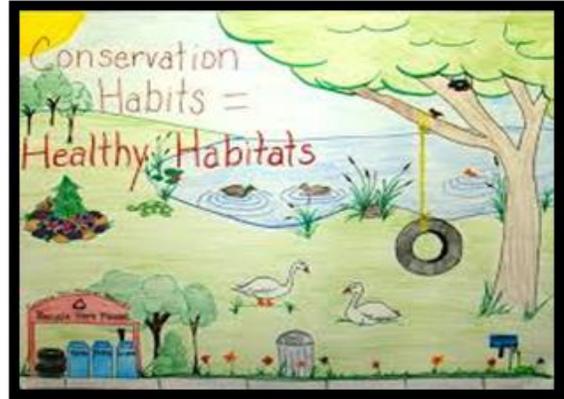


APPENDIX A

ALABAMA NONPOINT SOURCE MANAGEMENT PROGRAM

AGRICULTURE



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AGRICULTURE

Section A.1 Introduction

a. Overview

Agriculture is the state's largest economic driver, contributing about \$4.42 billion to the state's economy annually. About 50 different agricultural products are produced on 47,500 farms covering nearly 9 million acres. The [2011 State Agricultural Overview](#) (USDA - National Agricultural Statistics Service - Alabama census) reveals that the leading agricultural commodity groups produced in Alabama are poultry and eggs, cattle and calves, greenhouse/nursery/floriculture/sod, grains/oilseeds, beans/peas, and aquaculture. Leading crop items by acreage include forage, cotton, corn, soybeans, and peanuts. The [2007 National Census](#) ranks Alabama 3rd in broilers and meat-type chickens, 3rd in peanuts, 4th in poultry and eggs, 6th in aquaculture, and 9th in pullet (laying flock replacements) production.

b. Problems

Nonpoint source (NPS) pollution from improper applications of agricultural practices can impair water quality through direct surface runoff or seepage to groundwaters. Erosion and sedimentation can degrade aquatic habitat, wetlands, and drinking and recreational water supplies. In addition, contaminated surface water runoff can transport nutrients, chemicals and pathogens; increasing water temperature and decreasing oxygen. [The 2010 National Water Quality Inventory](#) (NWQI) report indicates that the leading causes of water quality impairments in Alabama are nutrients (primarily nitrogen and phosphorus), erosion and sedimentation, and pathogens. The NWQI report also recognizes agriculture practices as primary sources of water quality impairments. In addition, Alabama's biennial [Section 303\(d\) Lists of Impaired Waters](#) consistently indicates that major NPS pollution impacts on water quality are contributable to non-irrigated crop production, animal operations/feedlots, and pasture grazing - when pollution sources are based on the total river and stream miles that have been assessed in Alabama.

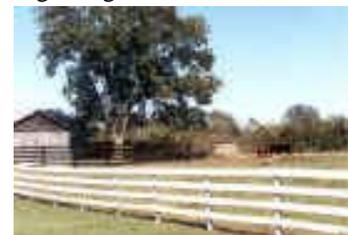


c. Protection and Restoration

A goal of this Alabama NPS Management Program and the Clean Water Act (CWA) Section 319 nonpoint source grant program is that impaired state waters meet [state water quality standards](#). Agricultural 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 \(or other relevant planning documents\) watershed-based management plans](#) with comprehensive [conservation activity plans](#) continues to help agencies and landowners align water quality protection and restoration targets with NPS pollution mitigation resources.



This 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 agriculture. Federal and state cost-sharing 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 food and fiber to consumers is mutually assured. Federal and [state land, water, and air regulatory authorities and processes](#) provide back-up regulatory mechanisms for the voluntary NPS management program approach



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 degraded (i.e., Section 303(d) listed waters). Additional NPS management resources should be directed to protect the state's threatened and unimpaired waterbodies (i.e., [Outstanding Alabama Waters](#), [Outstanding National Resource Waters](#), and [Treasured Alabama Lakes](#)). In addition, NPS water quality credit "[trading](#)" (i.e., regulated entities purchase and use pollutant reduction credits generated by other sources in a watershed) and other market-based approaches should be considered as potential components of the state's holistic NPS pollution management approach. Water quality trading can provide environmental and economic benefits such as water conservation, improved air quality, enhanced wildlife habitat, carbon capture and storage, and income and employment opportunities for rural Alabamians.



