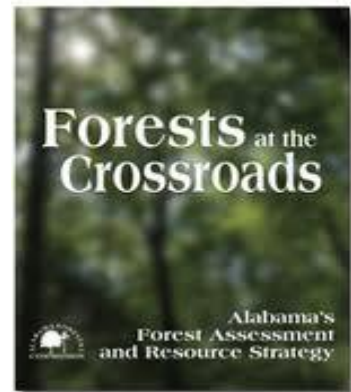


## APPENDIX B

# ALABAMA NONPOINT SOURCE MANAGEMENT PROGRAM

## SILVICULTURE



## APPENDIX B

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# SILVICULTURE

## Section B.1 Introduction

### a. Overview

Alabama has the third most timberland acreage in the 48 contiguous states. Approximately 22.9 million acres (68%) of the total land area in the state is timberland. The forest industry is the state's second largest manufacturing industry. Of timberland acreage, 85% is owned by non-industrial private landowners. This AL Nonpoint Source Management Program document is the result of a concerted effort by forestry community agencies, organizations, and citizens to protect and restore water quality. Environmentally-protective and economically-sensible principles and strategies presented herein are designed to mitigate the causes of nonpoint source (NPS) pollution while promoting sustainable forestry benefits and resources.

Responsible stewardship of forest resources in Alabama provides several essential water quality and watershed health protection and restoration benefits. Forest ecosystems play a critical role in:

- Reducing soil erosion and sedimentation (siltation)
- Filtering pollutants of other major NPS categories (e.g., agriculture, urban/construction, resource extraction)
- Improving stormwater runoff management and filtration of air pollutants (clean water and air improves quality of life and socio-economic conditions)
- Minimizing flooding by improving rainfall water infiltration rates
- Improving recharge of aquifers (groundwater/drinking water supplies)
- Improving aquatic habitat and biotic diversity

On a state level, the [Alabama Forestry Commission](#) (AFC) is mandated by statute as the states' delegated lead agency to protect, conserve, and increase the timber and forest resources of the state [Code of Alabama, 1975, Section 9-3-4 (1)]. The AFC has the power to adopt and promulgate state forestry rules and regulations; however, the AFC is not an environmental regulatory agency.

Enforcement of state water quality laws and regulations is under the purview of the [Alabama Department of Environmental Management](#) (ADEM). Using their respective delegated authorities, the AFC and ADEM continue to partner together to ensure that state water quality is protected. The AFC maintains and updates [Alabama's Best Management Practices for Forestry](#), while ADEM undertakes best management practice enforcement actions as required to ensure that waters of the state meet state water quality standards and beneficial uses. In addition, the AFC:

- Produces studies and reports on Alabama's timber and forest resources
- Provides [resources and technical assistance](#) to landowners to establish, re-establish, conserve, and sustain forested areas
- Partners with ADEM to implement strategies to help protect and restore surface water, groundwater, and air quality; mitigate soil erosion and stream siltation, and filter NPS runoff from a variety of pollutant causes
- Developed an [Alabama Forest Action Plan](#) by assessing state forest resources in support of the [2014 Farm Bill](#). The "[Forests at the Crossroads](#)" document was approved by the [USFS](#) in 2010.
- Partners with landowners to address wildland-urban interface environmental protection and economic risks
- Partners with the public and private sector to address urban sprawl, forestland management, phytoremediation, recreation, wildlife habitat and fragmentation, threatened and endangered species, invasive species, carbon storage, easements and land trusts, and general quality-of-life issues
- Ensures that forestry guidelines established by watershed management authorities follow AFC management practices as they pertain to forested watersheds ([1975 Ala Code Section 9-10a-4](#)).
- Facilitates research, training, and education and outreach designed to increase public awareness and involvement in finding the right balance between agriculture, urban sprawl, and forest land uses



- Utilizes long-term, comprehensive, multi-resource [Forest Stewardship Management Plans](#) to maximize forest watershed health and productivity, contribute significantly to clean water and air, protect aquatic habitats, and enhance recreational benefits on nonindustrial private forest lands

The management of about 667,000 acres of national forest land in 17 counties of Alabama is under the purview of the [USDA Forest Service](#) (FS). The FS protects and conserves natural resources on public lands for multiple uses and partners with agencies and the private sectors to develop and implement practices to protect over 900 species of flora and fauna, prevent erosion and sedimentation, and protect water quality. Relevant NPS pollution management activities include:

- Management of forested watersheds that provide source waters/drinking water for seven cities (350,000 people) in Alabama
- Partnering with the [ADCNR](#) to protect wildlife and aquatic habitat (including threatened and endangered species) in 5 wildlife management areas on national forest lands
- Partnering with the [U.S. Department of Interior - Bureau of Land Management \(Southeastern States Field Office\)](#) regarding resource extraction (oil and gas) leases on national forest lands (including [National Environmental Policy Act](#) requirements (NEPA) and drilling and post-lease monitoring) based on [Forest Planning](#) criteria developed with public input
- Partnering with the [AFC](#), [ADEM](#) and private industry to ensure that timber removal follows established best management practices both as a scientific management tool and to ensure sustainable and healthy forest ecosystems
- Development of national forest [Land Management Plans](#) (standards and guidelines) consistent with the [National Forest Management Act of 1976](#) (16 U.S.C. 1604) and designed to protect and restore national forests and grasslands for the benefit of communities, natural resources and the environment
- Utilizes long-term, comprehensive, multi-resource [USDA Forest Service - National Stewardship Program \(Cooperative Forestry Assistance Act of 1978\)](#) to maximize forest watershed health and productivity, contribute significantly to clean water and air, protect aquatic habitats, and enhance recreational benefits on nonindustrial private forest lands
- Providing natural resource protection education programs that address NPS management topics such as erosion, nutrient cycling, aquatic habitats, clean air, and protection of water quality



#### **b. Nonpoint Source Problems**

Silvicultural activities have the potential to negatively impact water quality. Improper applications of best management practices can result in the discharge of NPS pollutants through direct surface runoff or seepage to groundwaters. The soil's ability to absorb rainfall can be reduced, streamside buffers and natural stream cover can be lost, and poorly planned and constructed forest roads and landings increases the risk of water quality degradation. Erosion and sedimentation can also degrade aquatic habitat and wetlands. Surface water runoff can transport nutrients and chemicals, increase water temperature and decrease dissolved oxygen. The [Alabama Water Assessment Report](#) (2010) indicates that the leading causes of water quality impairments in Alabama are nutrients (primarily nitrogen and phosphorus), erosion and sedimentation, and pathogens.

Investing in forest conservation practices can significantly mitigate NPS pollution runoff problems and improve water quality and watershed health. Although the [Alabama Water Pollution Control Act](#) provides ADEM with authority to restore impaired waters and protect high quality waters; both the AFC and ADEM advocate that avoiding environmental problems through voluntary application of preventative techniques is much more cost effective and practical than restoration after the fact. Preventative measures such as implementation of pre-harvest and forest management plans that identify appropriate best management practices are highly recommended by the AL NPS Management Program to reduce potential negative impacts on sustainable forest resources and water quality. The AFC has adopted a licensing requirement for foresters but does not enforce NPS pollution regulations, relying instead on the implementation of voluntary best management practice and partnering with relevant state and federal agencies to implement an effective statewide water quality protective forestry NPS management program.



### c. Water Quality Protection and Restoration

A primary focus of the Alabama NPS Management Program and the [Clean Water Act \(CWA\) Section 319](#) nonpoint source grant program is to restore impaired state waters to meet [state water quality standards](#). Silvicultural best management practices (BMPs) continue to achieve [priority NPS pollutant load reductions](#) to state waters (e.g. nitrogen, phosphorus, and sediment) in Alabama. Leveraging resources and sustaining partnerships to mitigate priority [Total Maximum Daily Load \(TMDL\)](#) nonpoint source pollutants of concern (e.g. nutrients, organic enrichment (CBOD/NBOD), pH, siltation, habitat alteration, pathogens, and pesticides) is helping to protect and restore water quality and achieve beneficial water uses. Integrating the NPS components of [EPAs 9-key element watershed-based management plans \(or other relevant planning documents\)](#) with comprehensive [conservation activity plans](#) continues to help agencies and landowners align water quality protection and restoration targets with NPS pollution mitigation resources.

Adequate BMP planning precludes unnecessary site disturbance or environmental damage and minimizes the expense of stabilizing and restoring unnecessary land disturbances. This Silvicultural Appendix describes practical means to mitigate nonpoint sources of pollution using a targeted, flexible, and iterative watershed-based management approach. Section 319 grant project-based *Strategies and Action Items* presented in [Attachment 1](#) acknowledges the intertwined relationship between protecting and restoring water quality and sustainable silviculture. Federal and state incentives; volunteerism; cooperative research, education and outreach, training; and technology transfer and technical assistance continue to provide the primary means by which NPS pollution in Alabama is mitigated, [water quality](#) is addressed, and productivity and efficiency in delivering forest-based services and products to consumers is assured. Federal and [state land, water, and air regulatory authorities and processes](#) provide back-up regulatory mechanisms for the preferred voluntary NPS pollution management approach in Alabama.



Best management practices presented herein are designed to effectively, efficiently, and expeditiously achieve statewide NPS programmatic goals and objectives. Partners continue to work together to coordinate and leverage resources to restore water quality where elevated levels of NPS pollutants already exist or aquatic habitats are protect the state's threatened and unimpaired waterbodies (i.e., [Outstanding Alabama Waters](#), [Outstanding National Resource Waters](#), and [Treasured Alabama Lakes](#)). In addition, the environmental and economic benefits of point source and NPS water quality pollutant credit "[trading](#)" should be considered as a potential component of the state's holistic NPS pollution management approach.

As more data and information is collected, a better understanding of intertwined relationships pertaining to human activities, natural occurrences, and environmental changes is expected to result in significant improvements in the state's ability to prioritize and target its limited resources to protect and restore water quality. Meaningful discussions, partnering opportunities, and leveraging of public and private sector forestry resources continues.

### d. Water Quality Monitoring

In Alabama, all parties involved in the authorization, planning or implementation of a forestry operation are responsible for maintaining water quality standards. Because this broad interpretation may include professional forest resource managers, timber purchasers, loggers, vendors, forest engineers or others; it is in the best interest of all those involved in silvicultural operations to prevent violations of state and federal water quality laws, regulations and standards by consistently implementing effective best management practices. Voluntary guidelines presented in [Alabama's Best Management Practice for Forestry](#) maintain and protect the physical, chemical and biological integrity of waters of the state as required by the [Federal Water Pollution Control Act](#), the [Alabama Water Pollution Control Act](#), and the [Coastal Zone Management Act](#). Some forest activities require implementation of mandatory BMPs such as those pertaining to [CWA Section 404](#) permit requirements for fill and dredged material discharges as regulated by the [U.S. Army Corps of Engineers](#).



