Appendix P-4. Metals Data from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030001 - Guntersville Lake																																	
300	BSC -001	990511	1215						<10		<0.003		<0.015		<0.02		1.17		<0.3		<2		0.145										<0.03
300	BSC -002	990511	1030						<10		<0.003		<0.015		<0.02		0.546		<0.3		<2		0.139										<0.03
06030002 - Wheeler Lake																																	
160	MTNM-1	030710	1005	<0.015		1.613		<10		<0.003		<0.015		<0.02		1.034		<0.3		<2		0.198		<0.03		<2				<1		<0.03	
160	MTNM-2	030710	1045	<0.015	<0.015	4.316	4.316	21	21	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	2.467	2.467	<0.3	<0.3	<2	<2	0.172	0.172	<0.03	<0.03	<2	<2		<100	<1	<1	<0.03	<0.03
160	MTNM-3	030710	1120	<0.015		<0.1		<10		<0.003		<0.015		<0.02		0.13		<0.3		<2		0.021		<0.03		<2				<1		<0.03	
200	HURM-2	030707	0945		<0.015		5.972		28		<0.003		<0.015		<0.02		2.969		<0.3		<2		0.134		<0.03		<2		13		<1		<0.03
200	HURM-3	030707	1025		<0.015		1.390		26		<0.003		<0.015		<0.02		0.806		<0.3		<2		0.047		<0.03		<2		<10		<1		<0.03
240	HSBM-240	011128	0945			<0.2	0.356	18	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.112	0.337	<0.3	<0.3	<2	<2	0.048	0.063									<0.03	<0.03
240	HSBM-240	020110	1048			<0.2	<0.2	15	24	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.119	0.405	<0.3	<2	<2	<0.02	0.031	<0.03	<0.03							<0.03	<0.03
240	HSBM-240	020213	1105			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.02	0.12	<0.3	<0.3	<2	<2	<0.02	0.032	<0.03	<0.03							<0.03	<0.03
240	HSBM-240	020403	1045			<0.2	0.357	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.053	0.266	<0.3	<0.3	<2	<2	0.033	0.039	<0.03	<0.03							0.018	<0.03
240	HSBM-240	020425	1045			<0.2	0.219	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.306	<0.3	<0.3	<2	<2	0.027	0.042	<0.03	<0.03							0.023	0.018
240	HSBM-240	020523	1055			<0.2	0.223	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.017	0.016	0.199	<0.3	<0.3	<2	<2	0.041	0.047	<0.03	<0.03							0.019	0.015
240	HSBM-240	020613	1035			<0.2	0.246	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.027	0.315	<0.3	<0.3	<2	<2	0.029	0.049	<0.03	<0.03							<0.03	<0.03
240	HSBM-240a	011128	1140			<0.2	0.379	24	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.205	0.745	<0.3	<0.3	<2	<2	0.164	0.205									<0.03	<0.03
240	HSBM-242a	011128	1430			<0.2	0.214	14	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.031	0.176	<0.3	<0.3	<2	<2	0.022	0.024									<0.03	<0.03
240	HSBM-242a	020110	1020			<0.2	<0.2	10	11	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.07	<0.3	<0.3	<2	<2	0.086	<0.02	<0.03	<0.03							<0.03	<0.03
240	HSBM-242a	020123	1540			<0.2	1.040	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.713	<0.3	<0.3	<2	<2	<0.02	0.026	<0.03	<0.03							<0.03	<0.03
240	HSBM-242a	020213	1005			<0.2	<0.2	10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.02	0.218	<0.3	<0.3	<2	<2	<0.02	0.038	<0.03	<0.03							<0.03	<0.03
240	HSBM-242a	020403	1015			<0.2	0.210	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.029	0.159	<0.3	<0.3	<2	<2	<0.02	0.019	<0.03	<0.03							0.016	<0.03
240	HSBM-242a	020425	1000			<0.2	0.096	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.181	<0.3	<0.3	<2	<2	<0.02	0.014	<0.03	<0.03							0.02	0.022
240	HSBM-242a	020523	1013			<0.2	0.443	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.356	<0.3	<0.3	<2	<2	0.021	0.04	<0.03	<0.03							0.019	<0.03
240	HSBM-242a	020613	1000			<0.2	0.110	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.067	0.494	<0.3	<0.3	<2	<2	0.023	0.042	<0.03	<0.03							<0.03	<0.03
240	HSBM-243	020110	0900			<0.2	<0.2	16	20	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.078	0.563	0.639	<2	<2	<0.02	<0.02	<0.03	<0.03							<0.03	<0.03
240	HSBM-243	020213	0900			<0.2	<0.2	10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.02	0.079	<0.3	<0.3	<2	<2	0.02	<0.02	<0.03	<0.03							<0.03	<0.03
240	HSBM-243	020403	0900			<0.2	0.131	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.083	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03							0.019	<0.03
240	HSBM-243	020425	0900			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.145	<0.3	<0.3	<2	<2	<0.02	0.024	<0.03	<0.03							0.023	0.024
240	HSBM-243	020523	0900			<0.2	0.081	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.101	<0.3	<0.3	<2	<2	0.016	<0.02	<0.03	<0.03							0.02	0.015
240	HSBM-243	020613	0900			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.028	0.095	<0.3	<0.3	<2	<2	<0.02	<0.02	<0.03	<0.03							<0.03	<0.03
270	CTCM-26	030603	1025		<0.015		1.000		23		<0.003		<0.015		<0.02		0.809		<0.3		<2		0.92		<0.03		<2		<10		<1		<0.03
270	CTCM-37	030603	1100		<0.015		1.200		<15		<0.003		<0.015		<0.02		0.872		<0.3		<2		0.88		<0.03		<2		<10		<1		<0.03
270	CTCM-38	030603	1130		<0.015		0.978		20		<0.003		<0.015		<0.02		0.755		<0.3		<2		0.072		<0.03		<2		<10		<1		<0.03
270	MUDM-1	030603	1200		<0.015		0.470		<10		<0.003		<0.015		<0.02		0.505		<0.3		<2		0.069		<0.03		<2		<10		<1		<0.03
270	WFCM-28	030603	1210		<0.015		0.279		16		<0.003		<0.015		<0.02		0.438		<0.3		<2		0.067		<0.03		<2		<10		<1		<0.03
320	PINL-320	000503	1400				0.453		<10		<0.003		<0.015		<0.02		0.376		<0.3		<2		0.024		<0.03								<0.03
320	PINL-320	001011	1420				<0.2		<10		<0.003		<0.015		<0.02																		
320	PINL-320	010328	1425						<10		<0.003		<0.015		<0.02		0.175		<0.3		<2		<0.02										<0.03
320	PINL-322	000419	1000				0.156		<10		<0.003		<0.015		<0.02		0.02		<0.5		<2		<0.02		<0.03								<0.03
320	PINL-324	000412	1155				0.113		<10		<0.003		<0.015		<0.02		0.231		<0.3		<2		<0.02		<0.03								<0.03
320	PINL-324	001010	1210				<0.2		<10		<0.003		<0.015		<0.02		0.1412		<0.3		<2		0.05		<0.03								<0.03
320	PINL-326	000412	1345				0.935		<10		<0.003		<0.015		<0.02		1.11		<0.3		<2		0.091		<0.03								0.011
320	PINL-326	001010	1340				0.058		<10		<0.003		<0.015		<0.02		0.352		<0.3		<2		0.068		<0.03								<0.03
330	FTC -001	990512	1120																<0.3														
330	FTC -002	990512	1015																<0.3														
350	MTC -001	990514	1400						<10		<0.003		<0.015		<0.02		0.02		<0.3		<2		<0.02										<0.03
350	MTC -002	990512	1500						<10		<0.003		<0.015		<0.02		<0.02		<0.3		<2		<0.02										<0.03
350	WFC -001	990512	1300																<0.3														
390	SWNL-1	030331	1440	<0.015	<0.015	<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.499	1.266	<0.5	<0.3	<2	<2	<0.02	0.03	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-1	030422	1125	<0.015	<0.015	<0.2	0.239	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.139	0.313	<0.5	<0.3	3.366	<2	0.027	0.039	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-1	030520	1045	<0.015	<0.015	<0.2	0.737	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.52	1.256	<0.5	<0.3	<2	<2	0.03	0.067	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-1	030625	1050	<0.015	<0.015	<0.2	<0.2	13	19	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.046	0.142	<0.3	<0.3	<2	<2	0.031	0.041	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-1	030717	1055	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.1	0.172	<0.3	<0.3	<100	<100	<0.1	<0.1	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	0.208
390	SWNL-1	030805	1110	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	1.726	2.121	<0.01	<0.01	<100	<100	<0.1	<0.1	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1

Appendix P-4. Metals Data from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030002 - Wheeler Lake																																	
390	SWNL-1	030915	1025	<0.05	<0.05	<0.05	<0.05	23	26	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	1.22	0.458	<0.01	<0.01	<10	<10	0.499	<0.05	<0.05	<0.05	<10	<10		15	<10	<10	<0.05	<0.05
390	SWNL-1	030915	1025	<0.05	<0.05	<0.05	0.088	<10	11	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	1.671	2.593	<0.01	<0.01	<10	<10	<0.05	2.12	<0.05	<0.05	<10	<10		<10	<10	<10	<0.05	<0.05
390	SWNL-1	031016	1045	<0.05	<0.05	<0.05	<0.05	20	33	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.142	0.176	<0.01	<0.01	<10	<10	<0.05	<0.05	<0.05	<0.05	10	10	50	<10	<10	<10	<0.05	<0.05
390	SWNL-2	030320	1257		<0.015		0.686		<10		<0.003		<0.015		<0.02		0.884		<0.3		<2		0.039		<0.03		<2		<10		<1		<0.03
390	SWNL-2	030416	1335	<0.015	<0.015	<0.2	0.161	<10	11	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.063	0.195	<0.5	<0.3	<2	2.149	0.027	0.046	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-2	030528	1330	<0.015	<0.015	<0.2	<0.2	16	21	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.102	0.29	<0.5	<0.3	<2	<2	<0.02	0.027	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-2	030612	1216	<0.015	<0.015	<0.2	0.383	<10	20	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.082	0.326	<0.3	<0.3	<2	<2	<0.02	0.038	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
390	SWNL-2	030728	1150			<0.1	<0.1	<10	<100	<0.1	<0.003		<0.1	<0.1	<0.1	0.141	0.153	<0.3	<0.3	<100	<100	<0.1	<0.1	<0.1	<0.1	<100	<100	<100	<100	<100	<100	<0.1	<0.1
390	SWNL-2	030813	1127	<0.1	<0.1	0.229	<0.1	18	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.409	0.973	<0.01	<0.01	<100	<100	<0.05	<0.05	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
390	SWNL-2	030915	1130			<0.05	<0.05	<10	18	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	1.577	0.447	<0.1	<0.1	10	<10	<0.05	<0.05	<0.05	<0.05	<10	<10	<10	50	<10	<10	<0.05	<0.05
390	SWNL-2	031030	1145			<0.05	0.086	<10	30	<0.015	0.050	<0.05	<0.05	<0.05	<0.05	0.065	<1.05	<0.01	<0.01	<10	15	<0.05	<0.05	<0.05	<0.05	<10	<10	<10	50	<10	<10	<0.05	<0.05
06030005 - Pickwick Lake																																	
160	OXYC-1	000418	1400						<10		<0.003		<0.015		<0.02		1.54				<2		0.189										<0.03
160	OXYC-1	001018	1300				0.079		<10		<0.003		<0.015		<0.02		0.129		<0.3		<2		0.053		<0.03								<0.03
160	OXYC-1	010123	1620				0.531		<10		<0.003		<0.015		<0.02		0.646		<0.3		<2		0.089		<0.03								<0.03
160	OXYC-1	010301	1100				0.311		<10		<0.003		<0.015		<0.02		0.496		<0.3		<2		0.065		<0.03								<0.03
160	OXYC-1	010418	1215				<0.2		<10		<0.003		<0.015		<0.02		0.20		1.28		<2		0.10		<0.03								<0.03
160	OXYC-1	010524	0915				<0.2		<10		<0.003		<0.015		<0.02		0.08		<0.3		<2		0.06		<0.03								<0.03
160	OXYC-1	010627	1120				0.200		<10		<0.003		<0.015		<0.02		0.08		<0.3		<2		0.22		<0.03								<0.03
160	OXYC-1	010719	1145				<0.2		<10		0.004		<0.015		<0.02		0.09		<0.3		<2		0.14		<0.03								<0.03
160	OXYC-1	010815	1320			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.101	0.12	<0.5	<0.3	<2	<2	0.116	0.12	<0.03	<0.03							<0.03	<0.03
160	OXYC-1	010919	1015				<0.2		<10		<0.003		<0.015		<0.02		0.13		<0.3		<2		0.16		<0.03								<0.03
160	OXYC-1	011024	0930				0.211		<10		<0.003		<0.015		<0.02		0.78				<2		0.13		<0.03								<0.03
160	PNDC010	010417	0940			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.671	1.11	<0.5	<0.3	<2	<2	0.25	0.30	<0.03	<0.03							<0.03	<0.03
160	PNDC010	010524	0900				<0.2		<10		<0.003		<0.015		<0.02		0.45		<0.3		2.17		0.18		<0.03								<0.03
160	PNDC010	010626	0935				<0.2		<10		<0.003		<0.015		<0.02		0.30		<0.3		<2		0.20		<0.03								<0.03
160	PNDC010	010718	1005				<0.2		<10		<0.003		<0.015		<0.02		0.31		<0.3		<2		0.21		<0.03								<0.03
160	PNDC010	010814	1245			<0.2	0.361	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.181	0.51	<0.5	<0.3	<2	<2	0.071	0.24	<0.03	<0.03							<0.03	<0.03
160	PNDC010	010919	1034			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.12	0.361	0.43	<2	<2	0.024	0.12	<0.03	<0.03							<0.03	<0.03
160	PNDC010	011023	1020			<0.2	0.226	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.02		1.19		<0.3	<2	<2		0.15	<0.03	<0.03							<0.03	<0.03
160	PNDC011	010418	0930			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.446	1.02	0.335	0.48	<2	<2	0.149	0.18	<0.03	<0.03							<0.03	<0.03
160	PNDC011	010524	1000				<0.2		<10		<0.003		<0.015		<0.02		0.63		<0.3		3.57		0.20		<0.03								<0.03
160	PNDC011	010626	1425				0.429		<10		<0.003		<0.015		<0.02		0.62		<0.3		<2		0.21		<0.03								<0.03
160	PNDC011	010718	1345				0.461		<10		<0.003		<0.015		<0.02		0.68		<0.3		<2		0.27		<0.03								<0.03
160	PNDC011	010814	1135			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.107	0.44	<0.5	<0.3	<2	<2	0.138	0.17	<0.03	<0.03							<0.03	<0.03
160	PNDC011	010918	1120			<0.2	0.252	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.38	<0.5	<0.3	<2	<2		<0.02	<0.03	<0.03							<0.03	<0.03
160	PNDC011	011024	1030			<0.2	0.213	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.176	1.34			<2	<2		<0.134	<0.03	<0.03							<0.03	<0.03
160	PNDC-1	000418	0920				0.094		<10		<0.003		<0.015		<0.02		0.393		<0.5		<2		0.079		<0.03								<0.03
160	PNDC-1	001018	1040				1.860		<10		<0.003		<0.015		<0.02		2.11		<0.3		2		0.328		<0.03								<0.03
160	PNDC-1	010124	1145			<0.2	2.120	<10	<10	<0.003	<0.003	<0.015	<0.015		<0.02	0.263	1.64				<2		0.072	<0.03	<0.03							<0.03	<0.03
160	PNDC-1	010228	1350				<0.2		<10		<0.003		<0.015		<0.02		0.575		<0.3		<2		0.052		<0.03								<0.03
160	PNDC-1	010322	1025				0.417		<10		<0.003		<0.015		<0.02		0.535		0.332		<2		0.052		<0.03								<0.03
160	PNDC-1	010418	1105			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.151	0.36	0.404	0.44	<2	<2	0.074	0.07	<0.03	<0.03							<0.03	<0.03
160	PNDC-1	010524	1100				<0.2		<10		<0.003		<0.015		<0.02		1.95		<0.3		<2		1.67		<0.03								<0.03
160	PNDC-1	010627	1015				<0.2		<10		<0.003		<0.015		<0.02		0.40		<0.3		<2		0.23		<0.03								<0.03
160	PNDC-1	010719	1020				<0.2		<10		<0.003		<0.015		<0.02		1.51		<0.3		3.55		0.45		<0.03								<0.03
160	PNDC-1	010815	1349			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	1.56	<0.5	<0.3	<2	<2	0.185	0.91	<0.03	<0.03							<0.03	<0.03
160	PNDC-1	010919	1230			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.47	<0.5	<0.3	<2	<2	0.245	0.22	<0.03	<0.03							<0.03	<0.03
160	PNDC-1	011024	1150				<0.2	<10	<10	<0.003	<0.003		<0.015	<0.02	<0.02		0.44				<2		0.12	<0.03	<0.03								<0.03
160	PNDC-1	030430	0930	<0.116	<0.116	<0.109	<0.109	<7	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.106	1.57	<0.4	<0.4	<2	<2	1.74	2.05	<0.228	<0.228	<7	<7	<10	<7	<1	<1	<0.069	<0.069
160	PNDC-1	030514	0930	<0.116	<0.116	<0.5	<0.5	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.196	2.19	<0.4	<0.4	<2	<2	0.667	1.28	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-1	030709	0945	<0.015	<0.015	<0.1	<0.1	<10	21	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.051	0.862	<0.3	<0.3	<2	<2	0.56	0.584	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
160	PNDC-1	030730	1010	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.33	2.011	<0.3	<0.3	<100	<100	0.38	0.399	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
160	PNDC-1	030827	1055	<0.05	<0.05	<0.05	0.196	21	26	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.421	1.866	<0.01	<0.01	<10	19	0.505	0.516	<0.05	<0.05	<10	<10		10	<10	<10	<0.05	<0.05