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 agricultural-sector discussions, partnering opportunities, and leveraging of public and private sector resources will continue. Examples of resource agency projects successfully addressing agricultural causes of NPS pollution in Alabama include:

- EPA <<http://water.epa.gov/polwaste/nps/success319/>> <<http://www.epa.gov/region04/water/nps/AL/index.html>>
- ADEM <<http://www2.epa.gov/aboutepa/epa-alabama>>
<<http://www.adem.alabama.gov/programs/water/npsprogram.cnt>>
- NRCS <<http://www.al.nrcs.usda.gov/news/sstories/index.html>>
- SWCC <<http://www.swcc.state.al.us/>>
- ADAI <<http://agi.alabama.gov/>>

Additional partners, programs and projects are presented in **Section B.5**, below.

d. Water Quality Monitoring

The ADEM will continue to use the 5-year rotational river basin monitoring and assessment approach to survey Agricultural Category NPS pollution impacts to state aquatic resources. Data is reported in the state's [CWA Section 305\(b\) Integrated Report to Congress](#) and [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:



- Extent of state waters that support healthy biological, physical, and chemical aquatic habitat conditions; and/or recreational, drinking water, and fish consumption conditions
- Investments of limited resources to protect and restore water quality and natural resources
- 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 Section 303(d)
- Scope and scale of the impacts of NPS pollution on watersheds, and surface water and groundwater quality

In fiscal year 2014 and subsequent years, the ADEM will partner with the USDA-NRCS in Alabama to implement the [National Water Quality Initiative](#) (NWQI) in selected priority watersheds over multiple years. The intent of the NWQI is to achieve widespread conservation system implementation that will yield accelerated water quality improvements that can be sustained into the future. The NWQI leverages available resources of the Section 319 grant program (water quality monitoring) and USDA [Farm Bill](#) conservation programs such as the [Environmental Quality Incentives Program](#) (EQIP) and the [Conservation Reserve Program](#) (CRP) (on-the-ground measures) to achieve watershed and water quality protection and restoration goals.

Section A.2 Causes of Agricultural Nonpoint Source Pollution in Alabama

Agricultural activities can directly impair surface water and groundwater quality; limiting their use for drinking, fishing, recreation, irrigation, livestock watering, or some other beneficial purpose. Food and fiber production requires the use of fertilizers to sustain yields and chemicals to control weeds, insects, and other pests. When proper management practices are not used, agricultural lands can contribute to water quality degradation or other natural resource problems. Improperly managed animal feeding operations, pasture grazing, and planting (soil tillage) and harvesting activities can cause exposed soils to erode (sedimentation/siltation) and increases the likelihood for NPS pollutants such as nutrients, pathogens, or pesticides to be discharged to waters of the state. Agricultural activities may also degrade aquatic habitats, stream banks and drinking water quality. Major agricultural nonpoint source pollutants and their impacts to water quality include:

a) Nitrogen and Phosphorus

Water quality pollutants from agricultural nonpoint sources are primarily associated with [Nitrogen \(N\) and Phosphorus \(P\)](#) runoff from poorly managed farming operations. Land application of nutrient enriched organic matter is critical for optimal production and economic sustainability; however, if land applications exceed agronomic rates, excess nutrients can wash into surface waters or leach to groundwaters. High concentrations of nutrients in a waterbody, particularly phosphorus, may produce harmful algae blooms (eutrophication). High levels of ingested nitrates can also result in human illnesses (e.g., methemoglobinemia or “blue baby” syndrome). 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. Typical agricultural nutrient [best management practices](#) (measures) may involve applying animal waste at recommended agronomic rates, managing crop residues to help maintain high yields, and reducing N and P transport to state surface and ground waters by mitigating the volume and flow rate of rainfall or irrigation water runoff. (Wastewater irrigation spray photo courtesy of USDA-NRCS Alabama. <<http://www.al.nrcs.usda.gov/technical/photo/anim/mngt/Wastirrig2.jpg>>)



b) Erosion and Siltation (Sedimentation)

As precipitation flows off croplands, feedlots, and pastures; it may pick up (detach, adsorb, or dissolve) soil particles, nutrients, pesticides, pathogens and other nonpoint source pollutants to surface waters or into ground waters. Eroded lands may also encourage the establishment of undesirable or invasive species or destroy sensitive habitats. 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, produce harmful algae blooms, and lower dissolved oxygen levels. Increased sedimentation degrades aquatic habitat and may cause flooding, fish kills, or fish and shellfish consumption advisories. Erosion [best management practices](#) (measures) can prevent or reduce siltation/sedimentation by managing the volume and flow rate of water runoff (i.e. keeping soils in place by providing livestock with alternative sources of water and shade, keeping livestock out of sensitive areas, preventing overgrazing, and vegetating exposed soils with cover crops to keep soil particles in-place and to reduce pollutant transport).