The ADEM implements a 5-year rotational river basin monitoring and assessment approach to survey potential NPS pollution impacts to the state's aquatic resources. Water quality data collected by ADEM is reported in the state's

[CWA Section 305\(b\) Integrated Report to Congress](#) and used to develop the [CWA Section \(303\)d List of Impaired Waters](#), as applicable. Each river basin monitoring iteration uses EPA-approved and standardized field collection and laboratory analyses methods to gather unbiased estimates of the condition of the state’s rivers and streams, lakes, wetlands, or coastal waters. This biennial endeavor provides scientifically-valid water quality data to help evaluate the:

- Biological, physical, and chemical water quality conditions and parameters
- Extent of state waters that support healthy aquatic life and habitat, and recreational and drinking water use benefits
- Investments and success of resources targeting water quality and natural resources protection and restoration
- Status of whether state waters are healthy or are incrementally achieving state water quality standards
- Trends or changes in water quality over time including “water quality limited segments” under CWA [Section 303\(d\) Lists](#)
- Scope and scale NPS pollution impacts on water quality and watersheds (surface waters and groundwaters)

## Section B.2 Causes of Silvicultural Nonpoint Sources of Pollution

Silvicultural activities may introduce NPS pollutants that directly impact the quality of the state’s surface waters and groundwaters and degrade aquatic habitats, stream banks and channels. The primary causes of nonpoint sources of pollution associated with forestry activities include:

### a) Erosion and Sedimentation (Siltation)

Erosion and sedimentation is generally recognized as the primary NPS pollutant associated with silvicultural practices. As precipitation flows off forest harvest sites; the runoff may pick up soil particles, nutrients, pesticides, pathogens and other nonpoint source pollutants. Erosion dislodges and carries away soil particles by wind and water, encourages undesirable or invasive species, and destroys sensitive habitats. Pollutants attached to eroded soils are washed into streams, rivers, or lakes. Siltation can cause waters to become cloudy, interfere with the amount of sunlight reaching aquatic plants, clog fish gills, smother macro-invertebrates and fish habitat, and lower dissolved oxygen levels. Increased sedimentation degrades aquatic habitat and may cause flooding, fish kills, or fish and shellfish consumption advisories, and reduce drinking water, recreational and industrial beneficial uses of water.



Properly installed and maintained silvicultural [best management practices](#) are effective in mitigating NPS pollutant runoff, protecting and improving water quality, and enhancing functional and sustainable forest ecosystems. Climatic and ecological conditions in Alabama promote rapid natural re-vegetation on most disturbed sites; thus, speeding recovery of ecosystem functions and restoration of water quality. Alabama’s NPS Management Program practices to keep soil particles in-place and reduce pollutant transport includes managing the volume and flow rate of water runoff; vegetating or mulching exposed areas; maintaining proper entry and exit roads, skid trails, decks, and landings; proper locations of access roads and grades, stream crossings (e.g. portable logging mats), cross drains, stabilized fords, pipes, culverts, and other water diversions to safely convey water from one side of the road to the other (e.g., stabilized turn-outs, ditches or channels). In order to meet CWA Section 404 exemption for an ongoing silvicultural operation, there are [fifteen \(15\) federally mandatory BMPs](#) that must be implemented when constructing forest roads and creek crossings in federal jurisdictional waters and wetlands <[33CFR-Part 323.4\(a\)\(6\)](#)>.

### b) Nutrients

The addition of organic and inorganic fertilizers is a minor silvicultural practice sometimes used in Alabama. It is generally restricted to forest lands with nutrient poor soils, urbanized forest areas, and in some cases to manage tree pest and disease problems. Nutrient water quality problems are primarily associated with [Nitrogen \(N\) and Phosphorus \(P\)](#) pollution runoff. Fertilizers may be applied to quickly establish vegetative cover on disturbed sites, maximize tree growth, and to optimize production and ensure economic sustainability; however, if applications exceed recommended rates, excess nutrients can wash into surface waters or leach to groundwaters. In addition, logging operations may add to the organic burden of surface waters through improper disposal of tree-tops, limbs, and vegetative groundcovers into streams, leading to increases in biochemical oxygen demand in the receiving

stream. Significant contributions may adversely affect water quality, fish and wildlife habitat, and decrease the waterbodies ability to assimilate storm events, thereby increasing probability for flooding.

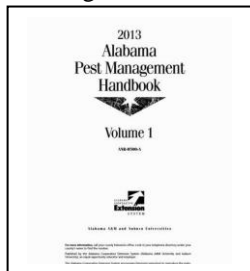
High concentrations of nutrients in a waterbody, particularly phosphorus, may produce harmful algae blooms (eutrophication). Excessive nutrient enrichment can restrict recreational opportunities, create foul tastes and odors in drinking water, and kill fish, shellfish and other aquatic life by producing toxins and depleting dissolved oxygen. Forest help to recycle nutrients and forest buffers are often a preferred “solution” to mitigate runoff of nonpoint sources of pollution from homes, yards, agricultural fields, and urban areas. In addition, urban trees help remove excess nitrogen from the air that degrades quality of life by limiting visibility and impairing breathing. Typical forestry nutrient pollutant [best management practices](#) involve applying fertilizers at recommended rates, maintaining streamside management zones, establishing and maintaining urban forests, and reducing N and P transport to state surface and ground waters by mitigating the volume and flow rate of rainfall water runoff from harvest staging areas, skid trails, and haul roads.

### c) Temperature

Shading along many waterbodies is critical to fish and macro-invertebrate health, reproduction and survival. Removal of vegetative shade from streambanks and shorelines can directly raise water temperature and may indirectly result in lowered dissolved oxygen levels, putting aquatic organisms under stress. Increases in water temperature of even a few degrees directly influences the life cycle of aquatic organisms by altering food resources and/or reproductive cycles. Protecting and maintaining riparian forest areas and leaving over story and understory vegetated buffers adjacent to water bodies in urban areas and during harvesting operations (e.g. streamside management zones) helps to protect waters from overheating and ultraviolet exposure caused by solar radiation.

### d) Pesticides and Chemicals

Chemical site preparation can duplicate or surpass mechanical site preparation results with less water quality impact. Insecticides, herbicides and fungicides can pollute surface waters and groundwaters through direct application, runoff, or atmospheric transport. Misuse of toxic chemicals can cause human illness and mortalities, poison flora and fauna, contaminate food sources, or destroy protective cover and habitat for wildlife. Leaching of pesticides via percolation, fractures, sinkholes, and solution channels may render groundwaters unfit for drinking and other uses. Water pollution problems are best mitigated through proper



application, storage, and disposal. The primary best management practice implementation strategy is to prevent problems through proactive training and education and outreach. Distribution, sale, supervision, and use must be consistent with pesticide labels and labeling and regulatory rules and regulations of the [Alabama Department of Agriculture and Industries](#) and the [Alabama Department of Environmental Management](#). Human and environmental health and safety precautions should be acknowledged prior to application since some chemicals can persist for long periods of time in the environment and spills/misuse clean-up can be technically



challenging and expensive. Aquatic use applications must be conducting according to the label. No-spray buffers along streams, ponds, wetlands and sensitive areas are advised. Additional nursery, greenhouse, or silvicultural restricted-use pesticide management measures include proper application or timing mixing and handling of pesticides and pesticide containers, and preventing excess irrigation water beyond the root zone. Caution is advised in areas where soils are highly permeable, ground water levels are near the surface, or ditches or other drainage conveyances discharge to sensitive areas (e.g., drinking water supplies, wetlands, critical plant and animal habitat, etc.).

Herbicides are commonly used to enhance forest regeneration, increase timber growth, improve wildlife habitat, control invasive plants, and maintain forest roads (mechanical preparation and fire are more typical forest landowner tools). Forest tree nurseries and seed orchards generally use pesticides as a primary pest control management measure; however, the NPS Management Program promotes increased forest pest research in regards to mitigating NPS pollution runoff and threats to water quality. The primary sources of pest management information, recommendations and practices endorsed by the AL NPS Management Program to protect surface and groundwaters are those presented in the current editions and future updates of the [Alabama Pest Management Handbook: Volume](#)

[1](#) (2013) and [Volume 2](#) (2011) ([Alabama Cooperative Extension System Publications](#): ANR-0500-A and ANR-0500-B).

**e) Solid Waste and Illegal Dump Sites**

Solid waste such as trash that originates from rural areas and urban community silvicultural activities can be carried to waters of the state by stormwater runoff. In addition, forest lands and roads are often used as illegal dumping sites for household garbage, discarded tires, construction refuse, and other discarded items. In addition to being unsightly, anthropogenic (man-induced) NPS pollutants such as nutrients and chemicals can diminish a water body’s natural ability to maintain state water quality standards; especially in sensitive areas that are easily altered physically, biologically, or chemically, or are difficult or slow to recover. Illegal storage and disposal of solid waste is under the purview of the [ADEM Land Division’s Solid Waste Program](#). Forestry activities that are linked to trash, litter, hazardous waste, scrap tires, and state and coastal water quality protection are regulated by applicable [Alabama Environmental Regulations and Laws](#).



**f) Common Inspection Problems Observed by ADEM at Forestry Sites**

ADEM and AFC staff cooperatively work together to promote forestry BMP implementation, conduct compliance assistance for forestry operators, perform routine evaluations of forestry activities statewide, and respond to citizen complaints. ADEM may also independently conduct forestry BMP compliance inspections to ensure that effective BMPs are implemented and maintained to protect water quality. Common inspection and compliance issues include:

- Spilled fuel, grease, and other chemicals resulting in soil contamination
- Trash, garbage, and improper discarding of used fuel and chemical containers
- Logging debris deposited in the stream
- Lack of or an inadequate streamside management zone
- Improperly constructed and maintained stream crossings
- Significant sediment loss from poor location and maintenance of skid trails and roads
- Too much distance between drainage turnouts or proper turnouts not installed
- Lack of or inadequate seeding, mulching, and long-term re-vegetation of bare areas post-logging



### Section B.3 Statewide NPS Forestry Best Management Practices (BMPs)

**a) Overview**

The EPA [Nonpoint Source Program and Grants Guidelines for States and Territories](#) (2013) (Appendix A. Item 6) requires states to identify measures or systems of practices that will be used to control NPS pollution, focusing on those measures which the state believes will be most effective in achieving and maintaining water quality standards. The following measures, when properly produced, delivered, implemented or maintained, will protect and restore watershed health and water quality, ensure forest sustainability, and enhance forest resources benefits through cooperation, collaboration and communication with the public and private sectors throughout the state. It is not the intent of the AL NPS Management to circumvent, supersede, or “reinvent the wheel” relative to established silviculture and water quality practices. Nonpoint source pollution control strategies presented below may be individually identified, derived from, or are presented in established Alabama-specific manuals and plans; but in aggregate, are sufficient to address the Silviculture category of the AL NPS Management Program.