Appendix P-4. Metals Data from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030005 - Pickwick Lake																																	
160	PNDC-1	030910	1015	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.662	<0.3	<0.3	<2	<2	0.3	0.301	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-1	031106	1005	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.455	<0.3	<0.3	<2	<2	0.226	0.261	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-100	010123	0805			<0.2	1.300	<10	<10	<0.003	<0.003	<0.015	0.003	<0.02	<0.02	0.226	1.09		<0.3		<2		0.183	<0.03	<0.03							0.08	<0.03
160	PNDC-100	010227	1030				0.461		<10		<0.003		<0.015		0.041		0.613		<0.3		10		0.07		<0.03								<0.03
160	PNDC-100	010322	0915				0.351		<10		<0.003		<0.015		<0.02		0.518		0.457		<2		0.074		<0.03								<0.03
160	PNDC-101	010124	0850			<0.2	2.180	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.142	1.79				<2		0.147	<0.03	<0.03							<0.03	<0.03
160	PNDC-101	010228	1115				0.614		<10		<0.003		<0.015		<0.02		1.27				<2		0.129		<0.03								<0.03
160	PNDC-101	010321	1200				0.365		<10		<0.003		<0.015		<0.02		0.669		<0.3		<2		0.086		<0.03								<0.03
160	PNDC-2	000418	1030				0.340		<10		<0.003		<0.015		<0.02		1.06		<0.5		2.56		0.175		<0.03								<0.03
160	PNDC-2	010124	1030			0.325	2.790	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.39	2.07				<2		0.061	<0.03	<0.03							<0.03	<0.03
160	PNDC-2	010228	1250				<0.2		<10		<0.003		<0.015		<0.02		0.523		<0.3		<2		0.063		<0.03								<0.03
160	PNDC-2	010321	1320				0.516		<10		<0.003		<0.015		<0.02		0.75		<0.3		<2		0.115		<0.03								<0.03
160	PNDC-2	010418	1030			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.438	<0.438	<0.5	0.38	<2	<2	0.179	0.16	<0.03	<0.03							<0.03	<0.03
160	PNDC-2	010524	1015				<0.2		<10		<0.003		<0.015		<0.02		0.51		<0.3		<2		0.52		<0.03								<0.03
160	PNDC-2	010627	0930				<0.2		<10		<0.003		<0.015		<0.02		0.24		<0.3		<2		0.10		<0.03								<0.03
160	PNDC-2	010719	1055				<0.2		<10		0.004		<0.015		<0.02		0.44		<0.3		<2		0.17		<0.03								<0.03
160	PNDC-2	010815	1330			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.113	<0.379	<0.5	<0.3	<2	<2	0.158	0.18	<0.03	<0.03							<0.03	<0.03
160	PNDC-2	010919	1200			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	0.31	<0.5	<0.3	<2	<2	0.139	0.17	<0.03	<0.03							<0.03	<0.03
160	PNDC-2	011024	1115			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.222	1.00			<2	<2		0.31	<0.03	<0.03							<0.03	<0.03
160	PNDC-2	030313	1230	<0.116	<0.116	<0.109	0.222	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.668	<0.4	<0.4	<2	<2	0.053	0.131	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-2	030430	0900	<0.116	<0.116	<0.109	0.469	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.071	0.924	<0.4	<0.4	<2	2.5	0.119	0.263	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-2	030514	0915	<0.116	<0.116	<0.5	0.640	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.116	0.925	<0.4	<0.4	<2	<2	0.165	0.225	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-2	030709	0930	<0.015	<0.015	<0.1	1.467	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.02	0.079	1.211	<0.3	<0.3	<2	<2	0.157	0.284	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
160	PNDC-2	030730	0950	<0.1	<0.1	<0.1	0.554	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.109	0.757	<0.3	<0.3	<100	<100	0.221	0.293	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
160	PNDC-2	030827	1030	<0.05	<0.05	<0.05	0.631	<10	<15	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.419	1.775	<0.01	<0.01	<10	13	0.154	0.208	<0.05	<0.05	<10	<10		<10	<10	<10	<0.05	<0.05
160	PNDC-2	030910	0915	<0.116	<0.116	<0.109	0.213	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.261	<0.3	<0.3	<2	<2	0.087	0.143	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-2	031106	0950	<0.116	<0.116	<0.109	0.315	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.261	<0.3	<0.3	<2	<2	15.8	0.071	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-3	000418	1200				0.310		<10		<0.003		<0.015		<0.02		1.1		<0.5		<2		0.194		<0.03								<0.03
160	PNDC-3	010123	1450			0.504	1.420	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.591	1.27		<0.3		<2		0.073	<0.03	<0.03							<0.03	<0.03
160	PNDC-3	010227	1450				0.279		<10		<0.003		<0.015		<0.02		0.795		<0.3		<2		0.065		<0.03								<0.03
160	PNDC-3	010321	1025				0.262		<10		<0.003		<0.015		<0.02		0.517		<0.3		<2		0.061		<0.03								<0.03
160	PNDC-3	010417	1500			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.742	1.46	<0.5	<0.3	<2	<2	0.215	0.24	<0.03	<0.03							<0.03	<0.03
160	PNDC-3	010524	1135				<0.2		<10		<0.003		<0.015		<0.02		1.11		<0.3		<2		0.40		<0.03								<0.03
160	PNDC-3	010626	1340				<0.2		<10		<0.003		<0.015		<0.02		0.70		<0.3		<2		0.25		<0.03								<0.03
160	PNDC-3	010718	1315				<0.2		<10		<0.003		<0.015		<0.02		0.77		<0.3		<2		0.23		<0.03								<0.03
160	PNDC-3	010814	1050			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.258	<0.823	<0.5	<0.3	<2	<2		0.42	<0.03	<0.03							<0.03	<0.03
160	PNDC-3	011024	1005			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.068	0.52			<2	<2		0.29	<0.03	<0.03							<0.03	<0.03
160	PNDC-3	030430	0815	<0.116	<0.116	<0.109	0.117	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.071	0.777	<0.4	<0.4	<2	<2	0.208	0.277	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-3	030514	0845	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.16	1.07	<0.4	<0.4	<2	<2	0.214	0.24	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-3	030709	0900	<0.015	<0.015	<0.1	0.542	<10	22	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.094	1.116	<0.3	<0.3	<2	<2	0.532	0.501	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
160	PNDC-3	030730	0925	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.243	0.813	<0.3	<0.3	<100	<100	0.358	0.402	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
160	PNDC-3	030827	0950	<0.05	<0.05	<0.05	0.119	10	27	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.235	2.728	<0.01	<0.01	<10	20	0.548	0.578	<0.05	<0.05	<10	<10		<10	<10	<10	<0.05	<0.05
160	PNDC-3	030910	0945	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.46	<0.3	<0.3	<2	6.74	0.416	0.425	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-3	031106	0930	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	1.67	<0.3	<0.3	<2	<2	0.808	0.841	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-4	000418	1300				0.280		<10		<0.003		<0.015		<0.02		0.984		<0.5		<2		0.174		<0.03								<0.03
160	PNDC-4	010123	1215			<0.2	1.430	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.162	1.3	<0.5	<0.3		<2		0.097	<0.03	<0.03							<0.03	<0.03
160	PNDC-4	010227	1258				<0.2		<10		<0.003		<0.015		<0.02		0.602		<0.3		<2		0.042		<0.03								<0.03
160	PNDC-4	010321	0930				0.353		<10		<0.003		<0.015		<0.02		0.529		<0.3		<2		0.068		<0.03								<0.03
160	PNDC-4	010417	1310			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.745	1.26	<0.5	0.67	<2	<2	0.176	0.23	<0.03	<0.03							<0.03	<0.03
160	PNDC-4	010524	0940				<0.2		<10		<0.003		<0.015		<0.02		0.99		<0.3		<2		0.48		<0.03								<0.03
160	PNDC-4	010626	1110				<0.2		<10		<0.003		<0.015		<0.02		0.56		<0.3		<2		0.24		<0.03								<0.03
160	PNDC-4	010718	1130				<0.2		<10		<0.003		<0.015		<0.02		0.60		<0.3		<2		0.28		<0.03								<0.03
160	PNDC-4	010814	0935			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.328	0.85	<0.5	<0.3	<2	<2	0.526	0.53	<0.03	<0.03							<0.03	<0.03
160	PNDC-4	010919	1100			<0.2	0.375	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	<0.1	1.44	<0.5	0.40	<2	<2	2.55	2.60	<0.03	<0.03							<0.03	<0.03

Appendix P-4. Metals Data from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030005 - Pickwick Lake																																	
160	PNDC-4	011023	1135			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02		<0.02		<0.3	<2	<2		<0.02	<0.03	<0.03							<0.03	<0.03
160	PNDC-4	030313	1017	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.407	<0.4	<0.4	<2	<2	0.059	0.076	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-4	030429	1825	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.559	<0.4	<0.4	<2	<2	0.119	0.175	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-4	030514	0810	<0.116	<0.116	<0.5	<0.5	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.25	0.992	<0.4	<0.4	<2	<2	0.151	0.234	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-4	030709	0820	<0.015	<0.015	<0.1	0.165	<10	21	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.075	0.741	<0.3	<0.3	<2	<2	0.331	0.35	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
160	PNDC-4	030730	0835	<0.1	<0.1	<0.1	0.105	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.102	0.63	<0.3	<0.3	<100	<100	0.288	0.336	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
160	PNDC-4	030827	0855	<0.05	<0.05	<0.05	0.052	<10	20	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.176	0.764	<0.01	<0.01	<10	13	0.562	0.595	<0.05	<0.05	<10	<10		<10	<10	<10	<0.05	<0.05
160	PNDC-4	030910	0845	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.455	<0.3	<0.3	<2	<2	0.514	0.529	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-4	031106	0900	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	2.3	<0.3	<0.3	<2	<2	0.059	15.8	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-5	000418	1130				0.884		<10		<0.003		<0.015		<0.02		3.17		<0.5		<2		0.768		<0.03								<0.03
160	PNDC-5	010123	1105			<0.2	2.750	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.168	1.9				<2		0.829	<0.03	<0.03							<0.033	<0.03
160	PNDC-5	010228	1015				0.157		<10		<0.003		<0.015		<0.02		1.31		<0.3		<2		0.383		<0.03								<0.03
160	PNDC-5	010321	0827				0.238		<10		<0.003		<0.015		<0.02		0.625		<0.3		<2		0.101		<0.03								<0.03
160	PNDC-5	010417	1355			<0.2	<0.2	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	2.78	4.47		0.46	<2	<2	1.07	1.09	<0.03	<0.03							<0.03	<0.03
160	PNDC-5	030313	1100	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.399	<0.4	<0.4	<2	<2	0.074	0.088	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-5	030429	1740	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	0.407	<0.4	<0.4	<2	<2	0.143	0.16	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-5	030513	1825	<0.116	<0.116	<0.5	<0.5	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	0.199	0.352	<0.4	<0.4	<2	2.9	0.113	0.135	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-5	030709	0725	<0.015	<0.015	<0.1	<0.1	18	17	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.05	0.374	<0.3	<0.3	<2	<2	0.134	0.134	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
160	PNDC-5	030709	0725	<0.015	<0.015	<0.1	<0.1	<10	24	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.712	0.464	<0.3	<0.3	<2	<2	0.139	0.157	<0.03	<0.03	<2	<2		<10	<1	<1	<0.03	<0.03
160	PNDC-5	030730	0805	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.1	0.83	<0.3	<0.3	<100	<100	0.174	0.182	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
160	PNDC-5	030827	0820	<0.05	<0.05	<0.05	0.105	<10	20	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.598	2.316	<0.01	<0.01	<10	13	<0.05	0.337	<0.05	<0.05	10	11		<10	<10	<10	<0.05	<0.05
160	PNDC-5	030910	0810	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071	<0.3	<0.3	<2	<2	0.201	0.206	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	PNDC-5	031106	0850	<0.116	<0.116	<0.109	<0.109	<10	<10	<0.087	<0.087	<0.079	<0.079	<0.086	<0.086	<0.071	<0.071	<0.3	<0.3	<2	<2	0.247	0.247	<0.228	<0.228	<2	<2	<10	<10	<1	<1	<0.069	<0.069
160	WISE-4	000418	1000				1.190		<10		<0.003		<0.015		<0.02		1.48		<0.5		<2		0.182		<0.03								<0.03
160	WISE-4	001018	1115				0.419		<10		<0.003		<0.015		<0.02		0.363		<0.3		<2		0.065		<0.03								<0.03
160	WISE-4	010124	0830				0.454		<10		<0.003		<0.015		<0.02		1.35		<0.3		<2		0.216		<0.03								<0.03
160	WISE-4	010301	1224				0.413		<10		<0.003		<0.015		<0.02		2.54		<0.3		4.161		0.24		<0.03								<0.03
160	WISE-4	010322	1251																														
160	WISE-4	010418	1145				<0.2		<10		<0.003		<0.015		<0.02		0.40		0.42		<2		<0.136		<0.03								<0.03
160	WISE-4	010524	0945				<0.2		<10		<0.003		<0.015		<0.02		0.27		<0.3		<2		0.06		<0.03								<0.03
160	WISE-4	010627	1045				0.340		<10		<0.003		<0.015		<0.02		0.35		<0.3		<2		0.08		<0.03								<0.03
160	WISE-4	010719	1115				0.360		<10		<0.003		<0.015		<0.02		0.38		<0.3		<2		0.10		<0.03								<0.03
160	WISE-4	010815	1400			0.233	0.205	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.414	0.44	<0.5	<0.3	<2	<2	0.12	0.12	<0.03	<0.03							<0.03	<0.03
160	WISE-4	010919	1145				0.372		<10		<0.003		<0.015		<0.02		0.44		<0.3		<2		0.09		<0.03								0.06
160	WISE-4	011024	1100				0.604		<10		<0.003		<0.015		<0.02		2.15		<0.3		<2		4.01		<0.03								<0.03
06030006 - Bear Creek																																	
010	BEA-1	030305	1330	<0.015	0.02	<0.2	1.834	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.589	1.153	<0.5	<0.3	<2	<2	0.104	0.162	<0.03	<0.03	<2	<2		28	<1	<1	<0.03	<0.03
010	BEA-1	030402	1145	<0.015	<0.015	<0.2	0.935	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.101	1.334	<0.5	<0.3	<2	<2	0.095	0.178	<0.03	<0.03	<2	<2	<10	<10	<1	<1	0.099	<0.03
010	BEA-1	030507	1015	<0.015	<0.015	<0.2	0.412		<10	<0.003	<0.003	<0.015	<0.015	2.635	<0.02	2.006	0.354	<0.5	<0.3	16	4	0.018	0.136	<0.03	<0.03	<2	11		<10	<1	<1	<0.03	<0.03
010	BEA-1	030626	1120	<0.015	<0.015	<0.1	0.246		<10	<0.003	<0.003	<0.015	<0.015	0.063	0.051	0.046	0.456	<0.3	<0.3	<2	15	0.295	0.465	<0.03	<0.03	2	<2		<10	<1	<1	<0.03	0.711
010	BEA-1	030731	1130	<0.1	<0.1	<0.1	0.591	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.707	2.121	<0.01	<0.01	<100	<100	1.887	2.394	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
010	BEA-1	030811	1110	<0.1	<0.1	<0.1	0.314	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	1.95	1.981	<0.01	<0.01	<100	<100	1.871	2.181	<0.1	<0.1	100	100		<100	<100	<100	<0.1	<0.1
010	BEA-1	030916	1050	<0.05	<0.05	<0.05	0.424	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.152	8.355	<0.01	<0.01	<10	32	0.304	0.574	<0.05	<0.05	<10	10		<10	<10	<10	<0.05	<0.05
010	BEA-1	031009	1055	<0.05	<0.05	<0.05	0.246	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	0.052	0.406	0.688	<0.01	<0.01	<10	14	0.717	0.976	<0.05	<0.05	<10	<10		<10	<10	<10		<0.05
010	BEA-2	030305	1130	<0.015	0.021	<0.2	1.757	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.464	1.168	<0.5	<0.3	<2	<2	0.098	0.156	<0.03	<0.03	<2	<2		20	<1	<1	<0.03	<0.03
010	BEA-2	030402	1215	<0.015	<0.015	<0.2	0.966	<10	<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.141	2.818	<0.5	<0.3	<2	17	0.071	0.132	<0.03	<0.03	<2	<2	<10	<10	<1	<1	<0.03	<0.03
010	BEA-2	030507	1050	<0.015	<0.015	<0.2	0.418		<10	<0.003	<0.003	<0.015	<0.015	<0.02	<0.02	0.21	0.337	<0.5	<0.3	<2	5	0.031	0.105	<0.03	<0.03	<2	<2	14	<10	<1	<1	<0.03	<0.03
010	BEA-2	030626	1150	<0.015	<0.015	<0.1	<0.1		<10	<0.003	<0.003	<0.015	<0.015	<0.02	0.036	0.102	0.271	<0.3	<0.3	<2	<2	0.09	0.116	<0.03	<0.03	2	<2		<10	<1	<1	<0.03	0.203
010	BEA-2	030731	1230	<0.1	<0.1	<0.1	<0.1	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.594	2.148	<0.01	<0.01	<100	<100	0.25	0.323	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
010	BEA-2	030811	1145	<0.1	<0.1	<0.1	0.142	<10	<100	<0.1	<0.003	<0.1	<0.1	<0.1	<0.1	0.803	1.361	<0.01	<0.01	<100	<100	0.583	0.681	<0.1	<0.1	<100	<100		<100	<100	<100	<0.1	<0.1
010	BEA-2	030916	1115	<0.05	<0.05	<0.05	0.115	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.106	2.103	<0.01	<0.01	<10	<10	0.186	0.235	<0.05	<0.05	<10	11		<10	<10	<10	<0.05	<0.05
010	BEA-2	030916	1115	<0.05	<0.05	<0.05	0.155	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.107	4.046	<0.01	<0.01	<10	13	0.151	0.234	<0.05	<0.05	<10	<10		<10	<10	<10	<0.05	<0.05
010	BEA-2	031009	1145	<0.05	<0.05	<0.05	0.081	<10	<10	<0.015	<0.015	<0.05	<0.05	<0.05	<0.05	0.37	0.408	<0.01	<0.01	<10	<10	0.171	0.235	<0.05	<0.05	<10	<10	<50	<10	<10	<10	<0.05	<0.05
010	BLB -001	990629	1015						<10		<0.003		<0.015		<0.02		1.17		0.03		<2		<0.02										<0.03

Appendix P-4. Metals Data from sites assessed in the Tennessee River basin as part of ADEM's FY-2003 §303(d) Monitoring Program, 1999-2003.

Sub-watershed	Station	Date (yymmdd)	Time (24hr)	Ag, Diss (mg/l)	Ag, Total (mg/l)	AL, Diss (mg/l)	AL, Total (mg/l)	As, Diss (ug/l)	As, Total (ug/l)	Cd, Diss (mg/l)	Cd, Total (mg/l)	Cr, Diss (mg/l)	Cr, Total (mg/l)	Cu, Diss (mg/l)	Cu, Total (mg/l)	Fe, Diss (mg/l)	Fe, Total (mg/l)	Hg, Diss (ug/l)	Hg, Total (ug/l)	Pb, Diss (ug/l)	Pb, Total (ug/l)	Mn, Diss (mg/l)	Mn, Total (mg/l)	Ni, Diss (mg/l)	Ni, Total (mg/l)	Sb, Diss (ug/l)	Sb, Total (ug/l)	Se, Diss (ug/l)	Se, Total (ug/l)	Tl, Diss (ug/l)	Tl, Total (ug/l)	Zn, Diss (mg/l)	Zn, Total (mg/l)
06030006 - Bear Creek																																	
010	BLB -001	990727	1043						<10		<0.003		<0.015		<0.02		0.717		0.03		<2		0.122										<0.03
010	BLB -001	990825	1200						<10		<0.003		<0.015		<0.02		0.496		<0.3		<2		0.067										<0.03
010	BLB -001	990921	1058						<10		<0.003		0.037		<0.02		0.407		<0.3		29		0.077										<0.03
010	GSB -001	990525	1245						<10		<0.003		<0.015		<0.02		0.86		<0.3		<2		0.092										<0.03
010	GSB -001	990623	1215						<10		<0.003		<0.015		<0.02		0.852		<0.3		<2		0.649										<0.03
010	GSB -001	990720	1230						<10		<0.003		<0.015		<0.02		0.252		<0.3		<2		0.177										<0.03
010	LDB -001	990525	1115						<10		<0.003		<0.015		<0.02		0.875		<0.3		7		2.62										<0.03
010	LDB -001	990623	1345						<10		<0.003		<0.015		<0.02		0.468		<0.3		10		1.55										<0.03
010	LDB -001	990720	1318						<10		<0.003		<0.015		<0.02		0.454		<0.3		7		1.38										<0.03
010	LDB -001	990825	1540						<10		<0.003		<0.015		<0.02		0.02		<0.3		2.47		<0.02										<0.03
010	LDB -001	990922	1530						<10		<0.003		0.04		<0.02		0.353		<0.3		<2		0.386										<0.03
010	MLB -001	990629	1100						<10		<0.003		<0.015		<0.02		1.25		0.001		<2		<0.02										<0.03
010	MLB -001	990727	1111						<10		<0.003		<0.015		<0.02		0.505		<0.3		<2		0.155										<0.03
010	MLB -001	990825	1200						<10		<0.003		<0.015		<0.02		0.274		<0.3		2.5		0.065										<0.03
010	MLB -001	990921	1146						<10		<0.003		0.04		<0.02		0.301		<0.3		<2		0.203										<0.03
010	PYB -001	990629	0930						<10		<0.003		<0.015		<0.02		1.36		<0.3		<2		<0.02										<0.03
010	PYB -001	990727	1007						<10		<0.003		<0.015		<0.02		0.756		<0.3		<2		0.11										<0.03

Appendix Q. Periphyton Bioassessment Pilot Project

Lead agency: ADEM

Purpose: Three periphyton bioassessment methods (periphyton biomass as chlorophyll *a*, diatom community assessment, and a field-based rapid periphyton survey) were tested at 20 stream segments with known or suspected impairment caused by nutrient enrichment. The methods were also tested at 14 ecoregional reference sites for comparison. Assessments of habitat quality, water quality, and the macroinvertebrate and fish communities are provided in Appendies O and P. Water quality data were also collected. These data are provided in Appendices O and P. Preliminary results suggest that periphyton chlorophyll *a* and percent cover of suitable substrate (CSS) effectively detect nutrient enrichment problems.