c) Pathogens

Livestock, poultry, and dairy operations can contribute pathogens (disease-causing bacteria and viruses) to surface and groundwaters. Impacts may be direct (e.g., defecation by livestock in waterbodies) or transported by precipitation runoff events. Waters may become unsafe for body contact and drinking and shellfish beds may be closed in coastal areas. Pathogen-specific practices for agriculture have not been developed. Proactively implementing source controls and off-site transport is effective. In addition, economic competitiveness and

environmental quality can be maintained by mitigating pathogen problems concurrently with nutrient (animal waste management) and erosion control best management practices. It should be noted that while livestock production can be a primary cause of pathogenic pollutants; wildlife, pets, septage treatment or other human/urban sources are also common origins.

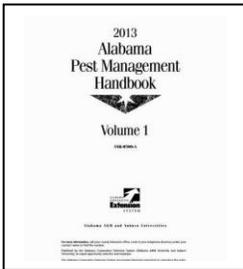
d) Animal Feeding Operations (AFOs) and Confined Animal Feeding Operations (CAFOs)

Animal Feeding Operations (AFOs) are livestock-raising operations where farm animals such as hog, cattle, dairy, sheep, and poultry are congregated. Animals are brought their food and are not allowed to freely graze in pastures or fields or otherwise seek their own food. Improperly managed manure and wastewater from these type facilities have the potential to impair water quality and cause significant environmental and public health concerns such as nutrient over-enrichment of surface water and groundwater, contamination of drinking water supplies and fish kills. The ADEM has an established animal feeding operation (AFO) [compliance assistance and assurance program](#) in addition to a Concentrated Animal Feeding Operation (CAFO) Registration-by-Rule pollutant [discharge permitting process](#). In addition, the state's Section 319 grant project guidelines requires project landowners/users to work with NRCS to develop an applicable [conservation activity plan](#) to protect water quality and specific natural resources needs. Appropriate and effective [management measures](#) such as manure and dead animal collection, storage, and treatment systems and technologies; proper land applications; rotational grazing, restricting direct access by livestock to waterbodies and sensitive natural resource areas using fencing/cross-fencing, providing alternative sources of water and shade structures, etc., are successfully used in Alabama to mitigate the causes of NPS pollution impacts to water quality.



e) Pesticides

Insecticides, herbicides, fungicides, defoliant, desiccants, plant growth regulators and other chemically-based products can pollute surface waters and groundwaters through direct application, runoff, or atmospheric transport. Misuse of many [types of pesticides](#) can cause human illness and mortalities, poison flora and fauna, contaminate food sources, and destroy protective cover and habitat for aquatic organisms and wildlife. Leaching of pesticides via percolation, fractures, sinkholes, and solution channels may render groundwaters unfit for drinking, irrigation and other uses. Nonpoint source pollution runoff is best mitigated using proper application, storage, and disposal techniques. A primary NPS best management practice strategy is to proactively prevent problems from occurring by increasing user knowledge and awareness through training and education and outreach. 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 clean up of spills or misuse can be technically challenging and expensive. Effective farm, nursery, greenhouse, and silvicultural pesticide best management practices include adhering to labeling application amount and rates, proper mixing and chemical container handling, preventing excess irrigation water from penetrating beyond the root zone, and timing (not applying prior to storm events to reduce the potential for problems caused by NPS stormwater runoff). Cautions are also advised in areas where soils are highly permeable, groundwater levels are near the surface, irrigation systems are on-site, or ditches or other stormwater drainage conveyances discharge to drinking water supplies, wetlands, sensitive plant and animal habitat, etc. The state NPS Management Program endorses the increased usage of Integrated Pest Management (IPM) techniques to prevent NPS pollution sources. The distribution, sale, supervision, and use of agricultural chemicals must be consistent with pesticide labeling and regulatory rules and regulations of the [Alabama Department of Agriculture and Industries](#) and the [Alabama Department of Environmental Management](#). Certain formulations, products, and application devices are considered minimum risks and may be [exempt](#) from [EPA](#) and state registration and use regulations. The primary sources of 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).

Section A.3 Statewide NPS Agricultural Best Management Practices (Measures)

The AL NPS Management Program endorses Alabama-specific agricultural standards, specifications, technical information and requirements as presented in:

I.) 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.