**b) Alabama Forestry Commission - 2013 - 2016 Strategic Plan**

The Alabama Forestry Commission’s [2013 - 2016 Strategic Plan](#) updated in March 2013 establishes core objectives for responsible forest management on private property in Alabama. The plan places strong emphases on public and private sector collaboration using technical assistance and outreach to achieve environmental protection and economic benefits. The Strategic Plan supports the goals and objectives of the AL NPS Management Program. Specific NPS pollution management programmatic and project-specific Action Items include but are not limited to:



- Conducting random monitoring of harvesting operations to determine trends in the proper use of forestry BMPs
- Maintaining an up-to-date [Best Management Practices for Forestry](#) guide and inform the public, loggers, and forest landowners of the proper methods to manage forestland while protecting water (protect, sustain, educate)
- Sustaining healthy and productive forests by utilizing the AFC's 2010 Statewide Assessment "[Forests at the Crossroads](#)" which established a baseline of forest resources and prioritized issues throughout the state
- Participating in strategies and programs that will help minimize water quality impacts and threats to natural resources relative to urban growth and development, pest management, catastrophic events, air pollution, and potential impacts of climate change
- Facilitating forest management stewardship rules, procedures, and federal cost-share programs to enhance social, economic and environmental benefits
- Delivering a [Urban and Community Forestry Financial Assistance Program](#) to build strong local forestry programs in partnership with the U.S. Forest Service
- Providing planning and implementation oversight services to protect water quality and enhance forest resources in rural and urban areas
- Utilizing long-term, comprehensive, multi-resource [USDA Forest Service - National Stewardship Program \(Cooperative Forestry Assistance Act of 1978\)](#) and [Forest Stewardship Management Plans](#) (State) to maximize forest watershed health and productivity, contribute significantly to clean water and air, protect aquatic habitats, and enhance recreational benefits on nonindustrial private forest lands
- Promoting forest stewardship recognition and certification programs
- Serving as first-line response to citizen's forestry NPS and water quality complaints and attempting to resolve the complaints Under a Memorandum of Agreement with ADEM
- Strengthening partnerships with ADEM and clean water associations to maintain an open and working relationship in implementing watershed based management plans.
- Continuing involvement with the [Alabama Association of Regional Councils](#) to facilitate community efforts to develop their capacity to manage urban forest.
- Responding after natural disasters with the appropriate resources to assist with relief, recovery and rehabilitation efforts in the affected area including coordination with the forest industry, the [Alabama Emergency Management Agency](#), and other pre-identified liaisons
- Identifying and cooperating with partners to leverage resources and facilitating cost-share assistance
- Assessing, monitoring and controlling invasive species
- Protecting and restoring habitats of threatened and endangered aquatic species
- Educating the public about the values of natural resources and sustainable forest management and health
- Addressing potential impacts of woody biofuels and carbon sequestration to forest ecosystems



c) [USDA National Forest Service Forest Stewardship Program](#)

The [Cooperative Forestry Assistance Act of 1978](#) established the [Forest Stewardship Program](#) (FSP) to provide technical assistance, through State forestry agency partners, to nonindustrial private forest (NIPF) owners to encourage and enable active long-term forest management. A primary focus of the FSP, authorized by the 1990 [Farm Bill](#), is the development of comprehensive, multi-resource management plans that provide landowners with the information they need to protect and enhance clean water and air, wildlife habitat, recreational resources and timber supplies. The FSP incorporates [National Standards and Guidelines](#) (Revised February 2009) and [Appendix](#). In addition, the Forest Service in partnership with the National Association of State Foresters (NASF) has developed a comprehensive national program delivery strategy through the year 2020 ([FSP 20twenty - The Forest Stewardship Program's Strategy for the Future](#)). As resources allow, the FSP continues to support the goals and objectives of the AL NPS Management Program. Specific NPS pollution management programmatic and project-specific Action Items include but are not limited to:

- Maintaining strong and diverse partnerships and create new ones as new challenges are identified
- Leveraging federal and state human and financial capital
- Using environmentally-protective agroforestry practices to conserve and restore farmlands
- Focusing on healthy forest watersheds to protect the quantity and quality of water resources

- Using a “landscape-scale” or watershed-based approach to partner with private landowners to ensure that forests remain a part of the landscape and are cared for in a sustainable manner, especially where social and environmental conditions create significant opportunities
- Partnering with state foresters, conservation districts and other partners to encourage broader forest landowner participation in [USDA conservation programs](#) (current 2008 Farm Bill and future reauthorizations)
- Increasing awareness of the important role private forests play in society by incorporating Forests on the Edge, the [Forest Service Climate Change Office](#), and the [National Partnerships Office](#) strategies
- Facilitating education and outreach using electronic media, focus groups, recognition programs, and Memorandums of Understanding (MOUs) to help landowners understand how their actions contribute to broader watershed health and water quality issues
- Enhancing communication, coordination, and research among the academic community, [Alabama Cooperative Extension System](#), USDA (e.g. [NRCS](#), [FSA](#); [RC&D](#)), state and federal agencies, county and municipal governments and planners, landowners, clubs, organizations, associations, non-profits, etc.,
- Addressing threats to forests resources associated with urbanization, changes in forest ecosystems, and climate change, especially with respect to historically underserved landowners in targeted priority watersheds
- Collecting credible, high quality and reasonably consistent program delivery data to convey accomplishments and accountability and sustain program support (qualitative and quantitative) using up-to-date processes and tools
- Incorporating a holistic watershed-based management approach in Alabama’s [Forest Action Plan](#) and the USDA’s [Forest Stewardship Plan](#) and the associated [National Standards and Guidelines Appendix](#).

**d) USDA - Natural Resources Conservation Service (NRCS) Cost-Share Programs**

The [NRCS in Alabama](#) administers forestry stewardship resources and technical assistance that complement and achieve Alabama’s NPS Management Program goals and objectives. Forest landowners are strongly encouraged to partner with the USDA-NRCS Alabama office to protect and restore water quality and mitigate the causes of nonpoint sources of pollution. The NRCS in Alabama uses an MOU to partner with the [U.S. Forest Service](#), [Alabama Forestry Commission](#), and [State Conservation Commission](#) and [Districts](#) to improve and sustain the health, diversity, and productivity of forest lands. The [State Technical Committee](#) in Alabama provides a public forum to communicate interagency forestry conservation and stewardship programs, activities, and effectiveness measures. In addition, the [Food Security Act of 1985](#) provides that landowners who convert wetland acreage into agricultural tracts are ineligible for agricultural subsidies (price supports, loans, or crop insurance) for forests or crops planted in these converted wetland areas.



USDA conservation programs are integral to AL NPS Management Program water quality protection and NPS pollution load reduction efforts. The [Cooperative Forestry Assistance Act of 1978](#) established the [Forest Stewardship Program](#) (FSP). The federal FSP provides technical assistance to nonindustrial private forest (NIPF) owners and enhances long-term social, economic and environmental forest management benefits. In Alabama, NIPF landowners may be recognized as a [Stewardship Forest Landowner](#) and may be eligible to receive USDA conservation cost-share assistance to implement a [Forest Stewardship Management Plan](#) (FSMP). The FSMP provides detailed environmental documentation including BMP information relative to highly erodible land and wetlands. Forestry management measures in Alabama are installed in accordance with localized NRCS [Field Office Technical Guides](#).

**e) CWA Section 404**

Construction and improvements to forest roads and stream crossings located in a federally jurisdictional wetland or crosses any “[waters of the U.S.](#)” may require a [Clean Water Act Section 404](#) (i.e., “dredge and fill”) permit prior to initiating a project. It is unlawful to discharge [dredged](#) or [fill](#) material into waters of the United States without first receiving authorization (usually a [permit](#)) from the [U.S. Army Corps of Engineers](#), unless the discharge is covered under an exemption. The term “[waters of the United States](#)” includes rivers, lakes, streams, tidal waters, and most wetlands. The discharge of dredged or fill material involves the physical placement of soil, sand, gravel, dredged material or other such materials into the waters of the United States. CWA [Section 404\(f\)](#) baseline exemptions ([40 CFR Part 233.22](#)) allow for certain discharges if associated with an active established, ongoing silvicultural

operation (also see Code of Federal Regulations, “[Permits for Discharges of Dredged or Fill Material Into Waters of the United States](#)” 33CFR Part 323).

Wetlands are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support (and under normal circumstances do support) a prevalence of vegetation typically adapted for life in saturated soil conditions. The [Corps of Engineers Wetlands Delineation Manual](#) (the 1987 manual) and applicable [Regional Supplements](#) are used to identify and delineate wetlands relative to the CWA Section 404 regulatory program. The U.S. Army Corps of Engineers [Federal Manual for Delineating Jurisdictional Wetlands](#) (1989) is used to determine under which conditions [hydrophytic vegetation, hydric soils, and wetland hydrology](#) must be present under normal circumstances for an area to be classified as a wetland. In addition, although [Alabama’s Best Management Practices for Forestry](#) are not required for exemption from Section 404 Corps of Engineer permit requirements, they are strongly recommended by the AL NPS Management Program to minimize nonpoint source pollution of waters of the state and/or waters of the U.S.



### Section B.3.1 Coastal Zone Silvicultural Best Management Practices

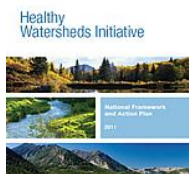
The Coastal Nonpoint Pollution Control Program requires all coastal states to describe *enforceable* polices and mechanisms it will use to implement NPS pollution controls. This federal coastal NPS program was established by Congress in 1990 under the [Coastal Nonpoint Pollution Control Program \(Section 6217\)](#). It is jointly administered by the [National Oceanic and Atmospheric Administration \(NOAA\)](#) and the [Environmental Protection Agency \(EPA\)](#). On the state level, the Alabama Coastal Area Management Program is jointly administered by [ADEM](#) and the [Alabama Department of Conservation and Natural Resources \(State Lands Division - Coastal Section\)](#).



This program is designed to target NPS pollution impacts to estuaries, beaches, the Gulf of Mexico, and marine resources along coastal Alabama (Baldwin and Mobile counties). Section 6217 requires states and territories with approved Coastal Area Management Programs to develop state Coastal Nonpoint Pollution Control Programs. Coastal NPS pollution management measures must conform to those illustrated in EPA’s [Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters](#) (EPA 840-B-92-002 January 1993) (EPA 840-B-92-002 January 1993) and must address agriculture, forestry, urban areas, marinas, hydromodification (shoreline and stream channel modification), and loss of wetlands and riparian areas.

The Alabama Coastal Nonpoint Pollution Control Program under [Section 6217 of the Coastal Zone Act Reauthorization Amendments \(CZARA\)](#), is jointly administered by NOAA and the Environmental Protection Agency (EPA). The Alabama Coastal NPS Program is inextricably linked to the statewide Alabama NPS Management Program and the state’s CWA Section 319 nonpoint source grant program. As applicable to local conditions and needs, coastal NPS programmatic activities are at least equivalent to and implemented in accordance with those of the statewide NPS Management Program. Efforts are mutually coordinated and leveraged by ADEM to enhance project coordination, sustain partnerships, and to proactively implement management measures. A variety of strategies are used to indicate cooperative programmatic progress and success, including the development and implementation of watershed management plans, agency and private sector partnerships, volunteer groups and programs, education and outreach, pollution prevention, financial incentives, environmental monitoring and tracking, and local regulations and ordinances. In addition, the [ADEM Coastal Area Management Program](#) (Division 8 Rules) provides a regulatory back-up authority relative to implementation of the [CZARA 6217](#) coastal program.

Silviculture is an integral component of local, state, and federal entity efforts to enhance the ecological and economic health of the Gulf of Mexico while ensuring sustainable protection of natural resources. Multi-state or multi-agency coastal NPS pollution management partners include [EPA’s Healthy Watersheds Initiative](#) (within the framework as coordinated by the [Mobile Bay National Estuary Program](#)), the [Gulf of Mexico Alliance](#), and the [Gulf of Mexico Initiative](#). An adaptive, broad-based, integrated system approach is



recommended to assess coastal zone forest resources, identify management measures, and leverage NPS pollution mitigation resources. To that end, the [Alabama's Best Management Practices for Forestry, Coastal Pre-Harvest Guide for Forest Landowners](#) (AFC-02082012), and *Reducing Nonpoint Source Pollution - A Coastal Alabama Handbook* (South Alabama Regional Planning Commission, March 2004) are mutually used as primary statewide and coastal forestry BMP references and resources for Section 319 grant-funded watershed management projects

## Section B.4 Section 319 Grant Funded Project-Specific Practices

### a. Overview

[Section 319\(b\) \(2\)](#) of the CWA requires states to include a list of BMPs in their NPS Management Programs that:

- Will be implemented to reduce NPS pollutant loads from each NPS category and sub-category; and,
- Contributes significant NPS loads to navigable waters or prevents waters from meeting water quality standards and goals of the Clean Water Act.