Appendix Q. Periphyton bioassessment results.

References:

ADEM. 2004. Evaluation of three algal bioassessment techniques as indicators of nutrient enrichment and changes in stream loading. Field Operations Division, Alabama Department of Environmental Management. Montgomery, AL.

Appendix R. University Reservoir Tributary Nutrient Loading Study

Lead Agencies: Cooperative effort by the University of Alabama, Auburn University, Tennessee Valley Authority and Auburn University at Montgomery funded by ADEM.

Purpose: Intensive chemical sampling was conducted October 1998-March 2000 to study nutrient loading from tributaries to 26 reservoirs in Alabama. These data were used to quantify tributary nutrient loads to reservoirs and to provide estimates of nonpoint source nutrient contributions. These loading estimates will be essential to the Department's effort to address lake eutrophication concerns across the state. Samples were collected monthly, June-November and biweekly, December-May. All samples and in-situ measures were collected in accordance with ADEM Standard Operating Procedures manual. Duplicate samples were collected at 10% of the stations.

Appendix R-1. Physical/chemical data

References:

ADEM. 2000d. Water quality monitoring data from tributaries of the Alabama River basin reservoirs collected by University of Alabama (unpublished). Field Operations Division, Alabama Department of Environmental Management. Montgomery, Alabama.

Appendix R-1. Physical/chemical data collected as part of the Statewide Tributary Nutrient Loading Project, 1999.

sub-watershed	Stream Name	Station ID	Date	Time	Water Temp., °C	Flow, cfs	D.O., mg/l	pH, s.u.	Cond, mS/cm	Turb, NTU	TSS, mg/l	TDS, mg/l	TKN, mg/l	NH3-N, mg/L	NO2+ NO3-N, mg/l	Total P, mg/l
06030001	Guntersville Lake															
310	Tennessee River	TNRTVA02	990105	1045	6.9	28800	12.4	7.9	191	3	1	100	0.11	0.040	0.51	0.030
310	Tennessee River	TNRTVA02	990126	1600	10.5	114000	10.6	7.1	156	12	8	80	0.14	0.040	0.82	0.040
310	Tennessee River	TNRTVA02	990209	1130	11.7	50380	9.9	7.4	152	8	2	100	0.12	0.060	0.62	0.030
310	Tennessee River	TNRTVA02	990222	1200	10.6	50710	10.7	7.7	160	5	2	80	0.17	0.030	0.76	0.030
310	Tennessee River	TNRTVA02	990309	1100	9.8	75540	10.8	7.9	165	5	4	100	0.16	0.020	0.57	0.050
310	Tennessee River	TNRTVA02	990324	1100	12.3	50000	10.9	7.8	147	4	3	90	0.20	0.010	0.54	0.030
310	Tennessee River	TNRTVA02	990407	1300	15.9	11170	10.5	8.0	146.2	2	3	70	0.32	0.010	0.50	0.020
310	Tennessee River	TNRTVA02	990419	1100	17.1	24600	9.2	7.9	148	3	4	100	0.11	0.050	0.45	0.030
310	Tennessee River	TNRTVA02	990506	1230	20.5	50000	8.8	7.8	158	5	5	100	0.16	0.030	0.21	0.020
310	Tennessee River	TNRTVA02	990520	1310	23.2	25205	8.2	7.6	155	4	6	90	0.38	0.040	0.23	0.030
310	Tennessee River	TNRTVA02	990603	1340	24.7	27800	7.3	7.5	158	6	7	90	0.17	0.040	0.11	0.040
310	Tennessee River	TNRTVA02	990630	1310	26.3	50000	7.3	NM	151	6	6	80	0.32	0.050	0.17	0.030
310	Tennessee River	TNRTVA02	990708	1230	28.9	49582	7.5	8.0	169	3	3	90	0.29	0.020	0.09	0.040
310	Tennessee River	TNRTVA02	990804	1300	30.6	48500	6.5	7.5	157	<1	2	80	0.31	0.020	0.04	0.030
310	Tennessee River	TNRTVA02	990909	1230	28.2	50675	6.6	7.5	168	<1	5	90	0.27	0.060	0.08	0.040
06030002	Wheeler Lake															
070	Paint Rock River	PRRTVA01	990105	1230	6.3	606	12.2	7.6	240	8	6	150	0.48	<0.01	0.59	0.020
070	Paint Rock River	PRRTVA01	990128	1330	12.3	822	9.7	7.5	203	9	12	110	0.06	<0.01	0.63	0.020
070	Paint Rock River	PRRTVA01	990209	1000	12.9	614	9.5	7.6	217	6	6	120	0.08	0.020	0.56	0.010
070	Paint Rock River	PRRTVA01	990222	1030	9.0	671	11.1	7.7	227	4	4	110	0.09	<0.01	0.42	0.010
070	Paint Rock River	PRRTVA01	990309	0945	9.6	922	10.5	7.8	215	7	10	140	0.16	0.020	0.41	0.040
070	Paint Rock River	PRRTVA01	990324	1000	12.4	889	10.0	7.7	215	6	8	120	0.10	<0.01	0.32	0.020
070	Paint Rock River	PRRTVA01	990407	1430	17.6	636	8.8	7.7	237	6	7	130	0.21	<0.01	0.26	0.020
070	Paint Rock River	PRRTVA01	990419	0930	12.6	474	9.9	7.8	240	3	6	140	0.06	0.010	0.30	0.010
070	Paint Rock River	PRRTVA01	990506	1445	17.6	3915	7.9	7.4	142	120	96	140	0.89	0.080	0.36	0.190
070	Paint Rock River	PRRTVA01	990520	1110	19.6	325	7.9	7.6	253	5	4	170	0.14	0.030	0.57	0.020
070	Paint Rock River	PRRTVA01	990603	1610	21.9	180	5.9	7.4	279	9	12	150	0.24	0.080	0.61	0.070
070	Paint Rock River	PRRTVA01	990630	1135	18.8	1053	7.8	NM	253	30	36	170	0.42	<0.01	0.46	0.040
070	Paint Rock River	PRRTVA01	990708	1000	23.1	389	6.6	7.3	250	26	31	150	0.28	0.010	0.54	0.050
070	Paint Rock River	PRRTVA01	990804	0230	25.8	114	6.0	7.6	293	<1	10	150	0.25	0.010	0.54	0.030
070	Paint Rock River	PRRTVA01	990909	1310	22.2	33	6.4	7.4	335	<1	3	170	0.17	<0.01	0.89	0.010

Appendix R-1. Physical/chemical data collected as part of the Statewide Tributary Nutrient Loading Project, 1999.

sub-watershed	Stream Name	Station ID	Date	Time	Water Temp., °C	Flow, cfs	D.O., mg/l	pH, s.u.	Cond, mS/cm	Turb, NTU	TSS, mg/l	TDS, mg/l	TKN, mg/l	NH3-N, mg/L	NO2+ NO3-N, mg/l	Total P, mg/l
06030002	Wheeler Lake															
300	Limestone Creek	LMCTVA01	990107	1030	5.5	202	12.2	7.5	82	3	<1	60	0.32	<0.01	1.40	0.030
300	Limestone Creek	LMCTVA01	990128	1200	12.2	375	10.1	7.8	80.2	6	6	50	0.10	0.020	1.30	0.040
300	Limestone Creek	LMCTVA01	990208	1410	13.8	351	9.7	7.5	71	5	4	60	0.14	0.010	1.40	0.050
300	Limestone Creek	LMCTVA01	990223	0720	7.7	253	10.8	7.6	81	4	2	60	0.15	<0.01	1.10	0.040
300	Limestone Creek	LMCTVA01	990308	1450	9.7	368	11.2	7.4	71.5	5	4	50	0.18	0.010	1.00	0.060
300	Limestone Creek	LMCTVA01	990322	1440	13.8	365	11.0	7.7	70.7	6	3	60	0.22	<0.01	0.97	0.040
300	Limestone Creek	LMCTVA01	990405	1655	20.5	188	10.6	8.5	81.1	2	3	60	0.20	<0.01	0.74	0.050
300	Limestone Creek	LMCTVA01	990419	1545	15.9	375	10.9	7.9	89.3	1	<1	70	0.36	<0.01	1.10	0.030
300	Limestone Creek	LMCTVA01	990503	1500	18.8	169	8.8	7.2	87.1	6	7	60	0.15	0.050	1.10	0.060
300	Limestone Creek	LMCTVA01	990517	1455	22.2	146	9.4	7.3	94.2	4	4	60	0.22	0.020	1.20	0.060
300	Limestone Creek	LMCTVA01	990614	1530	23.5	100	7.5	7.3	110.9	10	7	60	0.17	0.020	0.84	0.070
300	Limestone Creek	LMCTVA01	990629	1345	24.5	159	7.4	6.9	90.3	38	15	80	0.26	0.010	0.85	0.120
300	Limestone Creek	LMCTVA01	990707	1526	27.6	51.9	8.7	7.7	117.5	4	3	100	0.13	0.020	0.94	0.070
300	Limestone Creek	LMCTVA01	990803	1430	27.8	36.7	8.0	7.5	115.2	3	5	80	0.25	<0.01	0.82	0.050
300	Limestone Creek	LMCTVA01	990901	1420	25.3	27	7.9	7.5	114.8	3	3	70	0.20	<0.01	0.66	0.060
420	Tennessee River	TNRTVA03	990108	1300	5.7	29760	11.6	7.8	186	7	4	120	0.30	0.040	0.57	0.060
420	Tennessee River	TNRTVA03	990127	1600	11.5	147867	10.5	7.3	147	28	12	100	0.22	0.060	0.61	0.080
420	Tennessee River	TNRTVA03	990208	1115	11.7	105400	9.7	7.6	157	8	3	110	0.28	0.060	0.74	0.060
420	Tennessee River	TNRTVA03	990223	0915	10.8	104720	9.9	7.9	165	7	2	100	0.18	0.020	0.72	0.060
420	Tennessee River	TNRTVA03	990308	1255	10.4	87000	10.5	8.0	175	7	4	100	0.26	0.050	0.71	0.070
420	Tennessee River	TNRTVA03	990322	1215	11.9	74324	10.1	7.9	157	6	2	100	0.19	0.020	0.58	0.050
420	Tennessee River	TNRTVA03	990405	1450	15.3	20034	11.3	8.5	161	3	2	100	0.26	<0.01	0.48	0.040
420	Tennessee River	TNRTVA03	990419	1420	18.0	19277	7.9	7.8	173	4	3	120	0.30	0.090	0.46	0.060
420	Tennessee River	TNRTVA03	990504	0620	19.7	0	7.1	7.6	175	3	3	90	0.18	0.080	0.37	0.050
420	Tennessee River	TNRTVA03	990518	0620	22.7	0	7.6	7.5	166	5	3	110	0.39	0.070	0.40	0.060
420	Tennessee River	TNRTVA03	990615	0635	26.9	0	4.6	7.5	168	4	2	90	0.39	0.160	0.12	0.070
420	Tennessee River	TNRTVA03	990629	1130	27.5	86487	6.6	7.3	159	5	5	80	0.36	0.040	0.13	0.080
420	Tennessee River	TNRTVA03	990706	1050	29.0	50238	6.8	7.5	163	5	4	90	0.35	0.050	0.12	0.060
420	Tennessee River	TNRTVA03	990802	1039	31.4	19467	5.5	7.4	166	2	2	110	0.34	0.050	0.07	0.040
420	Tennessee River	TNRTVA03	990902	1030	28.9	80000	7.3	7.6	156	3	3	90	0.40	<0.01	0.02	0.050

Appendix R-1. Physical/chemical data collected as part of the Statewide Tributary Nutrient Loading Project, 1999.

sub-watershed	Stream Name	Station ID	Date	Time	Water Temp., °C	Flow, cfs	D.O., mg/l	pH, s.u.	Cond, mS/cm	Turb, NTU	TSS, mg/l	TDS, mg/l	TKN, mg/l	NH3-N, mg/L	NO2+ NO3-N, mg/l	Total P, mg/l
06030005	Pickwick Lake															
010	Big Nance Creek	BNCTVA01	990107	0830	4.6	217	11.7	7.7	193	11	6	140	0.30	0.030	1.40	0.070
010	Big Nance Creek	BNCTVA01	990127	0745	12.2	597	9.1	7.1	164	27	28	110	0.29	0.040	1.10	0.090
010	Big Nance Creek	BNCTVA01	990208	0900	13.2	299	8.1	7.4	201	13	24	150	0.31	0.040	0.10	0.050
010	Big Nance Creek	BNCTVA01	990223	0830	9.3	160	9.5	7.6	234	6	3	120	0.30	<0.01	1.20	0.040
010	Big Nance Creek	BNCTVA01	990308	1335	9.8	382	10.0	7.5	174	15	10	120	0.51	0.030	0.85	0.120
010	Big Nance Creek	BNCTVA01	990322	1255	12.7	412	9.0	7.6	173	17	11	130	0.54	0.080	0.87	0.080
010	Big Nance Creek	BNCTVA01	990405	1555	18.7	366	7.4	7.5	193	14	12	130	0.79	0.100	0.71	0.070
010	Big Nance Creek	BNCTVA01	990419	1455	15.1	88	9.0	7.5	247	4	<1	160	0.17	0.020	1.80	0.040
010	Big Nance Creek	BNCTVA01	990503	1335	18.0	68	7.7	7.4	263	4	6	150	0.46	0.030	1.50	0.090
010	Big Nance Creek	BNCTVA01	990517	1330	20.1	62	7.1	7.2	274	5	4	170	0.35	0.040	1.90	0.040
010	Big Nance Creek	BNCTVA01	990614	1356	21.5	22.6	5.6	7.2	292	11	8	160	0.31	0.040	2.10	0.050
010	Big Nance Creek	BNCTVA01	990629	1220	24.5	2092	4.9	6.6	80.8	36	55	330	0.88	0.090	0.16	0.003
010	Big Nance Creek	BNCTVA01	990708	0630	22.9	30.5	5.5	7.3	308	7	3	180	0.28	0.040	1.80	0.060
010	Big Nance Creek	BNCTVA01	990803	1305	24.7	12.5	5.9	7.7	331	2	<1	200	0.29	0.020	2.10	0.040
010	Big Nance Creek	BNCTVA01	990901	1300	21.5	9	6.6	7.4	361	<1	<1	210	0.22	<0.01	2.40	0.010
090	Shoal Creek	SHCTVA01	990107	1340	6.0	1240	12.2	7.4	87	2	1	60	0.21	<0.01	0.88	0.020
090	Shoal Creek	SHCTVA01	990128	0920	10.9	1600	10.4	7.7	90.3	5	4	50	0.06	<0.01	0.92	0.030
090	Shoal Creek	SHCTVA01	990209	1330	12.7	1000	10.6	7.4	98	3	5	60	0.09	<0.01	0.94	0.030
090	Shoal Creek	SHCTVA01	990222	1420	7.0	720	12.8	8.2	89.4	2	2	60	0.09	<0.01	0.57	0.020
090	Shoal Creek	SHCTVA01	990309	0725	8.6	2180	10.6	7.6	75.6	11	14	70	0.17	<0.01	0.52	0.070
090	Shoal Creek	SHCTVA01	990323	0700	11.3	1360	9.7	7.6	87.5	3	3	60	0.10	<0.01	0.64	0.020
090	Shoal Creek	SHCTVA01	990406	0715	17.5	1370	7.9	7.6	92.5	3	6	40	0.16	<0.01	0.42	0.040
090	Shoal Creek	SHCTVA01	990420	0700	15.3	800	8.7	7.7	95.4	1	3	80	0.10	<0.01	0.50	0.020
090	Shoal Creek	SHCTVA01	990504	1000	17.8	740	8.7	7.4	107.1	2	3	60	0.05	<0.01	0.56	0.020
090	Shoal Creek	SHCTVA01	990518	0930	20.5	730	8.1	7.3	107.8	3	3	70	0.13	0.010	0.62	0.020
090	Shoal Creek	SHCTVA01	990615	0950	23.6	520	7.7	7.5	104.8	4	4	60	0.10	0.010	0.40	0.030
090	Shoal Creek	SHCTVA01	990629	1019	22.3	1680	7.5	7.0	73.5	18	16	50	0.15	0.050	0.49	0.060
090	Shoal Creek	SHCTVA01	990706	1210	27.6	375	7.9	7.7	111.1	3	4	60	0.11	<0.01	0.35	0.020
090	Shoal Creek	SHCTVA01	990802	1158	30.1	185	7.4	7.9	123.9	2	5	80	0.17	<0.01	0.23	0.030
090	Shoal Creek	SHCTVA01	990902	0906	25.0	120	7.4	7.6	121.3	3	5	80	0.10	<0.01	0.16	0.030

Appendix R-1. Physical/chemical data collected as part of the Statewide Tributary Nutrient Loading Project, 1999.