The ADEM uses Section 319 grant funding to implement a variety of on-the-ground BMPs to help waters of the state meet state water quality standards and beneficial uses. Projects apply one or more practices relative to NPS pollutant cause and source; location and site conditions, size and type of operation, and potential water quality restoration and economic effectiveness benefits. Typical forestry BMPs in Alabama target, but are not limited to: proper stream side management zones, roads and stream crossings, reforestation, revegetation and stabilization, wetland management, and demonstration of new and improved technologies. Section 319 forestry best management practices, installed according to prescribed guidelines, standards and specifications, address:

- ✓ The chemical, physical and biological integrity of waters of the state
- ✓ Programmatic goals and objectives of the *voluntary* statewide NPS Management Program and the *regulatory* Coastal NPS Management Program are achieved

### b. Primary Best Management Practice References and Resources

- The Alabama NPS Management Program endorses [Alabama's Best Management Practices for Forestry](#) as the primary programmatic non-regulatory guide (except for the U.S. Army Corps of Engineer's baseline BMPs on pages 16 and 17 which are mandatory) to help Alabama's forestry community maintain and protect the physical, chemical and biological integrity of waters of the state as required by the [Federal Water Pollution Control Act](#), the [Alabama Water Pollution Control Act](#), and the [Coastal Zone Management Act](#) and their respective amendments. This BMP manual provides sound stewardship practices that, when consistently and appropriately applied, will protect and restore water quality. The BMPs are not intended to be all inclusive because rational and objective on-site decisions must sometimes be applied to ensure that NPS pollutants are adequately mitigated, NPS pollutant load reductions are achieved, and state water quality standards are maintained.
- Forestry resource agencies in Alabama stress [pollution prevention](#). Education and outreach activities are frequently used to advise the forestry community to think and plan before they act. The statewide and coastal NPS management and Section 319 grant program in Alabama strongly supports those efforts. Pollution prevention helps to avoid unnecessary site disturbance or damage in the first place and minimizes the expense of stabilization and restoration.



Section 319 grant funded silvicultural projects and practices will also be implemented, as applicable to USDA conservation program and cost-share partnerships, in accordance with:

- [Alabama-specific agricultural standards, specifications, technical information and requirements](#) as presented in [USDA-NRCS: Field Office Technical Guides \(FOTG\)](#) Sections 1-5: General References, Soil and Site Information, Conservation Management Systems, Practice Standards and Specifications, and Conservation Effects.
- [Alabama Agricultural and Conservation Development Commission Program](#): Board-approved practices as presented/updated in the [Alabama Agricultural and Conservation Development Commission Program Rules and Regulations Handbook Part I](#), and the [Alabama Agricultural and Conservation Development Commission](#)

Policies and Approved Conservation Practices, Handbook Part II, as recommended and approved by the State Technical Committee for use by Soil and Water Conservation District (County) field offices.

- Coastal Zone Act Reauthorization Amendments - Section 6217 (CZARA) Management Measures for Forestry (Chapter 3) and particular management practices must conform to those illustrated in EPA’s Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (EPA 840-B-92-002 January 1993) to ensure application of the best available NPS pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives. If site, location, type of operation, etc., constrains implementation of national CZARA forestry chapter measures, or diminishes NPS pollution control effectiveness, the design and implementation of coastal forestry practices will be based on those presented in Alabama’s Best Management Practices for Forestry and the USDA-NRCS Field Office Technical Guides (FOTG), as is environmentally protective and practicable.
- As applicable to local soils or forest types, the EPA National Management Measures to Control Nonpoint Source Pollution from Forestry (EPA 841-B-05-001, May 2005) may be consulted to help protect state waters from nonpoint sources of polluted runoff.
- The EPA revised its Phase I stormwater regulations to clarify that a National Pollutant Discharge Elimination System (NPDES) permit is not required for stormwater discharges from logging roads. Language added to stormwater regulations clarify that, for the purposes of assessing whether stormwater discharges are “associated with industrial activity,” the only facilities under Standard Industrial Code (SIC) code 2411 (i.e., Logging) that are “industrial” are: rock crushing, gravel washing, log sorting, and log storage. Stormwater discharges from forest roads, including logging roads, are evaluated under CWA Section 402(p)(6) because the section allows for a broad range of flexible approaches that are better suited to address the complexity of forest road ownership, management, and use.
- Additional forest BMP resources relevant to Section 319 grant-funded BMP implementation projects include: The SWCC’s Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas, and the ADCNR Coastal Area Management Program.

## Section B.5 Silviculture NPS Category Partners and Programs Overview

Several public and private sector forestry programs and practices continue to provide technical assistance, technology transfer, education/extension, and financial resources to mitigate the causes of NPS pollution and protect and restore watershed health and water quality in Alabama. The goals, objectives and annual milestones of the Alabama NPS Management Program continue to be met by:

- a) Leveraging mutually beneficial programmatic and project-specific resources
- b) Coordinating watershed and water quality monitoring and assessment resources and activities
- c) Improving collaboration, cooperation, and communication between state agencies and private organizations
- d) Improving the connection between forest planning, water quality protection, and long-term forest sustainability
- e) Utilizing adaptive management processes to achieve mutual environmental benefits and project outcomes
- f) Concentrating program resources into “focus areas” based on multiple criteria
- g) Enhancing public and private comments, participation and interests



To help ensure that forest and watershed health and water quality problems are best addressed in a cost-effective and timely manner, available human and financial capital will be coordinated to:

- Develop and integrate processes for identifying forestry NPS problems in priority watersheds
- Invest available resources in a timely fashion to address priorities, including any critical areas requiring treatment and protection in priority watersheds
- Establish and enhance programmatic and financial systems to ensure that NPS mitigation dollars are used efficiently and consistent with its legal obligations to maximize water quality benefits, and,

- Target Section 319 grant funding to complement technical and financial resources available from other federal, state, and local sources

## Section B.5.1 State NPS Partners and Programs

State agencies continue to leverage resources to reduce NPS pollutant runoff, improve and protect water quality, and achieve state water quality standards. Partners implement best management practices to protect watershed health, ensure clean and safe drinking water, and enhance healthy habitats for fish and wildlife. The Alabama NPS Management Program promotes a flexible, targeted, and iterative voluntary approach whenever practical and feasible to install state agency-funded best management practices on the ground. This approach provides an effective process for coordinating and achieving environmental protection and economic benefits. The following entities are relative to implementation of the silvicultural NPS pollution category and forest water quality protection and restoration efforts in Alabama:

### B.5.1.1 [Alabama Department of Environmental Management \(ADEM\)](#)

- Protect and improve the quality of Alabama’s environment and the health of all its citizens
- Protect and restore natural resources which provide significant social, economic, and environmental benefits and opportunities for the citizens of Alabama.
- Develops the state’s environmental policy, permits, administrative orders and variances and enforces environmental regulations
- Administers the CWA Section 319 grant and facilitates implementation of the statewide NPS Management Program
- Administers CWA Section 6217 / state Coastal NPS Management Programs



### B.5.1.2 [State Revolving Fund \(SRF\) Loans \(ADEM\)](#)

Clean Water State Revolving Fund (CWSRF) [program provisions](#) of the Clean Water Act authorizes loans to fund a variety of NPS water quality protection and restoration projects, including urban forests, wetlands, estuary, and other watershed-based projects. The ADEM administers the program and disburses funds to recipients. Federal and state contributions are used to provide capital or to set up programs. Those assets are then used to make low-interest loans to protect and restore water quality. Loan repayments are then recycled to fund other water quality projects. Community groups, individuals, and nonprofit organizations are eligible to apply to ADEM for CWSRF project consideration.

### B.5.2 [Agricultural and Conservation Development Commission \(ACDC\)](#)

- Established in 1985 by Alabama Act 85-123 for the purpose of making available General Fund cost-share grant money through the State Soil and Water Conservation Committee to each Soil and Water Conservation District
- The only agricultural assistance appropriation provided by the State of Alabama
- Funding is provided to encourage soil conservation and water quality and forest improvement practices



#### B.5.2.a [State of Alabama Soil and Water Conservation Committee \(SWCC\)](#)

- Created by the 1939 State Soil and Water Conservation District Act to carry out the administrative functions of the state’s 67 District (county) programs
- Assists and advises District supervisors, disseminates information between SWCDs and maintains partnerships with other agencies

#### B.5.2.b [Soil and Water Conservation Districts \(SWCD\)](#)

- Focuses soil and water conservation decision-making matters at the local level
- Administrative resources are provided by the SWCC and local units of governments
- Presents landowners with technology, education, and funding to address soil erosion, water quality, NPS pollution, flood control, irrigation, drainage, recreation, fish and wildlife, and forest land preservation



### B.5.3 [Alabama Department of Agriculture and Industries \(ADAI\)](#)

- Administers federal and state laws and regulations for forest-based products, businesses, goods and services
- Partners with state and federal agencies, land-grant universities, commodity interest groups, and forest landowners to protect human, economic and environmental health
- Gathers and publishes Alabama-specific agricultural and forest land statistics in partnership with the [USDA-National Agricultural Statistics](#)
- Manages tree health and pesticide use and permitting programs



#### **B.5.4 [Alabama Department of Conservation and Natural Resources \(ADCNR\)](#)**

- Acquires and manages state-owned lands, state and historical parks, lakes, and wildlife area properties
- Administers grants, conducts wildlife research, and implements aquatic conservation and restoration programs such as the Alabama Aquatic Biodiversity Center (the largest state non-game recovery program of its kind in the United States) and the stocking of state hatchery-produced fish in public and private waters
- Partners with federal agencies such as NOAA, EPA, USDI, USFWS, Commerce, and Homeland Security to promote wise stewardship of the state's natural resources
- Partners with the USFWS to implement the Endangered Species Act ("Traditional" Section 6) conservation projects for listed and at-risk species
- Partners with the USDA-NRCS to implement the Wetlands Reserve Program that provides landowners with technical and financial assistance to address wetland, wildlife habitat, soil, water and related natural resource concerns on private forest lands



#### **B.5.5 [Geological Survey of Alabama \(GSA\)](#)**

- Gathers and provides geological, hydrological, and biological science-based data and information to best manage, develop, and conserve water resources
- Provides surface and groundwater quantity and water quality assessment information, metrics and data to provide resource managers and community planners with information to balance sustainable growth with natural resources protection
- Conducts water quality, biological resources, coastal area, and other aquatic research
- Partners with ADEM and ADCNR to develop standardized fish community sampling protocols and statewide analysis tools to evaluate stream biological condition, water quality and provide biological justification for water quality management decisions