sub-watershed	Stream Name	Station ID	Date	Time	Water Temp., °C	Flow, cfs	D.O., mg/l	pH, s.u.	Cond, mS/cm	Turb, NTU	TSS, mg/l	TDS, mg/l	TKN, mg/l	NH3-N, mg/L	NO2+ NO3-N, mg/l	Total P, mg/l
06030005	Pickwick Lake															
160	Tennessee River	TNRTVA04	990108	0930	6.7	55500	11.6	7.8	185	6	2	110	0.31	0.050	0.58	0.070
160	Tennessee River	TNRTVA04	990127	1500	11.9	105268	10.3	7.5	147	50	18	110	0.27	0.040	0.59	0.160
160	Tennessee River	TNRTVA04	990208	1015	11.3	96982	9.6	7.6	145	11	3	110	0.3	0.060	0.72	0.060
160	Tennessee River	TNRTVA04	990222	1230	11.0	30960	10.3	7.9	164	8	5	90	0.22	0.030	0.69	0.060
160	Tennessee River	TNRTVA04	990308	1140	10.7	89063	10.2	7.6	173	8	3	100	0.28	0.060	0.78	0.100
160	Tennessee River	TNRTVA04	990322	1112	10.8	89260	10.4	7.9	158	8	2	100	0.31	0.030	0.6	0.090
160	Tennessee River	TNRTVA04	990405	1300	14.6	19000	12.7	8.7	153	2	3	100	0.23	<0.01	0.48	0.040
160	Tennessee River	TNRTVA04	990419	1310	16.7	12438	9.8	7.9	160	2	2	100	0.12	0.060	0.56	0.040
160	Tennessee River	TNRTVA04	990504	0715	19.1	36185	9.1	7.7	167	2	2	90	0.20	0.040	0.4	0.030
160	Tennessee River	TNRTVA04	990518	0810	22.1	0	8.71	7.3	163	5	2	100	0.44	0.100	0.38	0.060
160	Tennessee River	TNRTVA04	990615	0830	27.0	0	5.91	7.5	164	2	1	60	0.40	0.110	0.09	0.060
160	Tennessee River	TNRTVA04	990629	0915	26.7	79170	6.25	7.4	159	2	4	120	0.22	0.010	0.14	0.040
160	Tennessee River	TNRTVA04	990706	0936	28.6	19343	6.31	7.4	156	2	1	90	0.26	0.060	0.09	0.050
160	Tennessee River	TNRTVA04	990802	0930	31.6	19690	5.75	7.4	167	1	<1	110	0.20	0.020	0.11	0.040
160	Tennessee River	TNRTVA04	990902	1125	28.8	57415	6.45	7.3	151	2	2	80	0.30	<0.01	0.06	0.050
200	Cypress Creek	CYCTVA01	990107	1225	6.8	390	12.1	7.4	66	2	<1	60	0.02	<0.01	0.71	0.010
200	Cypress Creek	CYCTVA01	990128	0800	11.6	741	10.1	7.4	59.4	7	6	30	0.06	<0.01	0.59	0.020
200	Cypress Creek	CYCTVA01	990209	1245	13.5	460	10.5	7.4	69	4	4	50	0.06	<0.01	0.62	0.010
200	Cypress Creek	CYCTVA01	990022	1320	9.0	270	12.9	8.2	70.3	2	1	50	0.06	<0.01	0.46	0.02
200	Cypress Creek	CYCTVA01	990309	0825	8.6	2340	10.7	7.4	14.5	62	91	60	0.78	0.090	0.51	0.240
200	Cypress Creek	CYCTVA01	990323	0800	11.7	350	10.2	7.5	65.8	3	2	50	0.10	<0.01	0.49	0.020
200	Cypress Creek	CYCTVA01	990406	0800	17.9	450	8.0	7.4	73.8	4	5	<10	0.11	0.020	0.39	0.040
200	Cypress Creek	CYCTVA01	990420	0815	14.9	205	8.6	7.5	83.6	2	2	70	0.14	0.110	0.56	0.010
200	Cypress Creek	CYCTVA01	990504	0830	17.2	132	9.0	7.3	86.1	3	4	50	0.07	<0.01	0.62	0.020
200	Cypress Creek	CYCTVA01	990518	1035	19.5	280	9.4	7.5	86.3	4	4	60	0.16	0.010	0.59	0.020
200	Cypress Creek	CYCTVA01	990615	1055	22.4	125	9.7	8.0	102.4	4	2	60	0.12	0.020	0.43	0.020
200	Cypress Creek	CYCTVA01	990629	0915	23.1	490	8.2	7.2	68	36	4	60	0.42	0.050	0.46	0.180
200	Cypress Creek	CYCTVA01	990706	1315	27.1	100	11.1	8.8	112	4	4	70	0.10	0.040	0.43	0.020
200	Cypress Creek	CYCTVA01	990802	1252	28.3	79.6	9.0	8.3	127.7	2	4	80	0.17	<0.01	0.39	0.020
200	Cypress Creek	CYCTVA01	990902	0805	23.3	63	6.6	7.5	136	3	4	90	0.11	<0.01	0.38	0.020

Appendix R-1. Physical/chemical data collected as part of the Statewide Tributary Nutrient Loading Project, 1999.

sub-watershed	Stream Name	Station ID	Date	Time	Water Temp., °C	Flow, cfs	D.O., mg/l	pH, s.u.	Cond, mS/cm	Turb, NTU	TSS, mg/l	TDS, mg/l	TKN, mg/l	NH3-N, mg/L	NO2+ NO3-N, mg/l	Total P, mg/l
06030006	Bear Creek															
010	Bear Creek	BRCTVA02	990108	0740	7.2	236	11.6	7.6	59	4	3	50	0.30	0.040	0.54	0.030
010	Bear Creek	BRCTVA02	990127	0930	11.9	470	10.8	7.7	39.2	69	52	60	0.44	0.110	0.54	0.100
010	Bear Creek	BRCTVA02	990209	0900	11.0	550	10.7	7.0	53.1	9	4	40	0.38	0.220	0.96	0.060
010	Bear Creek	BRCTVA02	990222	0855	10.4	190	11.0	7.6	44.6	6	7	30	0.42	0.030	0.83	0.040
010	Bear Creek	BRCTVA02	990310	0840	10.8	528	11.0	7.6	50	4	7	40	0.30	0.060	0.75	0.060
010	Bear Creek	BRCTVA02	990323	0930	10.2	198	12.0	7.4	56	9	4	40	0.26	0.040	0.60	0.020
010	Bear Creek	BRCTVA02	990405	1130	10.9	366	10.8	7.4	49.2	5	2	40	0.28	0.060	0.82	0.010
010	Bear Creek	BRCTVA02	990419	1115	12.2	145	10.5	7.7	51.9	4	2	60	0.14	0.100	0.70	0.020
010	Bear Creek	BRCTVA02	990503	1157	13.5	214	10.4	7.1	54.4	4	2	40	0.26	0.190	0.69	0.020
010	Bear Creek	BRCTVA02	990517	1150	15.4	173	9.8	7.0	61.4	3	4	50	0.50	0.230	0.49	0.020
010	Bear Creek	BRCTVA02	990614	1235	17.7	17.2	8.7	7.0	74.4	15	8	50	0.73	0.430	0.08	0.030
010	Bear Creek	BRCTVA02	990629	1100	24.5	975	9.0	7.0	61	4	4	40	0.36	0.120	0.02	0.180
010	Bear Creek	BRCTVA02	990708	0810	25.6	37	7.6	7.0	64.3	3	2	40	0.80	0.150	0.02	0.030
010	Bear Creek	BRCTVA02	990803	1130	28.0	15.2	7.1	7.1	66	2	2	50	0.52	0.220	0.07	0.020
010	Bear Creek	BRCTVA02	990901	1140	29.0	54	5.9	6.7	67.1	2	4	50	0.55	0.200	0.05	0.020
030	Little Bear Creek	LBCTVA01	990106	1145	3.3	72	12.7	7.6	51	2	<1	30	0.09	0.070	0.90	0.010
030	Little Bear Creek	LBCTVA01	990127	1115	10.8	128	10.6	7.3	44.4	8	3	40	0.07	0.010	0.82	0.010
030	Little Bear Creek	LBCTVA01	990209	1000	12.2	76	9.9	7.2	69	2	4	50	0.08	0.020	0.80	0.050
030	Little Bear Creek	LBCTVA01	990022	1000	5.4	47	12.3	7.8	46.9	2	<1	50	0.09	<0.01	0.61	0.010
030	Little Bear Creek	LBCTVA01	990308	0940	8.1	110	11.2	7.4	43.1	3	3	40	0.13	0.020	0.63	0.060
030	Little Bear Creek	LBCTVA01	990322	0930	9.6	82	10.8	7.5	43.2	3	<1	40	0.14	<0.01	0.62	0.020
030	Little Bear Creek	LBCTVA01	990405	1000	15.3	103	9.5	7.3	42.7	4	2	40	0.13	<0.01	0.37	0.010
030	Little Bear Creek	LBCTVA01	990419	1000	11.9	46	10.7	7.7	58	2	2	50	0.14	<0.01	0.48	0.010
030	Little Bear Creek	LBCTVA01	990503	1008	15.7	42	9.2	7.1	55.3	3	2	30	0.08	0.030	0.42	0.020
030	Little Bear Creek	LBCTVA01	990517	1000	18.8	32	8.3	6.9	53.2	2	1	50	0.20	0.030	0.40	0.020
030	Little Bear Creek	LBCTVA01	990614	1005	21.8	3.5	6.8	7.0	62	4	1	40	0.11	0.030	0.42	0.020
030	Little Bear Creek	LBCTVA01	990629	1240	23.5	64	8.6	7.2	56	10	9	40	0.27	0.030	0.32	0.090
030	Little Bear Creek	LBCTVA01	990707	0942	24.2	17	6.8	7.0	62.7	3	2	50	0.16	0.020	0.32	0.040
030	Little Bear Creek	LBCTVA01	990803	0938	24.2	4.9	5.9	7.2	68.8	2	<1	20	0.20	0.010	0.23	0.030
030	Little Bear Creek	LBCTVA01	990901	1010	20.9	1	5.4	7.0	92.4	<1	<1	60	0.12	<0.01	0.06	0.020

Appendix R-1. Physical/chemical data collected as part of the Statewide Tributary Nutrient Loading Project, 1999.

sub-watershed	Stream Name	Station ID	Date	Time	Water Temp., °C	Flow, cfs	D.O., mg/l	pH, s.u.	Cond, mS/cm	Turb, NTU	TSS, mg/l	TDS, mg/l	TKN, mg/l	NH3-N, mg/L	NO2+ NO3-N, mg/l	Total P, mg/l
06030006	Bear Creek															
040	Cedar Creek	CECTVA01	990106	1045	5.3	210	13.0	7.7	297	5	1	160	0.20	0.140	0.93	0.050
040	Cedar Creek	CECTVA01	990127	1030	12.3	360	9.9	7.6	258	12	12	150	0.10	0.040	0.77	0.040
040	Cedar Creek	CECTVA01	990209	0930	14.1	145	9.8	7.8	305	5	4	160	0.10	<0.01	0.80	0.030
040	Cedar Creek	CECTVA01	990222	1055	7.6	90	14.3	8.5	297	2	2	150	0.16	<0.01	0.42	0.020
040	Cedar Creek	CECTVA01	990308	1030	9.9	280	10.6	8.0	266	9	12	150	0.30	0.050	0.64	0.090
040	Cedar Creek	CECTVA01	990322	1000	11.6	220	10.3	8.1	262	8	6	160	0.21	<0.01	0.63	0.040
040	Cedar Creek	CECTVA01	990405	1045	16.7	240	8.7	8.0	264	11	11	160	0.32	0.020	0.41	0.040
040	Cedar Creek	CECTVA01	990419	1035	13.1	92	10.0	8.0	296	3	4	180	0.06	0.040	0.66	0.050
040	Cedar Creek	CECTVA01	990503	1056	17.4	70	8.6	7.7	325	7	10	170	0.14	0.030	0.70	0.060
040	Cedar Creek	CECTVA01	990517	1036	20.2	62	9.1	7.7	324	3	5	170	0.27	0.010	0.63	0.040
040	Cedar Creek	CECTVA01	990614	1048	23.7	22	7.0	7.7	357	12	12	190	0.22	0.040	0.71	0.070
040	Cedar Creek	CECTVA01	990629	1200	23.5	172	8.3	7.6	233	31	48	140	0.60	0.110	0.51	0.130
040	Cedar Creek	CECTVA01	990707	1014	25.9	38	7.1	7.8	343	4	4	170	0.15	0.010	0.73	0.060
040	Cedar Creek	CECTVA01	990803	1040	26.8	9	6.4	7.7	367	2	3	220	0.38	<0.01	0.23	0.060
040	Cedar Creek	CECTVA01	990901	1050	23.8	5.7	7.1	7.7	411	2	3	240	0.30	<0.01	0.01	0.030
070	Bear Creek	BRCTVA01	990106	1330	5.3	2263	12.6	7.3	116	18	20	60	0.24	0.060	0.42	0.040
070	Bear Creek	BRCTVA01	990127	1245	11.9	2850	10.8	7.5	117	40	58	100	0.31	0.060	0.44	0.060
070	Bear Creek	BRCTVA01	990209	1115	12.6	1580	9.9	7.1	57	20	29	60	0.22	0.040	0.66	0.040
070	Bear Creek	BRCTVA01	990022	1035	7.7	702	12.2	7.0	77	8	7	60	0.22	0.030	0.55	0.020
070	Bear Creek	BRCTVA01	990308	0825	9.5	1598	10.7	7.5	55.2	17	23	50	0.24	0.020	0.54	0.080
070	Bear Creek	BRCTVA01	990322	0825	10.7	2153	10.2	7.7	86.9	13	16	60	0.25	<0.01	0.46	0.030
070	Bear Creek	BRCTVA01	990405	0840	17.3	1108	8.4	7.4	64.8	14	13	60	0.30	<0.01	0.29	0.030
070	Bear Creek	BRCTVA01	990419	0840	14.1	780	9.1	7.5	82.1	5	8	60	0.54	0.010	0.44	0.020
070	Bear Creek	BRCTVA01	990503	0825	18.0	943	8.2	7.4	116.5	8	14	70	0.12	0.010	0.40	0.020
070	Bear Creek	BRCTVA01	990517	0820	21.2	550	7.5	7.2	91.3	7	9	70	0.26	0.050	0.39	0.020
070	Bear Creek	BRCTVA01	990614	0835	24.7	270	6.9	7.3	103.6	10	13	60	0.25	0.030	0.25	0.020
070	Bear Creek	BRCTVA01	990629	1410	26.7	576	8.2	7.4	99	15	19	60	0.41	0.040	0.33	0.330
070	Bear Creek	BRCTVA01	990707	0812	27.8	588	6.4	7.3	94.5	5	14	50	0.20	0.030	0.17	0.030
070	Bear Creek	BRCTVA01	990803	0810	29.3	109	5.8	7.4	112.8	5	7	70	0.56	0.030	0.14	0.020
070	Bear Creek	BRCTVA01	990901	0845	25.2	98	6.3	7.3	127.1	6	8	90	0.23	<0.01	0.19	0.020

Appendix S. ALAMAP (Alabama Monitoring and Assessment Program)

Lead agencies**:** ADEM and USEPA

Purpose**:** ADEM's ALAMAP Program is made up of two separate components that monitor Alabama's coastal and upland waters. The Upland ALAMAP (ALAMAP-U) Program is a statewide monitoring effort to provide data that can be used to estimate the current status of all wadeable 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.

Appendix S-1. ALAMAP-U habitat assessment data

Appendix S-2. ALAMAP U physical/chemical data

References:

ADEM. 2002n. Alabama Monitoring and Assessment Program (ALAMAP-U) data collected by ADEM 1997 to 2002 (unpublished). Field Operations Division, Alabama Department of Environmental Management. Montgomery, Alabama.

Appendix S-1. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's ALAMAP Program, 1999-2003.

CU		0001	0001	0001	0002	0002	0002	0002	0002	0002
Sub-watershed		180	300	320	060	100	300	340	350	390
Station		ALST03-45	TE8A6-57	TE7U7-57	ALST03-17	TE2U5-48	TE5U6-51	TE6U6-52	ALST03-21	TE04U3-56
Date (YYMMDD)		030821	020812	010809	030821	010807	020820	020827	030805	990811
Subecoregion		68c	68d	71g	68a	71g	71g	71g	71j	71g
Width (ft)		5	15	3	10	15	5	5	1	1
Canopy cover[b]		O	S	MS	S	S	S	MS	MS	
Depth (ft)	Riffle									
	Run		2.0		1.0					
	Pool	1.0	3.0		1.0				1.0	
Substrate (%)	Bedrock		5			50			50	
	Boulder		25	25	45	10	55		25	
	Cobble	10	5	25		10	30			
	Gravel			25		10	10	50	25	
	Sand		35	10		20	2	25		
	Silt	40	15	10				15		25
	Detritus		4	5	25		1			25
	Clay		10		15		1			
	Organic silt	50	1		15		1	10		50
Habitat assessment form[c, d]		GP[NGP]	RR	GP[NGP]	GP[NGP]	GP[NGP]	RR	GP[NGP]	GP[NGP]	GP[NGP]
	Instream habitat quality	36	33	73	78	53	78	41	92	57
	Sediment deposition	56	34	68	74	65	76	59	73	70
	Sinuosity	50	10	20	50	25	90	75	25	25
	Bank and vegetative stability	66	35	63	61	48	69	29	64	38
	Riparian measurements	43	73	70	50	65	64	15	30	35
Habitat assessment score		117	109	153	155	127	175	92	148	111
% Maximum		53	45	70	70	58	73	42	67	50
Assessment[e]		Fair	Fair	Excellent	Excellent	Good	Excellent	Fair	Excellent	Good

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria

e. NG=assessment guidelines; for 68b, used guidelines from adjacent subecoregion 68d; limited reference data available for 68f; 68f guidelines calculated from combination of reference data from 68f, and adjacent subecoregions 65i, 67f, and 68e

f. nonwadeable; no habitat assessment conducted

Appendix S-1. Physical characteristics and habitat quality of sites assessed in the Tennessee basin as part of ADEM's ALAMAP Program, 1999-2003.

CU		0002	0004	0004	0005	0005	0005	0005	0005	0005
Sub-watershed		390	060	120	090	160	200	220	220	270
Station		TE1U5-46	TE6U4-56	TE5U4-54	TE7U4-57	TE01U3-54	TE4U5-53	TE4U4-52	ALST03-05	TE1U6-33
Date (YYMMDD)		010809	000822	000822	000823	990818	010823	000823	030827	020827
Subecoregion		71g	71h	71h	71f	71g	71f	71g	71g	71f
Width (ft)		33	12	10	4	10	12	25	8	30
Canopy cover[b]		MS	50/50	MS	MO	MO	MS	MO	O	MS
Depth (ft)	Riffle		0.2							
	Run					2.0				
	Pool		1.0			6.0			2.0	
Substrate (%)	Bedrock	25		70			40			
	Boulder			10			15			
	Cobble	25	50		25	50	10			10
	Gravel	10	25		25	20	5			50
	Sand	25	10		25		10		75	25
	Silt	10	10		10		20	25		15
	Detritus	5	5	10	5					
	Clay				5	20		50		
	Organic silt			10	5	10		25	25	
Habitat assessment form[c, d]		RR	GP^{NGP}	GP^{NGP}	RR	GP^{NGP}	GP^{NGP}	GP^{NGP}	GP^{NGP}	GP^{NGP}
	Instream habitat quality	78	95	85	58	70	63	38	43	80
	Sediment deposition	73	95	88	63	60	35	75	14	90
	Sinuosity	80	80	80	70	25	75	45	13	70
	Bank and vegetative stability	65	60	55	53	33	53	48	56	56
	Riparian measurements	80	63	60	35	65	70	65	0	56
Habitat assessment score		181	184	172	136	118	135	124	73	168
% Maximum		75	84	78	57	54	61	56	33	76
Assessment[e]		Excellent	Excellent	Excellent	Good	Good	Good	Good	Fair	Excellent

a. No flow; Assessment not conducted

b. Canopy cover: S=shaded; MS=mostly shaded; 50/50=50% shaded; MO=mostly open; O=open

c. Habitat assessment form: RR=riffle/run (Barbour et al. 1999); GP=glide/pool (Barbour et al. 1999)

d. NGP=no glide/pool assessment guidelines; habitat assessment rating based on riffle/run scoring criteria and 68e.

f. nonwadeable; no habitat assessment conducted

Appendix S-2. Physical/Chemical data collected for ALAMAP Program.

Sub-water shed	Station	Date (yymmdd)	Time (24hr)	Water Temp (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Hard (mg/l)	$CBOD_5$ (mg/l)	BOD_5 (mg/l)	TSS (mg/l)	TDS (mg/l)	CL (mg/l)	Total-P (mg/l)	NO2+ NO3-N (mg/l)	NH3-N (mg/l)	TKN (mg/l)	DRP (mg/l)
06030001 - Guntersville Lake																					
180	ALST03-45	030821	1115	25	7.6	68.0	8.0	7.4		36		0.2		15	48	6.0	<0.020	0.164		0.542	0.006
300	TE8A6-57	020812	1345	22	6.6	84.0	5.8			58			0.6	4	81	5.0	0.058	0.575			<0.004
320	TE7U5-57	010809	0940	23	8.9	77.0	12.5	1.4	0.3	1270			0.8	16	52	4.9	0.020	0.750	0.050		
06030002 - Wheeler Lake																					
060	ALST03-17	030821	0945	23	7.2	62.0	4.4	18.1		330		0.5		8	45	5.8	<0.020	0.102		0.406	0.006
100	TE2U5-48	010807	1330	23	9.5	270.0	9.7	14.9	0.9	580			3.8	23	96	6.3	0.010	1.310			
300	TE5U6-51	020820	1200							290			0.8	<1	104	3.0	0.059	0.437			0.044
340	TE6U6-52	020827	1330	24	8.4	289.0	5.4	4.2		850			1.4	<1	176	2.1	0.040	0.053			
350	ALST03-25	030805	0825	23	6.5	147.9	5.3	44.0	48.1	1200		0.6		27	137	3.4	0.042	0.678		0.644	<0.005
350	ALST03-21	030805	0915	23	8.2	74.3	8.6	10.0		440		0.7		7	70	4.6	0.067	0.360		0.648	0.039
390	TE1U5-46	010809	1030	25	9.8	227.0	9.1	3.1	0.1	244			1.4	10	134	6.0	0.010	0.624	0.060		
390	TE04U3-56	990811	1100	28	6.7	126.4	7.8	162.0		860	62		2.2	260		<0.5	0.061	1.645	0.028	0.695	
06030004 - Lower Elk River																					
060	TE6U4-56	000823	1215	26	8.4	235.0	7.2	3.3	1.3	56			1.9		58	8.6	0.215	0.007	<0.015	0.264	
120	TE5U4-54	000822	1130	23	9.3	286.0	5.2	4.6	0.0	>620			3.0	6	149	2.0	0.299	0.226	<0.015	3.932	
06030005 - Pickwick Lake																					
090	TE7U4-57	000823	1505	30	8.4	115.0	7.5	2.8		240			2.2	<1	67	<0.5	0.026	<0.003			
160	TE01U3-54	990818	1100	24	7.0	101.6	4.1	2.2	1.5	122	74		1.8	<1		4.9	0.015	0.610	0.033	0.409	
200	TE4U5-53	010823	1215	21	7.4	81.7	5.8	2.4	0.0	29			0.6	6	90	3.9	<0.004	0.420			
220	ALST03-05	030827	1200	25	6.8	96.0	7.4	390.0		132		1.7		64	189	4.7	0.199	0.071		2.590	0.010
220	TE4U4-52	000823	1354	27	9.8	189.0	7.4	9.8	0.0	180			1.1	38	102	<0.5	0.077	0.023			
270	TE1U6-33	020827	0950							100			0.5	3	94	<0.5	0.032	0.388			

Appendix T. Paint Rock River Watershed Project

Lead Agency: ADEM

Purpose: Paint Rock River is one of the most biologically diverse river systems remaining in the southeastern United States. Previous studies in the watershed have found nonpoint source (NPS) pollutants contributing to water quality impairment and threatening biological diversity in the watershed (Ahlstedt 1991, Godwin 1995, O'Neil and Mettee 1997). Channelization and removal of instream and riparian habitat have also been identified as concerns (Ahlstedt 1991, Godwin 1995). Consequently, the Paint Rock River system is listed as a state priority watershed in ADEM's NPS Assessment Report (ADEM 1989).

To restore water quality and ecological health in the watershed, the Paint Rock River Watershed Project was initiated in 1995 as a multi-year coordinated effort among federal, state, and local agencies, state and local interest groups, and landowners. The objectives of the project were to reduce NPS water quality impacts to protect natural resources through public awareness and participation and to improve water quality in the watershed to protect human health and aquatic life using best management practices.

In 1997, a basin-wide monitoring program was developed by the Environmental Indicators Section of Field Operations Division to assess the ecological integrity of the watershed prior to the implementation of BMP's and to demonstrate the effectiveness of these measures on water quality. Baseline chemical, physical, and biological data were collected at 11 stations, July 1997-January 2000.

Appendix T-1. Habitat and biological assessment data
Appendix T-2. Physical/chemical data

References:

ADEM. 2000. Paint Rock River NPS Assessment (Draft) Report. Alabama Department of Environmental management, Montgomery, AL

Appendix T-1. Habitat quality and aquatic macroinvertebrate assessments for sites in the Paint Rock Nonpoint Source Monitoring Project.

	Station									
Parameter	CLER-1	CSPR-1	DRYJ-1	ESTL-1	GUES-1	HURR-1	LARK-1	LICK-1	LPNT-1	LPRK-1
Habitat assessment form	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR
Instream habitat quality	76	83	79	79	81	78	86	99	78	91
Sediment deposition	78	63	70	85	88	89	65	95	68	93
% Sand	4	15	15	5	3	8	5	1	27	4
% Silt	10	2	2	3	1	2	15	1	2	1
Sinuosity	93	78	90	93	88	95	95	98	85	98
Bank and vegetative stability	86	85	90	79	90	91	94	96	46	88
Riparian zone measurements	83	90	90	50	90	95	100	100	76	78
% Canopy cover	30	30	50	70	70	70	90	30	50	50
% Maximum Score	83	82	84	78	87	89	84	98	71	89
Habitat Assessment Category	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Excellent
EPT Taxa Collected	11	14	12	11	16	11	11	14	15	23
Aq. Macroinvertebrate Assess.	Fair	Good	Good	Fair	Good	Fair	Fair	Good	Good	Excellent

* 'original' from Plafkin et al (1989); RR (Riffle Run) or GP (Glide Pool) assessment from Barbour and Stribling (1994).

Appendix T-2. Results of physical / chemical samples collected during ADEM's Paint Rock Nonpoint Source Monitoring Project, 1999.

Sub-Water-shed	Stream	Station	Date *yymmdd*	Water Temp. *C*	D.O. *mg/l*	pH *s.u.*	Cond. *umhos@ 25C*	Turb. *NTU*	Flow *cfs*	Fecal Coliform *col/ 100ml*	BOD-5 *mg/L*	TDS *mg/L*	TSS *mg/L*	NH3 *mg/L*	NO3 + NO2 *mg/L*	TKN *mg/L*	T-PO4 *mg/l*	ALK *mg/l*	HARD *mg/l*
020	Estill Fork	ESTL-1	990126	13	11.1	7.5	200	3	71.1	27	0.5	149	1	<0.005	0.273	0.273	<0.005	114	132
020	Estill Fork	ESTL-1	990427	15	9.6	7.8	295	9	66.7	110	<0.1	164	1	<0.005	0.163	0.287	<0.005	132	156
020	Estill Fork	ESTL-1	990525	20	8.5	7.5	316	2	5.4										
020	Estill Fork	ESTL-1	990629	19	8.8	7.3	303	10	70.7										
020	Estill Fork	ESTL-1	990824	26	6.3	7.7	358	3	1.2	32	2.0	204	4	<0.015	0.025	0.277	0.009	151	180
020	Estill Fork	ESTL-1	991027	16	6.8	7.7	424	2	0.3	8	1.6	244	3	<0.015	0.003	0.271	0.016	151	202
020	Estill Fork	ESTL-1	000119	11	10.1	8.1	213	1	13.3	15	2.3	155	1	<0.015	0.304	<0.15	<0.004	140	172
020	Hurricane Ck	HURR-1	990126	14	10.4	7.3	144	7		32	0.6	113	3	<0.005	0.264	0.158	<0.005	77	84
020	Hurricane Ck	HURR-1	990427	15	9.6	7.7	232	19		580	<0.1	133	12	<0.005	0.154	0.329	<0.005	101	116
020	Hurricane Ck	HURR-1	990525	20	8.4	7.6	246	365	12.5										
020	Hurricane Ck	HURR-1	990629	17	8.7	7.1	228	28											
020	Hurricane Ck	HURR-1	990824	23	6.3	7.6	289	3		116	1.4	165	3	<0.015	0.086	0.229	0.012	125	146
020	Hurricane Ck	HURR-1	991027	14	6.6	7.6	337	3		8	1.8	179	3	<0.015	0.031	0.291	0.017	130	160
020	Hurricane Ck	HURR-1	000119							40	2.2	107	1	<0.015	0.157	<0.15	<0.004	90	118
040	Larkin Fork	LARK-1	990126	13	10	7.5	212	4	108.6	164	0.4	160	3	<0.005	0.746	0.136	<0.005	121.5	144
040	Larkin Fork	LARK-1	990427	16	8.8	7.6	327	10	71.3	980	0.2	180	7	<0.005	0.390	**0.557**	<0.005	145	168
040	Larkin Fork	LARK-1	990525	25	7.4	7.4	320	3	8.7										
040	Larkin Fork	LARK-1	990629	20	8.3	7.2	327	11	100.9										
040	Larkin Fork	LARK-1	990824	25	6.2	7.6	333	4	1.1	68	2.1	188	<1	<0.015	0.050	0.289	0.019	148	172
040	Larkin Fork	LARK-1	991027	11	7.7	7.7	371	2	0.6	13	1.0	204	1	<0.015	0.034	0.327	0.018	146	182
040	Larkin Fork	LARK-1	000119	11	11.1	8.0	247	2	12.6	35	2.5	165	1	<0.015	0.579	0.065	<0.004	155	182
050	Dry Ck	DRYJ-1	990125	13	7.8	7.8	166	6	102.5	72	0.5	95	4	<0.005	0.480	0.306	<0.005	69	86
050	Dry Ck	DRYJ-1	990427	15	9.7	7.4	224	12	28.3	450	<0.1	119	8	<0.005	0.264	0.233	<0.005	100	114
050	Dry Ck	DRYJ-1	990525	18	7.7	8.1	231	5	6.2										
050	Dry Ck	DRYJ-1	990629	17	8.8	7.6	234	17	88.4										
050	Dry Ck	DRYJ-1	990824	25	5.7	7.7	280	3	1.2	104	1.8	157	<1	<0.015	0.291	0.251	0.015	124	140
050	Dry Ck	DRYJ-1	991027	13	8.4	7.8	355	2	0.6	33	1.5	187	3	<0.015	0.185	0.303	0.013	134	158
050	Dry Ck	DRYJ-1	000119	12	11.0	7.8	165	2	10.4	108	2.1	111	2	<0.015	0.602	<0.15	<0.004	106	132

Appendix T-2. Results of physical / chemical samples collected during ADEM's Paint Rock Nonpoint Source Monitoring Project, 1999.

Sub-Water-shed	Stream	Station	Date *yymmdd*	Water Temp. *C*	D.O. *mg/l*	pH *s.u.*	Cond. *umhos@ 25C*	Turb. *NTU*	Flow *cfs*	Fecal Coliform *col/ 100ml*	BOD-5 *mg/L*	TDS *mg/L*	TSS *mg/L*	NH3 *mg/L*	NO3 + NO2 *mg/L*	TKN *mg/L*	T-PO4 *mg/l*	ALK *mg/l*	HARD *mg/l*
050	Lick Fork	LICK-1	990126	11	9.5	7.2	150	3	55.6	42	0.4	105	1	<0.005	0.468	0.175	<0.005	78	96
050	Lick Fork	LICK-1	990427	14	9.7	7.5	254	7		320	<0.1	134	2	<0.005	0.261	0.179	<0.005	114	126
050	Lick Fork	LICK-1	990525	23	8.5	7.4	253	2	4.1										
050	Lick Fork	LICK-1	990629	19	9.8	7.3	253	9	48.4										
050	Lick Fork	LICK-1	990824																
050	Lick Fork	LICK-1	991027																
050	Lick Fork	LICK-1	000119	12	10.9	8.0	167	2	6.0	27	2.6	112	1	<0.015	0.492	<0.15	<0.004	106	140
060	Guess Ck	GUES-1	990125	12	10.8	7.9	86	5	125.2	30	0.5	55	3	<0.005	0.510	0.159	<0.005	114	132
060	Guess Ck	GUES-1	990427	14	9.5	6.8	124	4	29.8	230	<0.1	62	2	<0.005	0.196	<0.15	<0.005	51	72
060	Guess Ck	GUES-1	990524	18	8.4	7.3	155	3	9.1										
060	Guess Ck	GUES-1	990629	14	9.4	7.7	139	14											
060	Guess Ck	DUP001	990824	23	3.7	7.2	232	4		**1060**	1.9	129	4	<0.015	0.163	0.211	0.014	95	114
060	Guess Ck	GUES-1	990824	23	3.7	7.3	237	4	1.1	980	2.1	128	16	<0.015	0.158	0.258	0.01	101	114
060	Guess Ck	GUES-1	991027						0.0										
060	Guess Ck	GUES-1	000119	13	9.8	7.1	87	2	19.8	25	2.3	50	<1	<0.015	0.619	<0.15	<0.004	44	66
070	Cole Spr. Branch	CSPR-1	990125	14	9.5	7.3	247	12	54.9	252	1.0	147	13	<0.005	**2.193**	0.295	<0.005	93.5	116
070	Cole Spr. Branch	CSPR-1	990427	18	2.5	6.9	514	447	12.6	**TNTC**	>156	452	204	**11.834**	0.863	**39.4**	**4.584**	158	207
070	Cole Spr. Branch	CSPR-1	990524	22	7.5	8	322	9	4.3										
070	Cole Spr. Branch	CSPR-1	990629	19	8	8	290	13	28.1										
070	Cole Spr. Branch	CSPR-1	990824	22	5.3	7.4	351	24		720	2.8	204	79	<0.015	**2.707**	0.416	0.031	148	174
070	Cole Spr. Branch	CSPR-1	991027						0.0										
070	Cole Spr. Branch	CSPR-1	000119	12.0	8.0	7.6	247.0	6.1	4.1	148.0	2.8	179	6	<0.015	**1.9**	0.2	0.0	150	184
080	Clear Ck	CLER-1	990125	14	10.4	7.6	175	7	82.3	55	0.4	102	10	<0.005	0.508	0.209	<0.005	73	94
080	Clear Ck	CLER-1	990427	16	10.7	7.9	238	8	17.1	720	0.1	125	5	<0.005	0.271	0.352	<0.005	104	118
080	Clear Ck	CLER-1	990524	23	9.4	7.9	241	2	5.3										
080	Clear Ck	CLER-1	990629	16	9.5	7.8	265	11	15.2										
080	Clear Ck	CLER-1	990824	28	8.5	7.9	298	2	0.5	70	2.5	168	13	<0.015	0.267	0.24	0.027	130	146
080	Clear Ck	CLER-1	991027	15	10	8	336	2	0.2	56	1.7	180	3	<0.015	0.02	0.256	0.013	132	154
080	Clear Ck	CLER-1	000119	12	11.6	8.4	185	4	6.5	70	2.7	138	1	<0.015	0.44	<0.15	<0.004	125	152

Appendix T-2. Results of physical / chemical samples collected during ADEM's Paint Rock Nonpoint Source Monitoring Project, 1999.

Sub-Water-shed	Stream	Station	Date *yymmdd*	Water Temp. *C*	D.O. *mg/l*	pH *s.u.*	Cond. *umhos@ 25C*	Turb. *NTU*	Flow *cfs*	Fecal Coliform *col/ 100ml*	BOD-5 *mg/L*	TDS *mg/L*	TSS *mg/L*	NH3 *mg/L*	NO3 + NO2 *mg/L*	TKN *mg/L*	T-PO4 *mg/l*	ALK *mg/l*	HARD *mg/l*
090	Little Paint Ck	LPNT-1	990126	16	9.1	7.1	183	30		132	0.8	153	32	<0.005	1.241	0.522	0.100	84	118
090	Little Paint Ck	LPNT-1	990427	18	10	7.8	259	8	29.6	480	0.2	138	7	<0.005	0.449	0.220	<0.005	109	138
090	Little Paint Ck	LPNT-1	990526	19	6.9	7.3	256	6	9.7										
090	Little Paint Ck	LPNT-1	990630	19	8.3	7.3	242	38											
090	Little Paint Ck	LPNT-1	990825	25	6.2	7.7	288	4	2.1	52	1.6	165	4	<0.015	0.196	0.353	0.011	121	140
090	Little Paint Ck	LPNT-1	991028	11	9.5	7.6	370	4	0.6	112	2.1	197	24	<0.015	0.191	0.325	0.02	147	176
090	Little Paint Ck	LPNT-1	000119	10	9.6	8.1	184	7.3	27.7	60	2.2	136	5	<0.015	1.180	0.080	0.015	113	136
100	Little Paint Rock Ck	DUP001	990127	13	9.5	7.2	128	11		192	0.7	114	10	<0.005	0.898	0.281	**0.178**	61	80
100	Little Paint Rock Ck	LPRK-1	990127	13	9.6	7	125	12	20.4	152	0.7	117	11	<0.005	0.900	0.381	<0.005	61	80
100	Little Paint Rock Ck	LPRK-1	990427	18	8.3	7.5	215	37	10.4	**TNTC**	0.7	125	26	<0.005	0.369	**0.588**	0.102	90	104
100	Little Paint Rock Ck	LPRK-1	990526	19	7.3	7	216	12	3.8										
100	Little Paint Rock Ck	DUP001	990630	22	8.1	7.4	191	14											
100	Little Paint Rock Ck	LPRK-1	990630	22	8.1	7.4	178	15	36.6										
100	Little Paint Rock Ck	LPRK-1	990825																
100	Little Paint Rock Ck	LPRK-1	991028																
100	Little Paint Rock Ck	LPRK-1	000119	10	9.9	7.5	128	7	5.9	112	2.1	88	4	<0.015	0.827	0.1	0.013	75	102
100	Paint Rock River	PTRK-1	990127	13	7.9	6.9	137	26		180	1.0	128	11	<0.005	0.468	0.617	0.106	70	82
100	Paint Rock River	PTRK-1	990427	19	8.1	7.6	255	9		280	<0.1	131	10	<0.005	0.390	0.253	<0.005	107	120
100	Paint Rock River	PTRK-1	990526	24	6.6	7.5	261	10											
100	Paint Rock River	PTRK-1	990630	21	6.9	7.4	238	53											
100	Paint Rock River	PTRK-1	990825		6.7	7.8	299	12		116	3.0	178	17	<0.015	0.085	0.501	0.048	132	146
100	Paint Rock River	PTRK-1	991028	15	7.7	7.8	323	11		13	1.9	165	16	<0.015	0.125	**0.517**	0.041	126	152
100	Paint Rock River	PTRK-1	000120	11	9.2	7.9	176	9.8		100	1.8	137	10	<0.015	0.753	0.092	0.026	110	140

Appendix U-1. TN basin stations collected by USGS, 1999-2003

Name	Site #	Lat	Long	County	Drainage Area
Scarham Creek near McVille, AL	03573182	34.29833	-86.11667	Marshall	50
West Fork Flint River nr Hazel Green, Al	03574750	34.95833	-86.56944	Madison	39.6
Mt. Fork Creek at New Market, AL	03574794	34.91083	-86.43667	Madison	37.5
Brier Fork near Hazel Green, AL	03574823	34.90222	-86.58417	Madison	40.8
Beaverdam Creek nr Meridianville, AL	03574870	34.83806	-86.57139	Madison	37.2
Flint River near Brownsboro, AL	03575100	34.74917	-86.44667	Madison	375
Hurricane Creek near Gurley, AL	03575200	34.70917	-86.39972	Madison	63.8
Indian Creek nr Madison, Al	03575830	34.69722	-86.7	Madison	48.6
Limestone Creek nr Toney, Al	03576207	34.91611	-86.74861	Madison	27.8
Little Limestone Creek nr Toney, Al	03576226	34.90167	-86.78639	Limestone	33.8
Piney Creek near Athens, Al	03576405	34.78833	-86.95333	Limestone	60.7
Swan Creek nr Tanner Crossroads, Al	03577280	34.68833	-86.95333	Limestone	54
Round Island Creek nr Lawson, Al	03577490	34.75222	-87.07306	Limestone	34
Muddy Fork nr Moulton, Al	03586240	34.55972	-87.34333	Lawrence	71.3
Clear Fork below Masterson, Al	03586400	34.53861	-87.28306	Lawrence	27.3
Mud Creek nr Old Bethel, Al	03587378	34.55917	-87.53	Franklin	48.4
Spring Creek nr Tuscumbia, Al	03590450	35.70694	-87.69194	Colbert	97.7
Beans Creek at Old Salem, TN	03590550	35.09139	-86.27361	Colbert	48.5
Sinking Creek below Woodland, Al	03590646	34.75333	-87.82361	Lauderdale	39.7
Hester Creek at Buddy Williamson Road near Plevna, AL	0357479650	34.96083	-86.46361	Madison	29.3