##### **B.5.5.a [Strategic Habitat Unit \(SHU\)](#)**

- A joint federal, state, and private sector natural resource protection partnership
- The USFWS, the Alabama Clean Water Partnership, and ADCNR focus resources on the recovery and restoration of rare aquatic animals and water quality restoration
- Brings agencies and private sector partners together to improve aquatic habitat, water quality, and water resources, now and in the future in selected watersheds and river basins
- Uses scientifically-valid environmental quality and land use data to target water quality and habitat protection and restoration activities
- Identifies and addresses Strategic Habitat Units (SHUs) and Strategic River Reach Units (SRRUs) that include a substantial part of Alabama's remaining high-quality water courses. All SHUs support one or more protected species or critical habitats designated by the USFWS

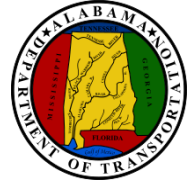
#### **B.5.6 [Alabama Department of Economic and Community Affairs \(ADECA\) / \[Alabama Office of Water Resources \\(OWR\\)\]\(#\)](#)**

- Administers the Alabama Water Use Reporting Program that details surface and ground water use and trends
- Administers programs to assess and manage river basins; develop and conserve water resource supplies;
- Provides data and information regarding instream flows, prepare flood maps, and conduct research and education and outreach
- Partners with state agencies and the private sector on major water resource economic and quality of life issues
- Recommends policies and legislation to protect the state's intra and interstate water resource interests



**B.5.7 [Alabama Department of Transportation \(ALDOT\)](#)**

- Establishes and manages [state intermodal environmental programs and strategies](#) to protect air, land and water resources
- Implements road construction site pollution prevention planning and response mechanisms
- Provides support, assistance, and expertise needed to preserve natural resources and enhance environmentally-protective and economically-supportive transportation systems in Alabama



**B.5.8 [Alabama Rural Water Association \(ARWA\)](#)**

- Provides community and town water and wastewater systems with technical, financial, administrative, management, education and outreach, and training assistance
- Helps protect drinking water sources by providing assistance to develop local wellhead and groundwater (aquifer) protection plans
- Partners with ADEM, ADECA, Emergency Management Agency, Department of Homeland Secretary, and the USDA - Farm Service Agency regarding water issues



**Section B.6 Academic Community Partners and Programs**

Several university-based academic programs provide instruction, research, and expertise to address environmental and human health protection issues. Enhancing citizen knowledge and awareness about watershed health and water protection and restoration is a fundamental and critical component of the state's NPS pollution management efforts.

**B.6.1 [Alabama Cooperative Extension System \(ACES\)](#)**

- Delivers Alabama's land grant institution ([Alabama A&M](#) and [Auburn University](#)) research-based education and outreach to the public
- Partners with county, state and federal agencies and the private sector to help them make informed forest management decisions
- Provides rural and urban economic, social, and cultural outreach programs
- Provides recommendations regarding tree planting and fertilization and erosion control to ensure stabilization of disturbed sites and to prevent NPS pollution runoff
- Promotes the [Alabama's Urban and Community Forestry Financial Assistance Program](#) and associated [Alabama's Five Year Strategic Plan](#) (ANR-1319 or as updated)



**B.6.2 [Auburn University Water Resources Center \(Alabama Agricultural Experiment Station\)](#)**

- Brings together faculty and resources from several academic departments and programs to address a myriad of complex water resource problems and issues
- Facilitates opportunities to enhance public and private sector communication, cooperation, and collaboration
- Enhances water-related instruction, research and outreach efforts to protect and restore waters of the state



**B.6.3 [Alabama Water Resources Research Institute \(Auburn University\)](#)**

- An interdisciplinary research, education and outreach, and training program based at Auburn University
- Seeks solutions to on-going water quality and quantity problems and issues and emerging threats
- Coordinates, provides grant funding, and implements a broad spectrum of natural resource protection programs

**B.6.4 [Auburn University Environmental Institute \(Auburn University\)](#)**

- Facilitates an integrated and cohesive environmental instruction, research, and extension strategy to promote coordination, collaboration and communication between the university's inter-disciplinary programs
- Provides resources and implements programs and activities to address local, state and national environmental education and outreach, leadership, and research issues and needs

**B.6.5 [Center\(s\) of Excellence for Watershed Management \(Auburn University and Alabama A&M\)](#)**

- An interagency and interdisciplinary project planning and implementation program



- Provides university research-based outreach and assistance to watershed stakeholders and communities to resolve strategic water quality and water availability issues
- Assist ADEM in developing and implementing watershed-based plans to meet Clean Water Act Section 319 grant guidelines

**B.6.6 Center of Environmental Research and Services (CERS) (Troy University)**

- Facilitates and conducts natural resource research, education and stewardship services including a pre-professional forestry curriculum in partnership with Auburn University
- Partners with other universities, agencies, and the private sectors including the Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority, Wiregrass RC&D Council, Alabama Water Watch, Pike County school and the City of Troy
- Influenced the establishment of the Environmental Education Association of Alabama, the Alabama Water Watch Program and the Alabama Water Watch Association
- Partnered with ADEM to design the EPA-recognized and nationally-innovative Alabama Revolving Loan Fund that may provide resources to implement urban and community forest BMPs and programs



**Section B.7 Federal Partners and Programs**

Federal partners provide resources to support research, education and outreach, cost-share incentives, and implement regulatory programs relevant to NPS pollution and water quality. The AL NPS Management Program and the Section 319 grant program leverages these opportunities to facilitate forest management initiatives and provide resources to take actions needed to achieve NPS pollutant load reductions.

**B.7.1. U.S. Environmental Protection Agency (EPA)**

- Protects human health and the environment by writing and enforcing regulations based on laws passed by Congress
- Provides resources and partners with the public and private sectors to make communities and ecosystems diverse, sustainable and economically productive
- Provides annual appropriations of CWA Section 319 grant funds to ADEM to implement [statewide](#) and [coastal zone](#) program [Management Measures for Forestry](#)
- Partners with NOAA to implement components of the [Coastal Zone Act Reauthorization Amendments of 1990](#) (CZARA Section 6217).



**B.7.2 National Oceanic and Atmospheric Administration (NOAA)**

- Co-federal lead (with EPA) to assure coastal zone forestry BMPs conform with the [Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990](#) (CZARA) and [Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters](#) (EPA. 840-B-92-002 January 1993)
- Requires the state to develop a coastal nonpoint source pollution control program that ensures implementation of management measures in the coastal management area, reflects circumstances relevant to differing inland conditions, and provides current technical information to the public and private sectors
- Provides agencies, private sector groups, and individuals with guidance and information to apply measures that address silvicultural NPS pollution in accordance with the [Coastal Management Act](#) (1972, as amended)



**B.7.3 National Estuary Program - Mobile Bay (NEP)**

- Administered through and funded by the EPA to respond to environmental challenges to the Mobile Estuary through implementation of a [Comprehensive Conservation Management Plan](#) (CCMP).
- Conducts assessments, identifies stressors and promotes the protection and restoration of coastal area water quality and associated watersheds
- Uses a non-regulatory programmatic approach to partner with federal, state, interstate, and local agencies; municipalities, businesses, environmental organizations; and academia to address air and water quality, wetlands, stormwater runoff, population growth and land uses, and to enhance floral and faunal habitat



- Provides citizens with science-based education and outreach to enhance their environmental, communal, social, cultural, and economic sense of ownership

#### **B.7.4 United States Department of Agriculture (USDA)**

Conservation provisions of the [Agricultural Act of 2014](#) (“Farm Bill” and as revised in future years) provide opportunities to address NPS environmental protection goals. Several [conservation initiatives and special emphases programs](#) target NPS pollution load reductions and water quality protection and restoration efforts. In addition, the USDA facilitates several conservation [planning, assessment and management strategies and policies](#). These efforts provide the public and private sectors with technical resources and information to help them make informed natural resource stewardship decisions at various geographic levels.



#### **B.7.4.a Natural Resources Conservation Service (NRCS - Alabama)**

- This technical agency of the USDA is responsible for conserving and protecting the state’s natural resources
- Provides resources to conduct silviculture research and outreach
- Promotes measures to enhance forest production and sustainability by protecting and conserving soil, water and air resources; improving and conserving wetlands; addressing flooding issues; and benefits of fish, wildlife and forestry resources
- Partners with USACOE through joint guidance to conduct wetland determinations applicable to [Section 404 of the Clean Water Act](#)
- Implements applicable forestry programs and provisions of the latest “Farm Bill”
- Works in close partnership with the [State Soil and Water Conservation Districts](#) and the [USDA - Farm Service Agency in Alabama](#) to deliver natural resources programs to control erosion, restore water quality, and enhance and protect the environment and reduce erosion and runoff of sediment into state waters.
- Provides detailed site plans and soils information for planting trees



The AL NPS Management Program endorses [Alabama-specific forestry standards, specifications, technical information and requirements](#) as presented in the:

- [USDA-NRCS: Field Office Technical Guides \(FOTG\)](#) Sections 1-5: General References, Soil and Site Information, Conservation Management Systems, Practice Standards and Specifications, and Conservation Effects.
- [Alabama Agricultural and Conservation Development Commission Program](#): Board-approved forestry practices as presented in the [Alabama Agricultural and Conservation Development Commission Program Rules and Regulations Handbook Part I](#), and the [Alabama Agricultural and Conservation Development Commission Policies and Approved Conservation Practices, Handbook Part II](#), as recommended and approved by the [State Technical Committee](#) for use by Soil and Water Conservation District ([County](#)) field offices.



#### **B.7.4.b NRCS Technical, Planning, and Financial Assistance Programs in Alabama:**

- [Environmental Quality Incentives Program \(EQIP\)](#): provides funding to address the most severe resource concerns within the state; places decisions and implementation responsibilities at the lowest level possible by involving locally led partners in the decision making process, and provides oversight and program management that is consistent with national goals and objectives. The EQIP program provides financial and technical assistance to implement the following conservation initiatives:
  - ✓ [Longleaf Pine Initiative](#): Resources are provided to restore longleaf pine forests to protect threatened and endangered species and to restore wildlife habitat and travel corridors in the historical longleaf pine forest range. Priority is given to planting on open land (cropland or pasture) sites and practices may include site preparation, planting, installing firebreaks, conducting prescribed burning, and controlling invasive plants.
  - [Wildlife Habitat Incentives Program \(WHIP\)](#) / [Working Lands for Wildlife \(WLFW\)](#): A partnering program of the NRCS and the U.S. Fish and Wildlife Service that uses the combined agency technical expertise and financial assistance from WHIP to restore populations of seven declining wildlife species; provide farmers, ranchers, and forest managers with regulatory certainty that conservation investments they make today help sustain their operations over the long term, and strengthens and sustains rural economies by restoring and protecting the productive capacity of working lands.

- [Farm and Ranch Land Protection Program \(FRPP\)](#): Provides funds to keep productive privately-owned agricultural lands in agricultural uses. Easements protect important farmland soils in Alabama including prime and unique farmland, soils of statewide importance and soils of local importance according to the identification of such soils maintained by the Alabama NRCS (Auburn), or the parcel must be identified on the National or State Registry of Historic or Archaeological Sites.