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990111	0700				6.20				0.10
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990111	1400	107.0		12.2	7.0	118	5	3	7.44
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990209	1415	104.0	0.8	10.6	6.7	99	13	5	6.66
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990228	1015	352.0	37.0	9.9	6.6	76	12	7	5.39
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990308	1545				6.70				0.10
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990308	1645	127.0	1.0	10.9	7.0	83	9	5	5.52
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990314	1415	210.0	7.0	10.1	7.0	83	9	7	5.78
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990406	1330	190.0	10.0	9.2	7.1	75	17	7	5.06
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990506	1030	1280.0	210.0	8.7	6.8	49	17	10	3.76
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990518	0700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990518	1715	35.0	7.0	8.3	7.1	72	19	10	5.84
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990518	1720				7.30				5.77
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990608	0800	14.0	2.0	7.1	7.4	82	22	15	6.45
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990712	1200	1920.0	67.0	7.7	6.8	20	22	12	2.52
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990810	1230	3.6	1.0	7.2	7.0	77	26	16	5.36
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990907	1530	0.4	1.0	7.3	7.6	84	25	20	5.60
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991007	1730	0.0	3.5	4.1	7.0	88	19	30	5.61
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991115	0700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991115	1700	1.0	0.8	9.5	7.3	105	13	27	7.50
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991213	1315	6.0	2.1	9.9	7.9	95	11	22	8.38
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000111	0700				8.00				0.29
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000111	0800	91.0	7.8	10.1	6.9	97	9	7	6.49
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000216	1630	59.0	2.0	10.8	7.4	90	12	5	6.92
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000319	1715	194.0	43.0	9.8	7.0	85	11	8	5.69
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000418	0700				7.60				0.29
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000418	1530	78.0	1.5	9.9	7.9	76	16	8	5.33
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000509	1500	18.0	0.8	8.9	7.3	75	22	13	5.75
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000613	1415	2.0	1.5	8.2	7.4	85	25	19	6.84
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000613	1420				7.70				6.78
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000711	1530	1.6	1.4	7.4	7.6	84	28	18	6.24
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000815	1630	0.0	1.2	6.1	7.6	73	26	22	5.29
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000912	1530	0.0	2.6	5.0	7.4	68	23	21	4.31
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001016	0700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001016	1630	0.0	0.6	6.4	7.3	55	16	23	4.53
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001108	0830	0.4	1.4	3.6	7.0	88	18	33	4.45
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001212	1530	24.0	1.1	11.9	7.3	97	7	8	7.72
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010110	1430	51.0		12.7	7.3	98	5	6	8.00
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010110	1435				7.00				7.94
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010213	1115	192.0	4.2	10.5	7.5	98	8	7	6.98
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010313	0700				7.80				0.08
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010313	1100	573.0	35.0	10.3	7.3	69	12	6	

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990111	0700	<0.02	<0.1	0.01	<0.004	0.004		<10	3
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990111	1400	0.03	0.28	0.01	0.01	0.019		19	36
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990209	1415	0.02	0.63	0.01	<0.008	0.018	43	17	26
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990228	1015	0.06	0.56	0.02	0.06	0.173	12000	44	29
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990308	1545	<0.02	<0.1	0.01	0.00	0.004		<10	3
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990308	1645	0.02	0.16	0.01	0.01	0.015	34	21	24
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990314	1415	0.02	0.39	0.01	0.02	0.049	1200	32	24
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990406	1330	0.02	0.58	0.01	<0.014	0.046	1800	52	22
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990506	1030	0.27	2.40	0.01	0.13	0.580		257	109
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990518	0700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990518	1715	0.02	0.10	0.01	<0.017	0.012	1900	52	15
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990518	1720	0.03	0.10	0.01	0.02	0.013		58	16
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990608	0800	0.06	0.41	0.01	0.04	0.016	56	127	20
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990712	1200	0.07	1.10	0.01	0.21	0.420	2800	183	43
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990810	1230	0.03	0.32	0.01	0.03	0.033	45	68	30
SCARHAM CREEK NEAR MCVILLE, AL	03573182	990907	1530	0.02	0.32	0.01	0.02	0.029		122	35
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991007	1730	0.02	<0.5	0.01	<0.019	0.045	10	33	42
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991115	0700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991115	1700	0.02	0.41	0.01	<0.012	0.021		55	23
SCARHAM CREEK NEAR MCVILLE, AL	03573182	991213	1315	0.02	0.49	0.01	<0.006	0.157		33	8
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000111	0700	<0.02	<0.1	0.01	<0.006	0.008		<10	2
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000111	0800	0.02	0.38	0.01	0.02	0.040		32	11
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000216	1630	0.02	0.18	0.01	<0.007	0.013		24	13
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000319	1715	0.05	0.48	0.01	0.02	0.051		38	25
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000418	0700	<0.02	<0.1	0.01	<0.006	0.008		<10	2
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000418	1530	0.02	0.25	0.01	<0.007	0.011		36	11
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000509	1500	0.02	0.29	0.01	<0.007	0.008		34	9
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000613	1415	0.03	0.38	0.01	0.04	0.047		121	42
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000613	1420	0.03	0.41	0.01	0.04	0.039		66	43
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000711	1530	0.02	0.40	0.01	0.04	0.045		181	62
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000815	1630	0.02	0.45	0.01	0.04	0.040		179	38
SCARHAM CREEK NEAR MCVILLE, AL	03573182	000912	1530	0.03	0.60	0.01	0.04	0.086		120	101
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001016	0700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001016	1630	0.04	0.36	0.01	0.02	0.022		39	20
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001108	0830	0.04	<0.49	0.01	0.03	0.042		285	686
SCARHAM CREEK NEAR MCVILLE, AL	03573182	001212	1530	0.04	0.24	0.00	<0.003	0.007		19	10
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010110	1430	0.04	0.28	0.01	<0.007	0.015		24	9
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010110	1435	0.04	0.26	0.01	<0.005	0.012		27	10
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010213	1115	0.03	0.39	0.01	0.02	0.039		38	21
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010313	0700	<0.04	<0.08	0.01	<0.006	0.004		<10	3
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010313	1100	0.07	0.77	0.01	0.05	0.145			

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^{o}C)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010409	1230	128.0	2.9	9.7	7.7	76	16	6	5.05
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010515	1400	9.8	2.4	8.3	7.3	79	21	13	6.00
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010606	0800	22.0	2.6	7.3	7.4	79	20	14	5.85
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010628	1700	39.0		7.5		73	23		
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010710	1215	33.0	5.3	7.8	7.4	83	24	14	5.99
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010710	1230	33.0	5.3	7.8		83	24		
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010730	1230	26.0	3.5	7.2		92	24		
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010730	1230								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010815	1200	41.0	5.1	7.9	7.2	80	22	12	6.04
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010815	1215	42.0							
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010829	1400	4.6	2.6	7.6		88	23		
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010911	1200	19.0	1.8	7.7	7.7	92	22	16	7.62
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010911	1230	19.0	1.8	7.7		92	22		
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010911	1230								
WEST FORKFLINT RIVER NEAR HAZEL GREEN, AL	03574750	990512	0800	24.0							
WEST FORKFLINT RIVER NEAR HAZEL GREEN, AL	03574750	990512	0830	24.0	3.0	10.6	7.7	76	19	22	3.51
WEST FORKFLINT RIVER NEAR HAZEL GREEN, AL	03574750	990909	0900	2.3		5.5	7.9	83	22	30	2.61
MT. FORK CREEK AT NEW MARKET, AL	03574794	990512	1400	45.0							
MT. FORK CREEK AT NEW MARKET, AL	03574794	990512	1430	45.0	3.0	8.8	7.9	298	21	130	6.95
MT. FORK CREEK AT NEW MARKET, AL	03574794	990908	0700								
MT. FORK CREEK AT NEW MARKET, AL	03574794	990908	1630	6.3		6.7	7.4	228	24	83	11.80
MT. FORK CREEK AT NEW MARKET, AL	03574794	000120	1430	23.0		10.8	8.0	246	12		
MT. FORK CREEK AT NEW MARKET, AL	03574794	000515	1600	25.0	3.2	7.9	8.1	287	20		
MT. FORK CREEK AT NEW MARKET, AL	03574794	010516	0950					260	18		
MT. FORK CREEK AT NEW MARKET, AL	03574794	010830	0730		2.5	7.3		758	19		
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	0630								
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	0700								
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	1530	22.0							
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	1600	22.0	6.0	8.9	7.4	64	22	17	3.74
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990907	1445	0.5	6.0	8.9	7.9	68	30	26	2.44
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990512	0745	39.0							
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990512	0815	39.0	7.0	8.2	7.2	177	19	70	3.75
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990512	0820				7.60				3.75
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990908	1230	2.4	1.0	7.4	7.3	252	17	118	3.05
FLINT RIVER AT BROWNSBORO, AL	03575100	990112	1445	878.0		11.2	7.4	136	8	46	4.34
FLINT RIVER AT BROWNSBORO, AL	03575100	990210	1330	1900.0	93.0	9.5	7.9	138	15	57	2.81
FLINT RIVER AT BROWNSBORO, AL	03575100	990228	1500	4070.0	88.0	9.8	6.6	97	13	31	2.92
FLINT RIVER AT BROWNSBORO, AL	03575100	990309	1430	1420.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990309	1500	1480.0	11.0	10.2	7.7	132	10	52	4.01
FLINT RIVER AT BROWNSBORO, AL	03575100	990314	0945	5710.0	83.0	9.8	7.4	90	8	31	2.73
FLINT RIVER AT BROWNSBORO, AL	03575100	990325	0800	721.0							

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010409	1230	0.04	0.28	0.00	0.01	0.021		57	18
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010515	1400	0.04	0.36	0.01	<0.019	0.031		89	21
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010606	0800	0.04	0.35	0.00	0.03	0.037		226	25
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010628	1700								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010710	1215	0.03	0.45	0.01	0.07	0.092		121	26
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010710	1230								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010730	1230								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010730	1230								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010815	1200	0.02	0.39	0.00	0.03	0.053		243	26
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010815	1215								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010829	1400								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010911	1200	0.04	0.33	0.00	<0.017	0.025		95	31
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010911	1230								
SCARHAM CREEK NEAR MCVILLE, AL	03573182	010911	1230								
WEST FORKFLINT RIVER NEAR HAZEL GREEN, AL	03574750	990512	0800								
WEST FORKFLINT RIVER NEAR HAZEL GREEN, AL	03574750	990512	0830	0.02	0.14	0.01	<0.011	0.004	70	24	8
WEST FORKFLINT RIVER NEAR HAZEL GREEN, AL	03574750	990909	0900	0.02	0.17	0.01	<0.004	0.015	1500	10	29
MT. FORK CREEK AT NEW MARKET, AL	03574794	990512	1400								
MT. FORK CREEK AT NEW MARKET, AL	03574794	990512	1430	0.47	1.80	0.10	0.36	0.350	40	11	32
MT. FORK CREEK AT NEW MARKET, AL	03574794	990908	0700								
MT. FORK CREEK AT NEW MARKET, AL	03574794	990908	1630	1.02	1.70	0.43	1.37	1.440	220	23	16
MT. FORK CREEK AT NEW MARKET, AL	03574794	000120	1430								
MT. FORK CREEK AT NEW MARKET, AL	03574794	000515	1600								
MT. FORK CREEK AT NEW MARKET, AL	03574794	010516	0950								
MT. FORK CREEK AT NEW MARKET, AL	03574794	010830	0730								
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	0630								
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	0700								
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	1530								
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990512	1600	0.03	0.24	0.01	<0.016	0.022	91	120	31
BRIER FORK NEAR HAZEL GREEN, AL	03574823	990907	1445	0.07	0.28	0.01	<0.013	0.038	70	51	80
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990512	0745								
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990512	0815	0.02	0.24	0.01	<0.01	0.030	140	62	27
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990512	0820	0.02	0.25	0.01	<0.011	0.033		62	27
BEAVERDAM CREEK NEAR MERIDIANVILLE, AL	03574870	990908	1230	0.02	0.08	0.01	0.01	0.018	<130	10	13
FLINT RIVER AT BROWNSBORO, AL	03575100	990112	1445	0.02	0.24	0.01	0.02	0.044		22	12
FLINT RIVER AT BROWNSBORO, AL	03575100	990210	1330	0.02	0.58	0.01	0.02	0.147	4200	22	5
FLINT RIVER AT BROWNSBORO, AL	03575100	990228	1500	0.15	0.94	0.02	0.03	0.154	8400	72	10
FLINT RIVER AT BROWNSBORO, AL	03575100	990309	1430								
FLINT RIVER AT BROWNSBORO, AL	03575100	990309	1500	0.02	0.18	0.01	0.01	0.030	230	31	11
FLINT RIVER AT BROWNSBORO, AL	03575100	990314	0945	0.17	1.10	0.01	0.06	0.188	5600	67	9
FLINT RIVER AT BROWNSBORO, AL	03575100	990325	0800								

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Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
FLINT RIVER AT BROWNSBORO, AL	03575100	990325	0830	806.0	5.0	8.6	7.4	142	13	55	4.02
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1330	613.0		10.0	8.0	147	21	56	
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1400	613.0	2.6	10.0	8.0	147	21	56	3.96
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1600								
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1630								
FLINT RIVER AT BROWNSBORO, AL	03575100	990419	1545	273.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990419	1615								
FLINT RIVER AT BROWNSBORO, AL	03575100	990427	0815	854.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990427	0845	854.0	380.0	6.6	7.6	150	18	58	3.85
FLINT RIVER AT BROWNSBORO, AL	03575100	990504	1500	312.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990504	1530	434.0	7.0	8.6	7.7	133	19	59	4.02
FLINT RIVER AT BROWNSBORO, AL	03575100	990506	1615	9320.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990506	1645	9320.0	390.0	7.5	7.4	97	18	36	2.17
FLINT RIVER AT BROWNSBORO, AL	03575100	990512	1730	441.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990512	1800	562.0	6.0	7.9	7.7	160	20	60	4.82
FLINT RIVER AT BROWNSBORO, AL	03575100	990525	1315	226.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990525	1345	306.0	5.0	9.0	7.8	168	22	82	4.80
FLINT RIVER AT BROWNSBORO, AL	03575100	990525	1351								
FLINT RIVER AT BROWNSBORO, AL	03575100	990608	1300	312.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990608	1330	448.0	28.0	7.5	7.8	146	24	60	4.74
FLINT RIVER AT BROWNSBORO, AL	03575100	990623	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	990623	1300	191.0	12.0	6.6	7.8	170	23	63	4.96
FLINT RIVER AT BROWNSBORO, AL	03575100	990623	1301								
FLINT RIVER AT BROWNSBORO, AL	03575100	990708	0830	218.0	16.0	6.7	7.4	175	26	73	4.24
FLINT RIVER AT BROWNSBORO, AL	03575100	990708	0835								
FLINT RIVER AT BROWNSBORO, AL	03575100	990713	1115	540.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990713	1145	599.0	48.0	6.5	7.2	107	23	40	3.05
FLINT RIVER AT BROWNSBORO, AL	03575100	990727	0745	161.0	16.0	6.3	8.1	174	26	65	4.57
FLINT RIVER AT BROWNSBORO, AL	03575100	990810	1630	118.0	8.0	7.5	7.6	180	27	74	5.22
FLINT RIVER AT BROWNSBORO, AL	03575100	990810	1631								
FLINT RIVER AT BROWNSBORO, AL	03575100	990810	1632								
FLINT RIVER AT BROWNSBORO, AL	03575100	990824	1530	120.0	7.0	7.5	7.7	178	25	62	5.72
FLINT RIVER AT BROWNSBORO, AL	03575100	990824	1535								
FLINT RIVER AT BROWNSBORO, AL	03575100	990907	1100	100.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	990907	1130	108.0	3.0	7.3	7.8	177	24	72	7.21
FLINT RIVER AT BROWNSBORO, AL	03575100	991012	0700				7.50				0.29
FLINT RIVER AT BROWNSBORO, AL	03575100	991012	1000	97.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	991012	1030	96.0	6.4	7.5	7.4	174	20	72	5.18
FLINT RIVER AT BROWNSBORO, AL	03575100	991025	1645	90.0							
FLINT RIVER AT BROWNSBORO, AL	03575100	991025	1715	90.0	3.0	10.2	8.0	173	13	69	4.59
FLINT RIVER AT BROWNSBORO, AL	03575100	991116	0830	106.0							

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
FLINT RIVER AT BROWNSBORO, AL	03575100	990325	0830	0.02	0.13	0.03	<0.008	0.015	60	41	14
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1330								
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1400	0.02	0.25	0.01	<0.009	0.021	48	45	17
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1600								
FLINT RIVER AT BROWNSBORO, AL	03575100	990407	1630								
FLINT RIVER AT BROWNSBORO, AL	03575100	990419	1545								
FLINT RIVER AT BROWNSBORO, AL	03575100	990419	1615								
FLINT RIVER AT BROWNSBORO, AL	03575100	990427	0815								
FLINT RIVER AT BROWNSBORO, AL	03575100	990427	0845	0.22	1.10	0.02	0.05	0.360	1200	11	6
FLINT RIVER AT BROWNSBORO, AL	03575100	990504	1500								
FLINT RIVER AT BROWNSBORO, AL	03575100	990504	1530	0.05	0.24	0.02	0.05	0.034	130	41	28
FLINT RIVER AT BROWNSBORO, AL	03575100	990506	1615								
FLINT RIVER AT BROWNSBORO, AL	03575100	990506	1645	0.11	1.10	0.01	0.08	0.350		80	24
FLINT RIVER AT BROWNSBORO, AL	03575100	990512	1730								
FLINT RIVER AT BROWNSBORO, AL	03575100	990512	1800	0.03	0.26	0.02	0.03	0.027	90	26	24
FLINT RIVER AT BROWNSBORO, AL	03575100	990525	1315								
FLINT RIVER AT BROWNSBORO, AL	03575100	990525	1345	0.03	0.24	0.03	0.06	0.068	50	22	16
FLINT RIVER AT BROWNSBORO, AL	03575100	990525	1351								
FLINT RIVER AT BROWNSBORO, AL	03575100	990608	1300								
FLINT RIVER AT BROWNSBORO, AL	03575100	990608	1330	0.06	0.35	0.01	0.07	0.064	390	25	34
FLINT RIVER AT BROWNSBORO, AL	03575100	990623	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	990623	1300	0.02	0.18	0.01	0.13	0.142		272	20
FLINT RIVER AT BROWNSBORO, AL	03575100	990623	1301								
FLINT RIVER AT BROWNSBORO, AL	03575100	990708	0830	0.04	0.19	0.01	0.09	0.118	<200	10	24
FLINT RIVER AT BROWNSBORO, AL	03575100	990708	0835								
FLINT RIVER AT BROWNSBORO, AL	03575100	990713	1115								
FLINT RIVER AT BROWNSBORO, AL	03575100	990713	1145	0.04	0.51	0.01	0.09	0.164	1900	32	14
FLINT RIVER AT BROWNSBORO, AL	03575100	990727	0745						140	6	22
FLINT RIVER AT BROWNSBORO, AL	03575100	990810	1630	0.02	0.17	0.01	0.14	0.143	<81	10	17
FLINT RIVER AT BROWNSBORO, AL	03575100	990810	1631								
FLINT RIVER AT BROWNSBORO, AL	03575100	990810	1632								
FLINT RIVER AT BROWNSBORO, AL	03575100	990824	1530	0.02	0.19	0.01	0.15	0.081		10	17
FLINT RIVER AT BROWNSBORO, AL	03575100	990824	1535								
FLINT RIVER AT BROWNSBORO, AL	03575100	990907	1100								
FLINT RIVER AT BROWNSBORO, AL	03575100	990907	1130	0.02	0.15	0.01	0.13	0.130	<53	10	18
FLINT RIVER AT BROWNSBORO, AL	03575100	991012	0700	0.02	<0.05	0.01	<0.006	0.008		<10	2
FLINT RIVER AT BROWNSBORO, AL	03575100	991012	1000								
FLINT RIVER AT BROWNSBORO, AL	03575100	991012	1030	0.03	0.21	0.01	0.18	0.188	48	6	16
FLINT RIVER AT BROWNSBORO, AL	03575100	991025	1645								
FLINT RIVER AT BROWNSBORO, AL	03575100	991025	1715	0.02	0.14	0.01	0.10	0.105		10	9
FLINT RIVER AT BROWNSBORO, AL	03575100	991116	0830								