#### **B.7.4.c [National Water Quality Initiative \(NWQI\)](#)**

- NRCS targets EQIP funding to priority watersheds to improve water quality and aquatic habitats in impaired streams
- Helps farmers, ranchers, and forest landowners to implement conservation and management practices through a systems approach to mitigate nutrient and manure runoff
- Provides assistance to install conservation practices such as filter strips, buffers systems, and erosion control
- ADEM monitors water quality in selected NWQI watersheds annually to assess water quality improvements and program success

#### **B.7.4.d [Gulf of Mexico Initiative \(GoMI\)](#)**

- Provides financial and easement assistance to help producers along the Gulf Coast (e.g., Alabama, Florida, Louisiana, Mississippi, and Texas) improve water quality
- Promotes sustainable forest and wildlife habitat management systems and productivity; mitigation of nitrogen, phosphorus, and sediment runoff and transport; and prevention of saltwater intrusion into sensitive habitats of threatened and endangered species
- Focuses multi-agency partnership efforts on reducing soil erosion and improving water quality and wildlife habitat on cropland, pastureland, and forestland in the Weeks Bay (Fish River) and Escambia River watersheds in Alabama (and Florida)



#### **B.7.4.e [Alabama Soils Information \(Web Soil Survey\)](#)**

- The Web Soil Survey allows users to define an area of interest, view and print a soil map, assess soil data about the area, and obtain information about the suitability of the soils for selected uses in a given area.



#### **B.7.4.f [Highly Erodible Land Conservation \(Sodbuster\)](#) [Wetland Conservation Compliance \(Swampbuster\)](#)**

- Carry out erosion and wetland compliance provisions of the National Food Security Act of 1985 and CWA Section 404 (as amended)
- Provides dis-incentives to produce agricultural commodities on converted wetlands or highly erodible land
- Reduce soil losses, preserves and protects wetlands, and improves water quality
- The NRCS makes wetland determinations in the field as requested by the landowner
- The Farm Services Agency maintains wetlands determination geospatial data for producer maps

#### **B.7.4.g [“StrikeForce” Initiative \(USDA\)](#)**

- A partnership of USDA agencies ([NRCS](#), [FSA](#), and [Rural Development](#)) and other local and state governments and community organizations helping to rebuild and revitalize rural communities in targeted areas
- Leverages community resources in targeted, persistent-poverty communities to promote economic development and job creation

#### **B.7.5 [Farm Service Agency \(FSA\)](#)**

- Provides farmers and ranchers with farm loans, commodity price support, disaster relief, and resources to protect and conserve soil, water, air, and wildlife.
- Provides programs and services to increase stewardship of natural resources, enhance environmental protection and sustain economically viable agricultural and forest lands
- The [Alabama State Office of the FSA](#), works closely with NRCS and state agencies to carry out USDA cost-share and conservation compliance programs applicable to provisions of the latest [“Farm Bill”](#) in Alabama



The FSA administers several voluntary environmental protection related programs opportunities. The following [FSA Conservation Programs](#) are applicable to NPS pollution management and water quality restoration and protection efforts in Alabama:

- **Conservation Reserve Program (CRP):** Provides annual payments to plant long-term, resource-conserving land covers to improve water quality, control soil erosion and enhance waterfowl and wildlife habitats.
- **Emergency Conservation Program (ECP):** Provides emergency funding and technical assistance to revitalize farmland damaged by natural disasters and facilitate water conservation during extreme drought.
- **Emergency Forestry Restoration Program (EFRP):** Non-industrial private forest land owners are provided resources to implement emergency measures to restore land damaged by a natural disaster.
- **Biomass Crop Assistance Program (BCAP):** Provides owners and operators of agricultural and non-industrial private forest lands with resources to establish, produce, and deliver biomass feed stocks.
- **Socially Disadvantaged Loans Program:** Provides loans to one of a group whose members have been subjected to racial, ethnic, or gender prejudice without regard to his or her individual qualifications.

**B.7.6 [Resource Conservation & Development Program and Councils \(RC&D\)](#)**

- Administered by the USDA-NRCS and governed by a multi-county, membership-based nonprofit RC&D Council
- Promotes environmental protection and economic sustainability in designated areas through collaborative strategic planning processes and partnerships
- Identifies, develops, funds, and implements natural resource conservation, development, and utilization projects
- Promotes voluntary community-based soil and water protection and restoration approaches



**B.7.7 [State Technical Committee](#)**

- A cooperative federal and state agency, professional discipline, and private interest [natural resource conservation partnership program](#)
- Provides technical and programmatic information and recommendations for conservation measures to the NRCS, the State Conservationist, and other federal and state agencies
- Develops technical standards for conservation programs through specialized subcommittees
- Conducts economic and environmental impacts analyses of conservation activities, programs, practices, and payments



**B.7.8 [U.S. Fish and Wildlife Service \(USFWS\) / \[Ecological Service Field Office, Daphne, Alabama\]\(#\)](#)**

- Conserves, restores, and protects fish, wildlife, and plant habitat and populations by enforcing federal laws
- Conducts environmental investigations and provides technical support to protect and restore natural resources
- Promotes protection or restoration of healthy natural resources and environments for people, fish, and wildlife



**B.7.9 [U.S. Army Corps of Engineers \(USACOE\) / \[USACOE -Mobile District\]\(#\)](#)**

- Constructs, maintains and operates water resource infrastructure to enhance economic and environmental health, safety and quality of life
- Partners with ADEM to issue nationwide (Section 401) dredge and fill (Section 404) permits
- Provides planning and other environmental services to analyze, formulate, justify and document hydrologic and natural resource protection and restoration projects
- Promotes environmental sustainable designing, engineering, and construction protocols and projects
- Assesses, plans, and implements water supply, storage, withdrawal and release, and flood control and drought contingency operations and projects
- Develops and reviews environmental assessments, environmental impact statements, and project plans to protect and balance the many purposes and demands placed on natural resources



**B.7.10 [U.S. Geological Survey \(USGS\) / \[Alabama Water Science Center\]\(#\)](#)**

- Partners with ADEM, ADOT, GSA, USACE, Homeland Security, communities, industry and others to collect and disseminate stream flow, reservoir level, water quality, water quantity, and groundwater resource monitoring and assessment data and information
- Develops natural resource and watershed management plans to enhance environmental and economic benefits
- Provides high resolution imagery for mapping, conducts aquatic and terrestrial floral and faunal studies, and develops standardized methods to map and evaluate coastal areas



**B.7.11 Tennessee Valley Authority (TVA)**

- Promotes urban and rural environmental and economic development and sustainability to improve quality of life and economic prosperity
- Partners with other federal and state and local entities to strengthen relationships; expand collaboration; improve communication; and provide education to many and varied audiences
- Assesses, protects, improves, restores and manages natural resources in order to meet state and federal regulations and standards; use an integrated river system management process to assesses reservoir and land-uses; provides for public land recreational opportunities, and assesses environmental conditions and problems and facilitates the implementation of relevant management strategies
- Uses an integrated environmental management system approach to strengthen policies and programs to manage and enhance air, land and water quality and other natural resources
- Administers programs to protect public health, discourage wasteful consumption of natural resources , and proactively prevent pollution threats and problems



**B.7.12 U.S. Department of Transportation (USDOT)**

- Develops and coordinates mechanisms to support the national transportation system with due regard for need, the environment, and national defense
- Administers policies and programs to protect and enhance the nation’s transportation systems, security, and services
- Partners with state agencies to provide funding to enhance quality of life, environmental protection and economic sustainability



**B.7.13 EPA Office of Homeland Security / Agricultural Food, Fiber, and Natural Resource Bio-Security**

The Alabama Nonpoint Source Management Program and CWA Section 319 grant will integrate reasonable and practicable measures to help protect Alabama’s food, water and other resources from nonpoint sources of pollution. Efforts should continue and scientific, technical, and funding resources enhanced to proactively address potential environmental and human health, economic, and social challenges. Examples of nonpoint source pollution threats and impacts include but are not limited to water quality (and quantity) security, pesticides and chemicals.

**Section B.8 Non-Governmental Organization (NGO) Partnerships**

Several NGO associations, federations, producer organizations, commodity groups, etc., continue to partner with federal and state resource agencies to protect, conserve, and restore natural resources in Alabama. Their input and cooperation provides an effective and efficient delivery system for BMP information, technology and technical assistance relative to forestry NPS pollution runoff issues in Alabama.

**B.8.1 Alabama Clean Water Partnership (CWP)**

- Partners with ADEM to protect and restore water quality, prioritize watersheds, and develop and implement watershed-based management plans
- Links federal and state, and local agencies, communities, and watershed stakeholders to put best management practices “on-the-ground”
- Provides a neutral, targeted, and iterative forum to identify environmental problems
- Seeks solutions to mitigate many and varied water quality protection and restoration challenges using major river basin based, facilitator-led project coordination
- Promotes improved communication, coordination and collaborative decision-making processes to protect and restore water quality using a voluntary (non-regulatory) approach



### **B.8.2 [Alabama Water Watch](#) (AWW)**

- A statewide water quality monitoring program composed of trained and certified citizen-volunteers who test certain physical, chemical, and biological conditions of waterbodies using standardized EPA-approved monitoring protocols
- Combines the resources and expertise of citizen groups, a university-based program, and a non-profit association to collect credible drinking, swimming, and aquatic life water quality data and information
- Provides training and certification to help volunteers collect, analyze, and understand their water quality data
- Identifies pollutant sources and tracks long-term trends to improve water quality and water policy
- A founding partner of the international [Global Water Watch](#) citizen-volunteer monitoring program



### **B.8.2.a [Alabama Water Watch Association](#) (AWWA)**

- A 501(c)(3) tax-exempt organization that supports AWW efforts to help communities and student groups identify, monitor, and seek solutions to water quality problems
- Provides training, education and outreach, and motivation to improve water quality through citizen-based monitoring and policy actions

### **B.8.3 [Alabama Natural Heritage Program](#) (ALNHP)**

- A conservation action and stewardship program of the Environmental Institute (Auburn University)
- Provides science-based information on the biological diversity to agencies and the private sector to conserve and promote sound stewardship of land and water resources
- Identifies plants, animals, and natural communities of concern for protection and consolidates that information in a comprehensive database
- Promotes sound natural resource protection and conservation actions within the state and throughout the Southeast.

### **B.8.4 [The Nature Conservancy](#) (TNC) / [TNC - Alabama](#)**

- Works to preserve, protect and restore natural resources and areas in Alabama
- Administers projects conserve and improve species biodiversity; create, protect and restore habitats; address invasive species, and protect rare and declining species
- Promotes and provides environmental research, education and outreach, and hands-on field experiences to increase citizen awareness and knowledge
- Promotes natural resource protection, environmental sustainability and economic growth



### **B.8.5 [Alabama Farmers Federation](#) / [American Farm Bureau Federation](#)**

Several viable and vital private and corporate efforts continue to help protect and restore Alabama's land, water, and air resources and enhance forest resources and economic benefits. A diverse mix of NPS Management Program partners provide forest decision-making, education and outreach, research, and legislative input and delivery mechanisms to address NPS pollution issues and challenges including, but not limited to the following:

- Horticulture
- Forestry and Wildlife
- Forest Industry Products (e.g., food, fiber, pharmaceuticals, building materials, packaging, biofuel, etc.)