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
FLINT RIVER AT BROWNSBORO, AL	03575100	991116	0900	106.0	3.4	9.3	7.8	173	12	73	4.08
FLINT RIVER AT BROWNSBORO, AL	03575100	991214	1015	652.0	28.0	8.5	7.4	149	13	62	3.41
FLINT RIVER AT BROWNSBORO, AL	03575100	000104	1345	1900.0	450.0	7.6	7.6	110	14	46	3.11
FLINT RIVER AT BROWNSBORO, AL	03575100	000104	1350				7.60				3.19
FLINT RIVER AT BROWNSBORO, AL	03575100	000110	1530	1000.0	69.0	9.3	7.6	107	12	36	2.79
FLINT RIVER AT BROWNSBORO, AL	03575100	000215	1115	1540.0	79.0	9.8	7.4	94	11	28	3.15
FLINT RIVER AT BROWNSBORO, AL	03575100	000311	1315	785.0	32.0	8.0	7.9	145	16	57	3.44
FLINT RIVER AT BROWNSBORO, AL	03575100	000311	1320								
FLINT RIVER AT BROWNSBORO, AL	03575100	000320	0945	12400.0	140.0	9.5	7.3	80	11	28	1.93
FLINT RIVER AT BROWNSBORO, AL	03575100	000402	1645	5190.0	120.0	8.4	7.6	122	16	52	2.56
FLINT RIVER AT BROWNSBORO, AL	03575100	000404	0830	22000.0	140.0	7.8	7.3	67	14	26	1.58
FLINT RIVER AT BROWNSBORO, AL	03575100	000420	0845	577.0	5.0	7.1	7.7	145	17	55	3.91
FLINT RIVER AT BROWNSBORO, AL	03575100	000511	0800	253.0	1.8	7.1	7.8	167	21	65	4.11
FLINT RIVER AT BROWNSBORO, AL	03575100	000523	1400	213.0	38.0	6.8	7.8	173	22	67	4.64
FLINT RIVER AT BROWNSBORO, AL	03575100	000614	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	000614	0900	123.0	3.8	6.5	7.9	176	24	72	5.41
FLINT RIVER AT BROWNSBORO, AL	03575100	000614	0901								
FLINT RIVER AT BROWNSBORO, AL	03575100	000712	1345	104.0	8.0	6.7	8.0	196	28	69	
FLINT RIVER AT BROWNSBORO, AL	03575100	000712	1415	104.0	8.3	6.7	8.0	196	28	69	5.99
FLINT RIVER AT BROWNSBORO, AL	03575100	000712	1416								
FLINT RIVER AT BROWNSBORO, AL	03575100	000816	1430	84.0	6.0	7.4	7.9	188	26	67	6.36
FLINT RIVER AT BROWNSBORO, AL	03575100	000913	0700				8.40				0.29
FLINT RIVER AT BROWNSBORO, AL	03575100	000913	1530	147.0	11.0	6.4	7.8	169	24	62	5.81
FLINT RIVER AT BROWNSBORO, AL	03575100	001017	0830	89.0	4.3	8.2	7.8	179	16	70	5.27
FLINT RIVER AT BROWNSBORO, AL	03575100	001106	1445	107.0	2.7	9.3	7.7	163	16	67	3.83
FLINT RIVER AT BROWNSBORO, AL	03575100	001109	1230	2820.0	300.0	7.5	7.5	102	18	38	2.37
FLINT RIVER AT BROWNSBORO, AL	03575100	001109	1235				6.30			38	2.41
FLINT RIVER AT BROWNSBORO, AL	03575100	001213	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	001213	1415	130.0	1.7	11.6	8.0	164	7	65	4.01
FLINT RIVER AT BROWNSBORO, AL	03575100	010111	0900	190.0	1.9	12.0	7.8	148	5	58	4.25
FLINT RIVER AT BROWNSBORO, AL	03575100	010213	1500	711.0	7.6	10.7	8.0	134	10	46	4.31
FLINT RIVER AT BROWNSBORO, AL	03575100	010313	1430	1400.0	35.0	10.4	7.9	123	14	47	
FLINT RIVER AT BROWNSBORO, AL	03575100	010313	1500	1400.0	35.0	10.4	7.0	123	14	47	3.69
FLINT RIVER AT BROWNSBORO, AL	03575100	010409	1600	592.0	6.1	9.4	8.0	143	20	56	4.19
FLINT RIVER AT BROWNSBORO, AL	03575100	010515	1630	287.0	8.0	9.6	8.0	141	21	52	4.74
FLINT RIVER AT BROWNSBORO, AL	03575100	010522	1330	392.0	16.0		8.1	145	21	58	3.97
FLINT RIVER AT BROWNSBORO, AL	03575100	010605	0700				7.20				0.05
FLINT RIVER AT BROWNSBORO, AL	03575100	010605	1545	3990.0	170.0	7.6	7.6	92	20	34	2.49
FLINT RIVER AT BROWNSBORO, AL	03575100	010710	1630	987.0	160.0	6.8	8.0	108	24	38	3.64
FLINT RIVER AT BROWNSBORO, AL	03575100	010710	1635				7.30				3.58
FLINT RIVER AT BROWNSBORO, AL	03575100	010815	1600	849.0	21.0	7.5	7.7	124	24	46	3.48

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
FLINT RIVER AT BROWNSBORO, AL	03575100	991116	0900	0.02	0.09	0.01	0.03	0.035		13	14
FLINT RIVER AT BROWNSBORO, AL	03575100	991214	1015	0.02	0.43	0.01	0.03	0.073		25	7
FLINT RIVER AT BROWNSBORO, AL	03575100	000104	1345	0.03	1.60	0.01	0.05	0.560		20	2
FLINT RIVER AT BROWNSBORO, AL	03575100	000104	1350	0.03	1.70	0.01	0.05	0.590		<22	2
FLINT RIVER AT BROWNSBORO, AL	03575100	000110	1530	0.02	0.60	0.01	0.04	0.109		45	12
FLINT RIVER AT BROWNSBORO, AL	03575100	000215	1115	0.03	0.76	0.01	0.04	0.095		47	13
FLINT RIVER AT BROWNSBORO, AL	03575100	000311	1315	0.02	0.34	0.01	0.01	0.043		26	24
FLINT RIVER AT BROWNSBORO, AL	03575100	000311	1320								
FLINT RIVER AT BROWNSBORO, AL	03575100	000320	0945	0.06	1.00	0.01	0.09	0.280		76	35
FLINT RIVER AT BROWNSBORO, AL	03575100	000402	1645	0.07	0.88	0.01	0.08	0.200		45	9
FLINT RIVER AT BROWNSBORO, AL	03575100	000404	0830	0.03	0.63	0.01	0.07	0.190		94	16
FLINT RIVER AT BROWNSBORO, AL	03575100	000420	0845	0.02	0.15	0.01	0.01	0.020		34	14
FLINT RIVER AT BROWNSBORO, AL	03575100	000511	0800	0.02	0.23	0.03	0.04	0.008		24	13
FLINT RIVER AT BROWNSBORO, AL	03575100	000523	1400	0.06	0.35	0.02	0.05	0.085		9	25
FLINT RIVER AT BROWNSBORO, AL	03575100	000614	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	000614	0900	0.02	0.17	0.01	0.11	0.122		10	11
FLINT RIVER AT BROWNSBORO, AL	03575100	000614	0901								
FLINT RIVER AT BROWNSBORO, AL	03575100	000712	1345								
FLINT RIVER AT BROWNSBORO, AL	03575100	000712	1415	0.02	0.24	0.01	0.14	0.159		10	25
FLINT RIVER AT BROWNSBORO, AL	03575100	000712	1416								
FLINT RIVER AT BROWNSBORO, AL	03575100	000816	1430	0.02	0.17	0.01	0.28	0.290		5	19
FLINT RIVER AT BROWNSBORO, AL	03575100	000913	0700	<0.02	<0.1	0.01	<0.006	0.008		<10	2
FLINT RIVER AT BROWNSBORO, AL	03575100	000913	1530	0.02	0.28	0.01	0.24	0.260		8	17
FLINT RIVER AT BROWNSBORO, AL	03575100	001017	0830	0.04	0.19	0.00	0.14	0.071		10	9
FLINT RIVER AT BROWNSBORO, AL	03575100	001106	1445	0.04	0.19	0.01	0.05	0.053		9	11
FLINT RIVER AT BROWNSBORO, AL	03575100	001109	1230	0.04	1.40	0.00	0.21	0.560		16	4
FLINT RIVER AT BROWNSBORO, AL	03575100	001109	1235	0.04	1.20	0.01	0.20	0.520		17	4
FLINT RIVER AT BROWNSBORO, AL	03575100	001213	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	001213	1415	0.04	0.40	0.02	<0.018	0.025		10	10
FLINT RIVER AT BROWNSBORO, AL	03575100	010111	0900	0.04	0.11	0.01	0.01	0.016		24	10
FLINT RIVER AT BROWNSBORO, AL	03575100	010213	1500	0.04	0.23	0.01	0.01	0.029		25	12
FLINT RIVER AT BROWNSBORO, AL	03575100	010313	1430								
FLINT RIVER AT BROWNSBORO, AL	03575100	010313	1500	0.04	0.54	0.00	0.02	0.078			
FLINT RIVER AT BROWNSBORO, AL	03575100	010409	1600	0.04	0.24	0.01	0.04	0.050		47	17
FLINT RIVER AT BROWNSBORO, AL	03575100	010515	1630	0.04	0.30	0.01	0.06	0.071		59	16
FLINT RIVER AT BROWNSBORO, AL	03575100	010522	1330	0.21	0.22	0.01	0.07	0.080		34	21
FLINT RIVER AT BROWNSBORO, AL	03575100	010605	0700	<0.04	<0.08	0.01	0.01	0.004		<10	3
FLINT RIVER AT BROWNSBORO, AL	03575100	010605	1545	0.04	0.85	0.04	0.11	0.310		87	19
FLINT RIVER AT BROWNSBORO, AL	03575100	010710	1630	0.04	0.51	0.02	0.07	0.187		20	8
FLINT RIVER AT BROWNSBORO, AL	03575100	010710	1635	0.04	0.55	0.01	0.07	0.181		19	7
FLINT RIVER AT BROWNSBORO, AL	03575100	010815	1600	0.04	0.33	0.01	0.06	0.100		116	27

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^{o}C)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
FLINT RIVER AT BROWNSBORO, AL	03575100	010829	1900	248.0	5.4	7.5		152	23		
FLINT RIVER AT BROWNSBORO, AL	03575100	010829	1905								
FLINT RIVER AT BROWNSBORO, AL	03575100	010911	1530	327.0	7.9	8.3	7.8	154	22	60	4.39
FLINT RIVER AT BROWNSBORO, AL	03575100	010911	1600	332.0	7.9	8.3		154	22		
FLINT RIVER AT BROWNSBORO, AL	03575100	010911	1600								
FLINT RIVER AT BROWNSBORO, AL	03575100	011106	1200	257.0	1.7	10.4	8.0	158	13	65	4.24
FLINT RIVER AT BROWNSBORO, AL	03575100	020109	0815	518.0	10.0	10.9	7.8	141	6	52	4.88
FLINT RIVER AT BROWNSBORO, AL	03575100	020205	1600	730.0	4.5	12.3	7.9	127	8	58	3.98
FLINT RIVER AT BROWNSBORO, AL	03575100	020205	1605								3.98
FLINT RIVER AT BROWNSBORO, AL	03575100	020306	0815	319.0	2.4	10.6	8.0	158	8	64	4.36
FLINT RIVER AT BROWNSBORO, AL	03575100	020409	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	020409	1545	635.0	4.0	9.3	7.9	155	17	59	4.09
FLINT RIVER AT BROWNSBORO, AL	03575100	020509	0900	642.0	7.8	6.8	7.7	144	20	53	3.47
FLINT RIVER AT BROWNSBORO, AL	03575100	020610	1500	194.0	12.0	8.5	8.0	177	24	69	4.26
FLINT RIVER AT BROWNSBORO, AL	03575100	020610	1505								
FLINT RIVER AT BROWNSBORO, AL	03575100	020710	1130	163.0	44.0	6.0	7.8	165	26	63	3.86
FLINT RIVER AT BROWNSBORO, AL	03575100	020910	0815	100.0	15.0	6.9	7.9	186	22	72	5.32
FLINT RIVER AT BROWNSBORO, AL	03575100	021113	0700								0.20
FLINT RIVER AT BROWNSBORO, AL	03575100	021113	1230	614.0	8.1	8.4	8.0	137	14	44	4.10
FLINT RIVER AT BROWNSBORO, AL	03575100	030115	0900		2.8	11.2	7.9	146	6	53	
HURRICANE CREEK NEAR GURLEY, AL	03575200	000510	0845	22.0	6.0	6.0	7.8	282	20	135	2.86
INDIAN CREEK NEAR MADISON, AL	03575830	990517	1045	44.0	7.0	8.6	8.0	226	19	96	4.38
INDIAN CREEK NEAR MADISON, AL	03575830	990914	0745	3.9	6.0	6.7	8.0	226	22	102	5.23
LIMESTONE CREEK NEAR TONEY, AL	03576207	990511	0915	22.0	4.0	8.0	7.3	85	18	25	4.73
LIMESTONE CREEK NEAR TONEY, AL	03576207	990914	1000	1.3	1.0	7.0	7.6	93	20	37	2.51
LITTLE LIMESTONE CREEK NEAR TONEY, AL	03576226	990511	1145	35.0	3.0	8.8	7.2	67	19	19	3.64
LITTLE LIMESTONE CREEK NEAR TONEY, AL	03576226	990914	1215	0.8	2.0	6.5	7.3	94	22	34	3.22
PINEY CREEK NEAR ATHENS, AL	03576405	990511	1500	49.0	4.0	7.8	7.3	68	21	20	3.09
PINEY CREEK NEAR ATHENS, AL	03576405	990913	1530	3.2	1.0	6.3	7.3	93	23	36	3.05
SWAN CREEK NEAR TANNER CROSSROAD, AL	03577280	990513	0900	66.0	10.0	8.9	7.8	227	19	62	17.70
SWAN CREEK NEAR TANNER CROSSROAD, AL	03577280	990913	1245	7.3	2.0	8.0	8.8	512	25	70	75.60
ROUND ISLAND CREEK NEAR LAWSON, AL	03577490	990517	1445	23.0	5.0	8.9	7.6	99	23	32	4.88
ROUND ISLAND CREEK NEAR LAWSON, AL	03577490	990913	1045	0.7	2.0	5.4	7.6	144	23	57	5.37
MUDDY FORK NEAR MOULTON, AL	03586240	990517	1400	9.6	4.0	8.5	8.1	285	23	133	6.95
MUDDY FORK NEAR MOULTON, AL	03586240	990913	1430	0.1	2.0	1.8	7.6	374	23	128	24.80
CLEAR FORK BELOW MASTERSON MILL, AL	03586400	990517	1100	5.3	7.0	6.6	7.8	94	23	42	3.83
CLEAR FORK BELOW MASTERSON MILL, AL	03586400	990913	1200	0.1	4.0	1.7	7.1	136	25	46	4.74
MUD CREEK NEAR OLD BETHEL, AL	03587378	990518	0800	5.4	4.0	6.6	8.0	293	21	154	4.94
MUD CREEK NEAR OLD BETHEL, AL	03587378	990914	0800	0.1	2.0	2.0	7.4	306	21	141	9.49
SPRING CREEK NEAR TUSCUMBIA, AL	03590450	990517	1800	20.0	4.0	8.5	7.9	287	22	125	5.36
SPRING CREEK NEAR TUSCUMBIA, AL	03590450	990914	1115	0.0	5.0	0.6	7.6	108	22	120	7.60