### **B.8.6 [Cooperative Ecosystem Study Units \(CESU\) Network](#) (Auburn University - Office of Vice President for Research)**

- A collaborative and interdisciplinary national consortium composed of federal agencies, tribes, academic institutions, state and local governments, nongovernmental conservation organizations, and other partners
- Works to support informed public trust and stewardship of natural resources in varied bio-geographical and regional levels (i.e., Piedmont South Atlantic Coast and Gulf Coast)
- Provides contemporary biological, physical, social, and cultural sciences and resource management research
- Provides technical assistance, education and outreach, and capacity building for long-standing priorities

### **B.8.7 [Integrated Pest Management \(IPM\)](#)**

The state NPS Management Program endorses the increased usage of Integrated Pest Management (IPM) techniques to prevent NPS pollution based on specific soils, climate, and pest in order promote natural barriers, limit pesticide amounts and application rates, and minimize off-site transport. The primary sources of information and recommendations endorsed by the AL NPS Management Program to protect surface and ground waters in Alabama from the misuse of pesticides align with science-based goals and information presented by the ACES and Alabama Integrated Pest Management Information Center.



### **B.8.8 [Center for Bio-Energy and Bioproducts \(Auburn University\)](#)**

The Alabama Nonpoint Source Management Program supports environmentally-protective and economically sensible efforts to enhance quality-of-life in Alabama. The state's bountiful renewable forestry resources present opportunities to integrate energy security issues with environmental protection programs. Increased funding and continued bioenergy and bioproducts research (such as woody biomass) is needed to develop and assess processes and technologies, feed stock supplies, and availability. An integrated statewide program approach emphasizes public and private sector partnerships, education and outreach, technology demonstrations and pilot projects. State policies and programs address economic and environmental benefits and challenges. To mitigate threats to water quality, the Alabama Nonpoint Source Management Program endorses the goals, objectives, guiding principles and actions of the AU - [Center for Bioenergy and Bioproducts Center](#) and applicable programs and resources of the ADECA - [State Energy Program](#) and [State Energy Plan](#) [PY2011 (2012), and as updated].



### **B.8.8 Alabama Forestry Association (AFA)**

A non-profit organization whose purpose is to centralize and focus the strength of the forestry industry

Monitors government regulation of the forestry industry

Advocates for industries and that are directly or indirectly related to forestry

Regularly communicates with its members via an electronic newsletter, *AFA Newsroom*, and its quarterly magazine, *Alabama Forests*.

Works with affiliate Alabama Pulp & Paper Council and the Alabama Loggers Council to advocate for the industry



## **Section B.9 Voluntary and Regulatory NPS Management Approaches**

### **Overview**

Many federal and state programs have goals in common with the AL NPS Management Program and the Section grant 319 program. The wide array of ways in which Section 319 funds may be used to support NPS management activities makes them well-suited to integration and coordination with other programs, especially those limited to a specific set of activities such as BMP implementation. Integration of programs can achieve the coordinated design and implementation of water quality-focused programs and projects that employs the resources, authorities, and expertise of all relevant programs.

### **B.9.1 Memorandums of Understanding (MOU)**

The AL NPS Management Program endorses the development of an MOU to prevent and mitigate the causes of NPS pollution; avoid duplication of efforts, leverage delegated authorities, and prevent wasteful use of limited resources. The following voluntary forestry MOUs strengthens water quality protection and NPS pollution load reduction efforts among a variety of federal and state programs:

**B.9.2 [Alabama Forestry Commission \(AFC\)](#) and [Alabama Department of Environmental Management](#):** This MOA enhances state efforts to mitigate forestry NPS pollution impacts to water quality while providing an effective mechanism to mutually address citizen complaints. The MOA process includes appropriate notification and compliance audits for forestry activities with the potential for adverse nonpoint source impacts to water quality. ADEM is the lead state agency in regards to environmental matters pursuant to the Alabama Environmental Management Act and the Alabama Water Pollution Control Act. ADEM also has the responsibility and authority pursuant to these laws to establish and enforce water quality standards and any other necessary rules and regulations

for the protection of waters of the state. The ADEM uses enforcement mechanisms to address citizen forestry complaints if they cannot be resolved by the AFC within a specified time period. The AFC is the lead state resource agency that helps landowner's carry out responsible forest management on their property. In addition, the AFC provides technical assistance and education and outreach to the general public to ensure both a healthy forest environment and economy.

**B.9.3** [National Association of State Foresters, the National Association of Conservation Districts, Natural Resources Conservation Service, Forest Service, National Association of State Foresters, and National Association of Conservation Districts](#): This MOU describes several actions for improving forestry conservation assistance and stewardship can serve as a model for state collaboration. In addition, it strengthens cooperation among the each signatory entity and assures coordination of interagency delivery of forestry-related conservation assistance to private landowners is coordinated in order to sustain the health, diversity, and productivity of private working forest land, cropland, pasture, and rangeland.

**B.9.4** [Alabama Forestry Commission, U.S. Forest Service, Natural Resources and Conservation Service, Alabama Department of Conservation and Natural Resources, Alabama Department of Environmental Management, Auburn University School of Forestry and Wildlife Sciences, and the Alabama Cooperative Extension System](#): This MOA provides a comprehensive framework where all stakeholder groups identify opportunities and address threats facing the state's forest. This strategy uses the [Forests at a Crossroads](#) document (a.k.a. *Alabama's Forest Assessment and Resource Strategy*) as a guide to ensure greater awareness, build a consensus toward common goals, improve sharing of resources for learning and knowledge, and support applicable forest resource and management considerations of the [Agricultural Act of 2014](#) (Farm Bill).

**B.9.5** The [Alabama Forestry Commission](#) and the [U.S. Army Corps of Engineers](#) (Mobile District): This MOA is designed to ensure that appropriate best management practices are installed during forestry operations in wetlands.

#### **B.9.6 Other NPS Management Approaches and Programs**

The Alabama NPS Management Program implements a flexible, targeted, iterative, and voluntary incentive-based approach to reduce NPS pollution loadings and protect and restore watershed health and water quality.

- ADEM: If the voluntary NPS management approach does not appear to be environmentally protective, ADEM uses enforceable "back-up" provisions of the [Clean Water Act](#) (CWA) and the [Alabama Water Pollution Control Act \(AWPCA\)](#) (Code of Alabama 1975; Chapter 22A-22.x; as amended), and ADEM regulatory measures as embodied in [Alabama Environmental Regulation and Laws](#) to meet and sustain state water quality standards.
- EPA and NOAA: [Coastal Nonpoint Source Management](#)  
The U.S. Congress passed the Coastal Zone Management Act (CZMA) in 1972. The Act provided for managing the nation's coastal resources while balancing economic development with environmental conservation. A national policy objective of the CZMA is, "to preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." [(U.S.C Section 1452. Congressional declaration of policy (Section 303)] Congress later established a Coastal Nonpoint Pollution Control Program to address NPS pollution in 1990 under [Section 6217 of the Coastal Zone Act Reauthorization Amendments](#) (CZARA). The federal CZARA program is jointly administered by the [National Oceanic and Atmospheric Administration](#) (NOAA) and the [Environmental Protection Agency](#) (EPA).

The Alabama Coastal Area Management Program (Baldwin and Mobile Counties) is jointly administered by [ADEM](#) and the [Alabama Department of Conservation and Natural Resources \(State Lands Division - Coastal Section\)](#). Section 6217 of the CWA requires states and territories with approved Coastal Area Management Programs such as Alabama to develop Coastal Nonpoint Pollution Control Programs to address NPS pollution impacts on estuaries, beaches, marine resources and ocean waters. The CZARA program also requires the state to describe enforceable policies and mechanisms it will use to implement NPS pollution control measures. Coastal zone measures address agriculture, forestry, urban areas, marinas, hydromodification (shoreline and stream channel modification), and loss of wetlands and riparian areas. Measures must also conform to those illustrated by EPA in the, [Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters](#) (EPA 840-B-92-002 January 1993).



The [ADEM Coastal Zone Management Program](#), which falls under [Section 6217 of the Coastal Zone Act Reauthorization Amendments \(CZARA\)](#), is inextricably linked to the statewide Alabama NPS Management Program and the state's [CWA Section 319](#) grant program. Available resources are coordinated and leveraged by ADEM to improve coordination, sustain partnerships, and proactively implement NPS pollution management measures. A variety of mutual programmatic accountability measures are used to indicate implementation progress and success, including but not limited to: laws, rules, regulations, ordinances, watershed-based management approach, sustained partnerships, voluntary approaches, public and private sector education and outreach, pollution prevention, financial incentives, and environmental health monitoring and tracking. As applicable to local conditions and needs, coastal measures are implemented in accordance with statewide NPS Management Program best management practices as recognized herein for statewide applications. In addition, [ADEM Coastal Area Management Program](#) (Division 8) rules provide regulatory back-up authorities in conjunction with implementation of the [CZARA 6217](#) coastal program.

- [CWA Section 404](#) and [CWA Section 401 Water Quality Certification](#) (dredge and fill)
- [National Forest](#) and [Forest and Range Lands](#) BMPs in Alabama
- Pesticides: [ADEM - Pesticide General Permit](#), [ADAI - Commercial Pesticide Sell, Use, Supervision, and Applications](#), and [Federal Laws and Regulations](#)

## Attachment B-1: Section 319 Grant Project-Specific Strategies and Action Items

### Overview:

Project-specific Strategies and Action Items are essential and fundamental NPS pollution management tools to demonstrate reasonable CWA Section 319 grant progress toward achieving Programmatic Goals and Objectives of the Alabama NPS Management Program. The following adaptive management mechanisms provide *project-level guidance* to plan and implement local focused watershed and water quality activities in a collaborative, cooperative, and coherent manner.

Best management practices (measures) and education and outreach efforts presented herein:

- Are outcome-based as applicable and practical
- Places an emphasis on reducing S. 319 grant priority and EPA Grants Reporting and Tracking System (GRTS) reportable NPS pollutant loadings (e.g., Nitrogen, Phosphorus, and Sediment) and priority Total Maximum Daily Load (TMDL) pollutants of concern
- Supports statewide efforts to expeditiously meet state water quality standards and sustain water quality benefits
- Integrates and leverages human and financial capital of national, regional, state and local programs and projects
- Aligns multiple project planning and implementing processes using a holistic approach
- Enhances public/private sector project partnerships, local “ownership”, transparency, and accountability
- Support a flexible, targeted, iterative, holistic watershed-based approach to reach a *consensus for the desired environmental outcome*.

The following Strategies present a coherent and accessible means to help the forestry sector and general public effectively, efficiently, and expeditiously achieve state water quality standards and maximize water quality benefits. Action Items are elemental strategic-support components that address single or multiple NPS pollution causes, conditions and pollution mitigation needs whether the project is statewide, watershed, or site specific.