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
FLINT RIVER AT BROWNSBORO, AL	03575100	010829	1900								
FLINT RIVER AT BROWNSBORO, AL	03575100	010829	1905								
FLINT RIVER AT BROWNSBORO, AL	03575100	010911	1530	0.04	0.18	0.00	0.06	0.076		33	16
FLINT RIVER AT BROWNSBORO, AL	03575100	010911	1600								
FLINT RIVER AT BROWNSBORO, AL	03575100	010911	1600								
FLINT RIVER AT BROWNSBORO, AL	03575100	011106	1200	0.04	0.12	0.01		0.006			
FLINT RIVER AT BROWNSBORO, AL	03575100	020109	0815	0.04	0.13	0.01		0.004			
FLINT RIVER AT BROWNSBORO, AL	03575100	020205	1600	0.04	0.13	0.01		0.005			
FLINT RIVER AT BROWNSBORO, AL	03575100	020205	1605	0.04	0.14	0.01		0.004			
FLINT RIVER AT BROWNSBORO, AL	03575100	020306	0815	0.04	0.11	0.01		0.007			
FLINT RIVER AT BROWNSBORO, AL	03575100	020409	0700								
FLINT RIVER AT BROWNSBORO, AL	03575100	020409	1545	0.04	0.21	0.01		0.012			
FLINT RIVER AT BROWNSBORO, AL	03575100	020509	0900	0.04	0.23	0.01		0.042			
FLINT RIVER AT BROWNSBORO, AL	03575100	020610	1500	0.04	0.16	0.02		0.080			
FLINT RIVER AT BROWNSBORO, AL	03575100	020610	1505								
FLINT RIVER AT BROWNSBORO, AL	03575100	020710	1130	0.04	0.28	0.01		0.177		10	
FLINT RIVER AT BROWNSBORO, AL	03575100	020910	0815	0.04	0.19	0.01		0.200			
FLINT RIVER AT BROWNSBORO, AL	03575100	021113	0700	0.04	<0.1	0.01		0.004			
FLINT RIVER AT BROWNSBORO, AL	03575100	021113	1230	0.04	0.27	0.00		0.055			
FLINT RIVER AT BROWNSBORO, AL	03575100	030115	0900								
HURRICANE CREEK NEAR GURLEY, AL	03575200	000510	0845	0.02	0.22	0.01	<0.01	0.008		10	31
INDIAN CREEK NEAR MADISON, AL	03575830	990517	1045	<0.02	0.10	0.01	0.01	0.008	260	9	17
INDIAN CREEK NEAR MADISON, AL	03575830	990914	0745	0.02	0.14	0.01	<0.012	0.015	<425	10	29
LIMESTONE CREEK NEAR TONEY, AL	03576207	990511	0915	0.22	0.53	0.05	0.13	0.152	80	135	15
LIMESTONE CREEK NEAR TONEY, AL	03576207	990914	1000	0.02	0.15	0.01	<0.01	0.017		28	30
LITTLE LIMESTONE CREEK NEAR TONEY, AL	03576226	990511	1145	0.07	0.15	0.01	0.02	0.032	190	63	13
LITTLE LIMESTONE CREEK NEAR TONEY, AL	03576226	990914	1215	0.02	0.16	0.01	<0.008	0.024		8	43
PINEY CREEK NEAR ATHENS, AL	03576405	990511	1500	0.07	0.21	0.01	0.02	0.030	110	83	20
PINEY CREEK NEAR ATHENS, AL	03576405	990913	1530	0.02	0.13	0.01	<0.009	0.013		10	35
SWAN CREEK NEAR TANNER CROSSROAD, AL	03577280	990513	0900	0.03	0.39	0.02	0.56	0.550		20	25
SWAN CREEK NEAR TANNER CROSSROAD, AL	03577280	990913	1245	0.05	0.73	0.10	2.71	3.650	145	6	11
ROUND ISLAND CREEK NEAR LAWSON, AL	03577490	990517	1445	0.03	0.15	0.01	0.01	0.012	190	37	37
ROUND ISLAND CREEK NEAR LAWSON, AL	03577490	990913	1045	0.02	0.24	0.01	<0.007	0.015	110	23	47
MUDDY FORK NEAR MOULTON, AL	03586240	990517	1400	0.04	0.10	0.01	0.04	0.038	48	9	30
MUDDY FORK NEAR MOULTON, AL	03586240	990913	1430	0.02	<0.5	0.01	<0.032	0.047	38	17	51
CLEAR FORK BELOW MASTERSON MILL, AL	03586400	990517	1100	0.04	0.06	0.01	<0.013	0.017	130	60	44
CLEAR FORK BELOW MASTERSON MILL, AL	03586400	990913	1200	0.12	<0.47	0.01	<0.006	0.030	3	45	479
MUD CREEK NEAR OLD BETHEL, AL	03587378	990518	0800	0.03	0.17	0.01	<0.007	0.013	<330	10	17
MUD CREEK NEAR OLD BETHEL, AL	03587378	990914	0800	0.02	<0.53	0.01	<0.013	0.026	280	14	45
SPRING CREEK NEAR TUSCUMBIA, AL	03590450	990517	1800	0.02	0.09	0.01	<0.005	0.011	96	15	53
SPRING CREEK NEAR TUSCUMBIA, AL	03590450	990914	1115	0.02	<0.71	0.01	<0.025	0.063	114	86	2440

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
LITTLE BEAR CREEK NEAR TUSCUMBIA, AL	03590550	990517	1630	18.0	5.0	5.5	7.9	195	23	92	3.06
LITTLE BEAR CREEK NEAR TUSCUMBIA, AL	03590550	990914	0900	0.0	2.0	1.9	6.9	154	20	71	3.75
SINKING CREEK BELOW WOODLAND, AL	03590646	990518	0700				7.50				0.10
SINKING CREEK BELOW WOODLAND, AL	03590646	990518	0830	28.0	4.0	6.5	7.4	256	18	118	3.43
SINKING CREEK BELOW WOODLAND, AL	03590646	990914	1245	3.2	0.8	7.9	7.2	318	18	154	3.43
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990113	0915	34.0		10.1	7.4	123	10	35	5.87
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990210	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990210	0730	90.0	47.0	9.6	7.6	114	14	38	5.24
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990309	0900	134.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990309	0930	132.0	52.0	11.1	7.4	107	8	34	4.29
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990324	1045	42.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990324	1115	42.0	3.0	11.1	7.9	120	13	40	4.06
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990330	1030	24.0	4.0	13.0	7.9	107	12	32	4.43
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990407	0830	18.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990407	0900	18.0	3.0	8.3	7.3	99	17	30	4.48
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990414	1630	7.2	3.0	9.7	7.5	87	18	30	3.65
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990420	0700				8.20				
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990420	0930	7.3							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990420	1000	7.0	3.0	8.1	7.0	89	15	29	3.60
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990426	1115	16.0	14.0	3.5	7.3	80	17	25	3.51
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990426	1700	64.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990426	1730	64.0	52.0		7.0	73	19	20	3.65
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1030	105.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1100	105.0	90.0	8.0	7.2	85	17	23	4.27
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1335	142.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1405	142.0	870.0	7.7	7.0	90	16	19	5.89
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990504	0930	8.4							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990504	1000	8.1	3.0	8.1	7.3	86	17	28	3.96
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990504	1005				6.90				3.83
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990506	0745	1570.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990506	0815	1570.0	290.0	7.3	7.3	72	17	20	2.11
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990512	0700				8.00				0.10
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990512	1045	16.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990512	1115	15.0	2.0	8.8	7.4	126	19	45	4.76
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990518	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990518	1145	9.0	6.0	7.1	7.4	103	19	35	4.58
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0815	6.5							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0845	6.6	3.0	6.7	7.6	88	18	33	3.42
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0850								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0851								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990601	1030	8.1	8.0	8.1	7.4	96	19	29	3.79

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
LITTLE BEAR CREEK NEAR TUSCUMBIA, AL	03590550	990517	1630	<0.02	0.10	0.01	<0.004	0.004	28	22	38
LITTLE BEAR CREEK NEAR TUSCUMBIA, AL	03590550	990914	0900	0.02	<0.31	0.01	<0.006	0.017	10	8	48
SINKING CREEK BELOW WOODLAND, AL	03590646	990518	0700	<0.02	<0.1	0.01	<0.004	0.004		<10	3
SINKING CREEK BELOW WOODLAND, AL	03590646	990518	0830	0.02	0.08	0.01	0.03	0.028	84	17	13
SINKING CREEK BELOW WOODLAND, AL	03590646	990914	1245	0.02	0.11	0.01	0.03	0.028	31	10	14
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990113	0915	0.02	0.20	0.02	0.03	0.047	530	21	11
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990210	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990210	0730	0.02	0.57	0.01	0.04	0.111	9400	63	9
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990309	0900								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990309	0930	0.30	1.30	0.01	0.11	0.200	12000	69	21
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990324	1045								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990324	1115	0.02	0.18	0.01	<0.013	0.022	208	39	13
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990330	1030	0.02	0.15	0.01	<0.019	0.016	240	35	14
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990407	0830								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990407	0900	0.02	0.31	0.01	<0.013	0.029	280	54	23
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990414	1630	0.04	0.28	0.01	0.03	0.038	98	37	22
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990420	0700	<0.025	<0.05	0.01	<0.004	0.004		<10	3
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990420	0930								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990420	1000	0.07	0.26	0.01	0.02	0.020	260	34	26
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990426	1115	0.09	0.50	0.02	0.05	0.041		50	36
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990426	1700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990426	1730	0.13	0.97	0.02	0.16	0.240	1200	81	23
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1030								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1100	0.11	0.78	0.03	0.10	0.280	5700	71	14
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1335								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990429	1405	0.61	2.50	0.06	0.29	0.890	117000	127	18
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990504	0930								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990504	1000	0.06	0.25	0.01	0.06	0.037	800	55	28
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990504	1005	0.05	0.27	0.01	0.06	0.043		48	26
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990506	0745								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990506	0815	0.20	1.20	0.02	0.18	0.400		121	32
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990512	0700	0.02	<0.07	0.01	<0.004	0.004		<10	3
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990512	1045								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990512	1115	0.02	0.17	0.01	0.03	0.028	520	14	13
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990518	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990518	1145	0.02	0.10	0.01	0.03	0.012	700	14	16
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0815								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0845	0.04	0.22	0.01	0.03	0.041	280	17	16
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0850								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990526	0851								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990601	1030	0.15	0.45	0.02	0.05	0.067		59	16

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990609	0915	7.5							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990609	0945	7.5	6.0	7.3	7.2	102	22	33	3.70
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990615	0700				7.90				0.10
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990615	1115	13.0	44.0	7.1	7.2	91	22	26	4.12
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990623	0900	4.6	6.0	6.5	7.5	104	21	34	3.50
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990623	0901								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990701	1430	10.0	30.0	7.5	7.1	89	23	26	3.76
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990708	1345	4.8	4.0	7.0	7.4	101	25	35	3.34
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990713	1545	14.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990713	1615	14.0	10.0	7.5	7.2	93	23	29	3.61
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990720	1030	4.9	3.0	6.7	7.6	103	24	35	3.26
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990720	1035								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990727	1300	4.2	3.0	7.1	8.2	101	25	36	3.21
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990803	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990803	1000	3.8	4.0	5.7	7.3	110	24	39	3.48
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0900	3.5	3.0	5.8	7.3	106	23	39	2.90
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0901								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0902								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990819	0900	3.5	2.0	5.6	7.6	109	22	41	3.15
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990824	1030	3.5	2.0	6.3	7.7	106	23	35	2.72
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990908	0700				6.80				0.29
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990908	0800	3.5							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990908	0830	3.4	2.0	5.7	7.4	116	20	46	2.65
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991012	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991012	1500	3.1	1.9	7.0	7.2	94	20	36	2.79
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991025	1315	3.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991025	1345	3.0	1.3	9.2	7.8	96	11	34	2.62
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991102	0615	30.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991102	0645	30.0	33.0	6.8	7.6	83	15	22	3.65
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991102	0650				6.80				3.64
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991116	1245	3.1							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991116	1315	3.0	1.6	9.6	7.3	98	12	37	2.94
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991214	1515	12.0	7.6	9.1	7.1	114	12	38	4.69
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000110	1115	38.0	22.0	9.5	7.3	111	12	30	4.35
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000216	1115	29.0	11.0	10.4	7.6	98	13	23	5.34
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000311	0730	84.0	84.0	7.8	7.5	91	15	25	4.69
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000320	1545	190.0	23.0	9.5	7.5	101	12	34	3.51
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000402	1245	563.0	78.0	8.9	7.4	86	15	33	2.78
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000403	1500	3210.0	760.0	8.5	7.3	51	16	18	1.62
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000419	0700								

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990609	0915								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990609	0945	0.02	0.14	0.01	0.04	0.019	1130	16	30
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990615	0700	<0.02	<0.1	0.01	<0.004	0.004		<10	3
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990615	1115	0.04	0.64	0.01	0.11	0.178		70	23
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990623	0900	0.03	0.17	0.01	0.03	0.043	650	18	28
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990623	0901								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990701	1430	0.02	0.35	0.02	0.06	0.112	4200	16	28
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990708	1345	0.04	0.19	0.01	0.03	0.047	<670	10	31
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990713	1545								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990713	1615	0.02	0.42	0.01	0.08	0.109	1240	34	27
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990720	1030	0.02	0.21	0.01	0.03	0.063		8	33
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990720	1035								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990727	1300						290	19	33
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990803	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990803	1000	0.03	0.27	0.01	0.05	0.071	720	7	44
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0900	0.02	0.27	0.01	0.04	0.042	<260	10	33
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0901								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990811	0902								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990819	0900	0.02	0.20	0.04	<0.021	0.039		18	30
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990824	1030	0.02	0.13	0.01	0.03	0.029		10	27
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990908	0700	<0.02	<0.1	0.01	<0.004	0.004		<10	2
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990908	0800								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	990908	0830	0.02	0.15	0.01	<0.023	0.031	160	15	29
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991012	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991012	1500	0.02	0.18	0.01	0.02	0.024	130	19	19
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991025	1315								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991025	1345	0.02	0.08	0.01	<0.007	0.013		17	11
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991102	0615								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991102	0645	0.02	0.68	0.01	0.14	0.230		103	62
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991102	0650	0.02	0.66	0.01	0.14	0.240		76	62
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991116	1245								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991116	1315	0.02	0.13	0.01	<0.05	0.022		25	31
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	991214	1515	0.02	0.36	0.01	0.04	0.061		39	17
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000110	1115	0.02	0.45	0.01	0.07	0.107		41	24
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000216	1115	0.02	0.21	0.01	0.04	0.030		22	16
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000311	0730	0.23	1.30	0.04	0.19	0.310		69	28
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000320	1545	0.04	0.57	0.01	0.10	0.142		58	20
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000402	1245	0.14	0.89	0.01	0.23	0.290		148	28
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000403	1500	0.23	1.80	0.01	0.38	0.850		136	41
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000419	0700								

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000419	1315	24.0	2.2	10.6	7.8	125	17	43	4.76
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000515	1030	4.8	2.5	7.6	7.1	105	16		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000515	1045	4.9	2.5	7.6	7.1	105	17	39	3.40
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000523	1000	5.1	78.0	7.8	7.3	80	19	18	4.00
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000615	0700				8.20				0.29
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000615	0930	4.2	2.5	6.4	7.6	104	23	40	3.02
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000615	0931								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000622	1330	22.0	500.0	6.1	7.5	78	23	23	3.16
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000713	0845	4.2	2.8	6.0	7.6	110	24	36	
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000713	0915	4.2	2.8	6.0	7.6	110	24	36	3.51
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000713	0916								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000817	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000817	0830	2.9	1.4	5.9	7.4	111	23	39	2.98
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000912	1315	35.0	75.0	7.3	7.2	78	22	21	3.21
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001018	0830	3.1	1.1	5.6	7.3	101	17	38	2.69
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001107	0845	3.9	1.2	6.7	7.5	94	17	35	2.80
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001109	1015	327.0	100.0	7.4	7.5	95	18	33	2.72
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001214	0700				8.20				0.29
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001214	0930	12.0	5.9	10.3	7.3	77	8	21	3.56
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010111	1230	6.1	1.7	13.1	7.8	90	4	29	4.10
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010126	1030	20.0		12.8		121	3		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010214	1415	75.0	48.0	10.5	7.7	97	12	27	5.41
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010315	0730	302.0	100.0	9.9	7.5	94	11	31	
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010315	0800	302.0	100.0	9.9	7.5	94	11	31	4.30
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010410	0900	22.0	3.4	9.6	7.6	111	18	38	4.65
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010516	1045	9.7	5.7		7.5	97	19	30	4.56
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010605	1130	148.0	68.0	8.1	7.4	87	19	28	3.12
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010628	1230	19.0		7.5		104	20		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010711	0830	10.0	5.0	7.4	7.3	105	22	33	4.29
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010711	0835								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010711	0845	10.0	5.0	7.2		105	22		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010730	1630	145.0	93.0	7.1		82	26		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010730	1630								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010816	0830	18.0	3.4	7.1	7.4	117	21	40	4.25
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010816	1015	18.0							
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010830	0900	5.4	1.3	6.6		103	22		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0830	6.0	2.1	6.9	7.4	106	25	36	3.88
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0835				7.50				
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0900	5.9	2.1	7.0		104	20		
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0900								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	011106	1600	6.7	1.6	10.2	7.5	94	13	33	3.83

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000419	1315	0.02	0.17	0.01	0.02	0.017		21	10
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000515	1030								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000515	1045	0.03	0.24	0.01	0.03	0.022		20	17
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000523	1000	0.20	1.00	0.02	0.23	0.350		83	32
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000615	0700	<0.02	<0.1	0.01	<0.006	0.008		<10	2
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000615	0930	0.02	0.20	0.01	0.03	0.036		17	26
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000615	0931								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000622	1330	0.09	1.30	0.02	0.16	0.590		45	25
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000713	0845								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000713	0915	0.02	0.25	0.01	0.04	0.048		18	31
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000713	0916								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000817	0700								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000817	0830	0.02	0.19	0.01	0.03	0.036		12	17
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	000912	1315	0.10	1.20	0.01	0.20	0.199		45	41
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001018	0830	0.04	0.14	0.00	0.01	0.021		13	11
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001107	0845	0.04	0.20	0.01	0.01	0.019		35	13
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001109	1015	0.04	1.20	0.01	0.31	0.550		105	44
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001214	0700	<0.04	<0.08	0.01	<0.006	0.004		<10	3
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	001214	0930	0.04	0.34	0.02	<0.017	0.034		52	21
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010111	1230	0.04	0.10	0.01	0.01	0.011		16	17
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010126	1030								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010214	1415	0.04	0.61	0.01	0.05	0.119		69	14
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010315	0730								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010315	0800	0.26	0.08	0.01	0.23	0.060		108	21
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010410	0900	0.04	0.18	0.01	0.02	0.021		25	13
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010516	1045	0.03	0.27	0.01	0.05	0.054		43	20
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010605	1130	0.04	0.73	0.01	0.11	0.177		131	19
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010628	1230								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010711	0830	0.04	0.24	0.01	0.03	0.039		39	31
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010711	0835								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010711	0845								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010730	1630								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010730	1630								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010816	0830	0.04	0.20	0.00	0.03	0.043		57	23
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010816	1015								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010830	0900								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0830	0.04	0.17	0.00	0.02	0.025		31	22
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0835	0.04	0.17	0.00	0.02	0.027			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0900								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	010912	0900								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	011106	1600	0.04	0.12	0.01		0.004			

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	Stream Flow (cfs)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH (SU)	Conductivity (umho/cm)	Water Temp (^oC)	Alkalinity (mg/L)	Dissolved Chloride (mg/L)
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	011204	1445	17.0		10.1	7.4	67	13	25	5.11
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020108	0700								0.30
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020108	1330	18.0	3.5	12.2	7.4	85	5	20	5.83
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020205	1230	29.0	4.2	12.2	8.0	124	7	45	4.89
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020305	1300	11.0	1.5	12.4	8.0	86	7	24	4.68
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020305	1301								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020409	1115	27.0	4.7	10.0	7.9	128	16	44	4.53
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020508	1130	28.0	4.8	8.6	7.7	126	20	41	3.74
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020508	1135								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020610	1100	6.1	4.5	7.2	7.6	107	21	36	3.66
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020710	0830	3.4	4.1	6.0	7.6	112	23	38	3.13
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020813	1030	3.1	3.0	6.8	7.6	114	22	41	2.61
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020909	1545	2.8	3.5	6.6	7.6	112	24	39	2.86
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	021113	0900	37.0	3.9	9.2	8.1	110	12	29	5.14
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	021212	1100		12.0	10.6	7.5	111	8	34	
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	030114	1600	14.0	3.2	12.4	7.9	87	7	24	

Appendix U-2. Water Quality data collected by USGS, 1999-2003.

Station Name	Station ID	Date (yymmdd)	Time (24 hr)	NH_3-N (mg/L)	TKN (mg/L)	NO_2+NO_3 (mg/L)	DRP (mg/L)	PO_4-P (mg/L)	Fecal Coliform (org/100mL)	Dissolved Fe (ug/L)	Dissolved Mn (ug/L)
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	011204	1445	0.04	0.19	0.01		0.013			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020108	0700	0.04	<0.1	0.01		0.004			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020108	1330	0.04	0.22	0.01		0.010			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020205	1230	0.04	0.19	0.01		0.015			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020305	1300	0.04	0.11	0.01		0.002		25	
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020305	1301								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020409	1115	0.04	0.15	0.01		0.012			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020508	1130	0.04	0.29	0.01		0.023			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020508	1135								
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020610	1100	0.02	0.20	0.01		0.025			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020710	0830	0.04	0.18	0.01		0.043			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020813	1030	0.04	0.14	0.01		0.031			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	020909	1545	0.04	0.16	0.01		0.036			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	021113	0900	0.04	0.24	0.00		0.042			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	021212	1100	0.04	0.36	0.01		0.085			
HESTER CREEK @ BUDDY WILLIAMSON ROAD NR PLEVNA, AL	0357479650	030114	1600								