### Strategy B.1 Achieve State Water Quality Standards, Use Classifications and Other Beneficial Uses.

#### Action Item B.1.1 Continue to enhance water quality and watershed health as agency and community authorities, guidelines, criteria, and resources allow:

- Implement silvicultural BMPs to address the NPS components of a TMDL to accelerate restoration of Section 303(d) listed impaired waters
- Partner with communities and individuals to protect groundwaters and drinking water sources (e.g. public water systems; water supply, wellhead capture zones, private drinking water wells using phytoremediation, forest buffers, and other silvicultural practices)
- Focus available forest resources to continue to protect high quality and unimpaired waters (e.g., Outstanding Alabama Waters, Outstanding National Resource Waters, Treasured Alabama Lake, or future designations)
- Facilitate continued implementation of forest components of the USDA-NRCS National Water Quality Initiative (NWQI) in Alabama
- Continue to leverage Farm Bill programs to support forestry BMP efforts of the Gulf of Mexico Alliance, Gulf of Mexico Initiative, CWA S. 6217, and other multi-state and multi-agency NPS nutrient management strategies
- Promote voluntary NPS pollution programmatic approaches but apply statutory, regulatory and administrative “back-up” authorities and interventions to achieve state water quality standards when voluntary BMP implementation efforts, strategies, and incentives do not appear to be working (based on WQ monitoring data)
- Implement forest buffers setbacks to protect and restore priority waters, sensitive areas, or wetlands
- Engage federal, state and local partners to continuously deliberate frameworks and metrics to best measure forest land water quality restoration and protection and beneficial use success



### Strategy B.2 Implement Management Measures to Protect and Restore Surface Waters, Groundwaters, and Natural Resources

**Action Item B.2.1 Continue to holistically integrate programs, financial incentives, technology transfer, and technical assistance with a focus on consensus to meet the desired environmental outcome:**

- Facilitate partnerships between resource agencies and forest landowners to develop and implement comprehensive watershed-based forestry management plans
- Facilitate partnerships with federal and state agencies; land-grant universities, communities, and others to align, leverage, and deliver environmentally-protective and economically-sensible measures to mitigate anthropogenic impacts of NPS pollution on forest and human health
- Mutually prioritize projects and leverage Section 319 grant resources with state forestry incentive resources
- Research and promulgate new or improved NPS guidelines, standards, and practices
- Enhance greater collaboration with a full spectrum of forest sector partners to accelerate forest research, innovations and new technologies to address NPS pollution challenges and restore impaired waters
- Develop and implement forest components of watershed management plans that address EPA's 9-key elements
- Target resources to address NPS pollution on a HUC-12 subwatershed level as feasible and practicable
- Coordinate federal and state cost-share programs that provide forest landowners with financial incentives to voluntarily install silvicultural NPS pollution management measures
- Target NPS pollution measures based on forest landowner interests, site-specific conditions, BMP application rates, numbers, timing, location, land-use, extent, economics, effectiveness, and maintenance considerations.
- Consider environmentally protective and economic aspects when designing, retrofitting, or implementing structural solutions, singularly and in combination to get the "best bang for the NPS mitigation buck"
- Leverage forestry BMPs to address site-specific NPS pollutant causes and extent (e.g. Section 319 pollutant load reductions, TMDL pollutants of greatest concern; concentration, proximity, etc.,)
- Mitigate Section 319 grant and NPS programmatic priority pollutant load reductions (e.g. nitrogen, phosphorus, and sediment/siltation) or nonpoint source TMDL pollutants of concern
- Use the [Alabama's Best Management Practices for Forestry](#), [Coastal Pre-Harvest Guide for Forest Landowners](#) (AFC-02082012); *Reducing Nonpoint Source Pollution - A Coastal Alabama Handbook* (South Alabama Regional Planning Commission, March 2004); and EPA's [Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters](#) (EPA 840-B-92-002 January 1993) as primary statewide and coastal forestry BMP references and resources for Section 319 grant-funded watershed management projects
- Develop, implement, and update nutrient management plans to address impacts on water quality, soil testing, proper storage or land application, human and environmental health concerns and hazards, record keeping, etc.
- Facilitate incentives and opportunities for forest landowners to improve productivity, especially in socio-economically disadvantaged areas
- Coordinate efforts to minimize or abate nutrient, fertilizer and pesticide surface water runoff and leaching to groundwaters (e.g., drinking water sources, recreational use waters, outstanding resource waters, etc.,)
- Coordinate efforts to minimize or abate soil erosion and sedimentation (siltation) to waters of the state
- Facilitate implementation of forest buffers and other BMPs to target nutrient criteria (in the form of chlorophyll *a*) established by the state for publically-owned lakes and reservoirs
- Coordinate efforts to protect and enhance aquatic species, aquatic habitat and other critical areas of concern
- Coordinate efforts prevent or reduce atmospheric pollutants, especially in urban areas
- Coordinate efforts to prevent or restrain the spread of invasive species to preclude detrimental impacts to forestry-based environmental and economic health and sustainability



**Strategy B.3 Achieve Nonpoint Source Pollutant Load Reductions**

**Action Item B.3.1 Continue to monitor and assess on-the-ground best management practices designed to address complex NPS pollution management challenges:**

- Target priority waterbodies, watersheds, and site-specific project areas (e.g. CWA Section 319, 303(d), and 6217/coastal programs; TMDLs, USDA-National Water Quality Initiative; etc.)
- Collect valid, science-based water quality and pollutant loading data and information using federal and state agency-approved quality assurance project plans and monitoring protocols

- Assess current data and historical water quality trends to target NPS pollutant load reduction practices
- Implement forest BMPs to protect, restore, conserve and re-use the waters of the state
- Estimate NPS pollutant load reductions using monitoring and computer-modeled (STEPL) data.
- Track and report watershed-based project results to validate improvements in land, water, and air quality
- Report both pre- and post-project results to the public using federal and state websites, databases, and programmatic and project-specific media and documentation
- Coordinate strategies to input NPS data and information (i.e., databases, GIS, soils maps, HUCs, reports, etc).
- When/if reporting management measures and pollutant loading information, do not compromise citizen privacy issues and concerns (e.g., Farm Bill cost-share recipients and sites)

**Strategy B.4 Provide and Enhance NPS Pollution and Water Quality Education and Outreach (E&O)**

**Action Item B.4.1 Continue to facilitate the production and distribution of environmentally-protective and economically-sensible information to the public and private sectors:**

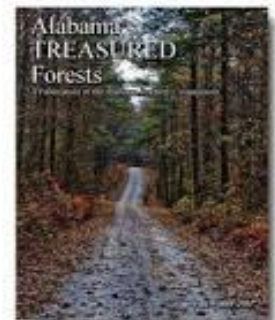
- Leverage agency resources to efficiently and efficiently deliver land, water, and air E&O to resource agencies, governmental entities, communities, producers, landowners, volunteers, etc.
- Ensure that programs, services, and incentives are made accessible to a diverse mix of citizens and targeted audiences
- Partner together to develop and revise manuals, practices, standards, guidelines, etc, to enhance E&O delivery and leadership
- Partner with various entities to increase the number of qualified professionals to enhance delivery of forest programs and services
- Partner together to develop and enhance training, technology transfer, and technical assistance
- Develop and implement activities to scientifically quantify public interests, perceptions, and responses
- Implement E&O activities designed to prevent, compensate, ameliorate or adapt to NPS pollution
- Integrate a variety of national, state, and local E&O programs to enhance communication, collaboration, coordination, and cooperation:
- Incorporate various formats to best achieve broad based distribution ( e.g. newspaper articles, magazines, television, radio, websites, signage, videos, posters/displays, fact sheets, newsletters, brochures, conferences, meetings, seminars, training, tours, festivals, field days, advisory committees, work groups, etc)
- Develop and publish NPS pollutant load reduction “success-stories” that characterize forest-project implementation success
- Recognize exemplary citizen-based activities (e.g., recognition awards and incentives)
- Enhance minority, low income, and/or non-English speaking stakeholder efforts



**Strategy B.5: Develop and Sustain Public and Private Sector NPS Pollution Management Partnerships**

**Action Item B.5.1 Continue to improve coordination with governmental agencies, private sector interests, and citizen groups at the state and watershed level:**

- Leverage Farm Bill cost-share funds (e.g., etc) with S. 319 programmatic and project-level priorities.
- Integrate and align resource programs and project implementation plans to expeditiously make the best use of limited resources (i.e., prevent, compensate, mitigate, and adapt to NPS pollution problems)
- Clearly articulate programmatic goals and develop mechanisms and projects to achieve them
- Continue to engage the public and private sector through regular meetings of the State Technical Committee
- Ensure that forest programs and services are made accessible to the public Engage forest community partners early on at project initiation to help build trust and encourage long-term participation
- Increase participation and benefits to under-served and non-traditional forest landowners
- Facilitate the development and use of institutional decision-making tools to target water quality, socio-economic factors, personal/corporate behaviors, etc)



- Partner with voluntary citizen monitoring groups with EPA-approved quality assurance and control monitoring protocols to identify potential NPS pollution threats and to focus the implementation of management practices
- Partner with stakeholders to develop and implement a 9-key element watershed management plan (e.g. EPA Section 319 grant guidelines) to address water quality impairment challenges posed by NPS pollution
- Balance project staffing, planning and implementation actions to best utilize limited resources to deliver measurable watershed health and water quality protection and restoration results
- Collaborate with other federal agencies acting or preparing to act on potential environmental, economic, and public health/humanitarian risks posed by climate change.
- Continue to develop and update applicable Memorandum of Agreements or Memorandum of Understanding
- Continue to conduct surveys and interviews to assess citizen knowledge, awareness and attitude

**Strategy B.6 Target Specific Programmatic Goals and Objectives of the Alabama NPS Management Program**

**Action Item B.6.1 As resources allows and to the maximum extent feasible and practicable, leverage Section 319 resources to protect and restore water quality and maintain beneficial uses of state waters:**

- Continue to coordinate, cooperate, communicate, and collaborate with state resource agency and local community partners and their associated projects and programs to protect and restore surface waters and groundwaters (e.g. Conservation Districts, Clean Water Partnership, advisory groups, citizen groups, etc.)
- Continue to leverage the resources of federal programs on a national, regional, interstate, state, river basin or other NPS management level scale
- Continue to cooperatively identify waters and watersheds impaired by NPS pollution for restoration (e.g. TMDLs, drinking water /source water supplies, NEP, wetlands, federal and state nutrient management strategy frameworks, etc.) as well as priority unimpaired waters for protection (e.g., Outstanding Natural Resource Waters, Outstanding Alabama Waters, Treasured Alabama Lake, etc.)
- Continue to refine processes used to assign Section 319 funding priority and progressively address identified impaired watersheds
- Develop and implement EPAs 9-key element watershed-based management plans
- Continue to periodically (minimum every 5 years) revise Strategies and Action Items to achieve AL NPS Management Program silvicultural category goals and objectives
- Continue to adopt adaptive NPS management approaches to meet state water quality standards as expeditiously as practicable
- Continue to incorporate a variety of formal and informal mechanisms to sustain partnerships (e.g. memorandum of agreement, letters of support, cooperative projects, leveraged funding, meetings to share information and ideas, etc.)
- Continue to ensure that the silvicultural category goals and objectives AL NPS Management Program are well integrated with economic stability and social and cultural goals at the state, county, and local community levels
- Continue to make a strong sustained effort to coordinate, integrate and leverage federal Farm Bill forest cost-share programs with state forestry program resources
- Continue to make strong sustained efforts to coordinate, integrate and leverage the significant resources of the CWSRF loan program for eligible stormwater runoff treatment or source water protection (urban forest buffers, pollutant removal, streamside management zones, etc.)
- Continue to look for new and innovative ways to develop and implement forest management plans to protect soil, water, air, plant, and animal resources from nonpoint sources of pollution
- Continue to partner with ADEM to develop and achieve silvicultural NPS category applicable annual milestones of the AL NPS Management Program
- Continue to provide an effective, efficient, and sustainable conservation program and assistance delivery system to the forestry sector through the [NRCS Conservation Delivery Streamlining Initiative](#) (CDSI)