II.) Alabama Agricultural and Conservation Development Commission Program: Board-approved 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.

The AL NPS Management Program and Section 319 grant program continues to support practices that reduce the detachment, adsorption, or dissolution of agricultural pollutants. Pollution prevention is a primary first step in protecting the quality of both surface waters and ground waters. Interrupting pollutant transport and reducing the availability of pollutants can also be very effective in controlling NPS pollutant runoff. Recommended Section 319 grant-funded agricultural practices should be designed to prevent or reduce:

- Soil erosion and sedimentation (e.g. sustaining cover crops, residue management, rotational grazing, etc.)
- Nutrient runoff (e.g. at or near the source, transport processes, proper application rates and timing, etc.)
- Pesticide runoff (e.g. integrated pest management; environmentally-friendly pesticides; not applying before storm events, reducing use, etc.)
- Pathogen runoff (e.g. livestock exclusion fencing; buffer strips, maintaining riparian areas; proper disposal of dead animals, etc.).

The inherent complexity of implementing a statewide and voluntary NPS management program requires innovative approaches. The AL NPS Management Program supports voluntary water quality credit “trading” (i.e., allowing a permitted entity to meet its regulatory obligations by using pollutant reductions generated by another source(s) in the same watershed that has lower pollution control costs) and other market-based approaches to protect water quality and comply with regulatory requirements. The Section 319 grant program may provide resources aimed at facilitating cooperation between EPA, ADEM, USDA, and other public and private sector entities to develop and implement trading programs to mitigate the nonpoint sources of nutrients, sediment and other pollutants. Efforts may include promoting existing opportunities that will achieve water quality improvements (meet state water quality standards and water use classifications), reduce treatment costs, improve natural resource management and protect aquatic habitat, enhance public services and efficacy, and accelerate the effective and efficient implementation of NPS best management practices. Cooperative water quality trading management resources and technical assistance is expected to target, but is not limited, to achieving the following environmental and economic benefits:

- Enhancing communications and outreach to agencies, agricultural producers, regulated sources, and interested third parties
- Engaging expertise across agencies in the review of grants, loans or technical assistance programs
- Disseminating information on the development of rules and guidance
- Collaborating on developing tools and information resources for agencies and credit generators to guide decision making, reduce costs in program design and implementation, improve environmental performance, and foster consistency and integrity
- Facilitate workshops to share tools and resources available to assist in stakeholder decision making and opportunities.

It is highly recommended that NPS agricultural water quality problems be addressed on a watershed basis whenever and where ever possible. Water quality protection is best achieved using a holistic watershed protection planning and implementation approach. Practice implementation should consider environmental protection benefits and

effectiveness verses economic costs, including long-term management and maintenance. Practices to protect or restore one water quality must not create another problem (e.g. a practice such as infiltration to mitigate nutrient and pesticide runoff may increase the potential to impair groundwater).

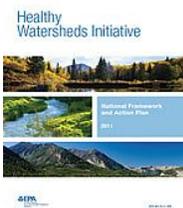
Section A.3.1 Coastal Zone Agricultural Best Management Practices

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 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 \(EPA\)](#). The Alabama Coastal Area Management Program is jointly administered by [ADEM](#) and the [Alabama Department of Conservation and Natural Resources \(State Lands Division - Coastal Section\)](#) to mitigate 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 [Guidance](#) (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, which falls 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 coastal conditions and needs, NPS programmatic activities are equivalent to and implemented in accordance with those prescribed in 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 progress and success, including watershed-based management plan development and implementation, 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, [ADEM Coastal Area Management Program](#) (Division 8) rules provide regulatory back-up authorities in conjunction with implementation of the [CZARA 6217](#) coastal program.

The agricultural sector continues to partner with local, state, and federal entities to enhance the ecological and economic health of the Gulf of Mexico while ensuring sustainable production of food and fiber. Multi-state or multi-agency coastal NPS management program 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](#). The Statewide and Coastal Area NPS Management Programs cooperatively and concurrently implement agricultural BMPs on a geographic or watershed-based management basis as practicable. An adaptive and integrated system-based approach is used to assess and target appropriate measures and leverage resources.



Section A.4 Section 319 Grant Funded Project-Specific Practices

- [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 on-the-ground BMPs that will help waters of the state meet state water quality standards and water quality use classifications and sustain beneficial uses. Projects apply one or more practices (measures) relative to NPS pollutant cause and source; location, site condition and needs, size

and type of operation, and water quality restoration, protection and economic effectiveness measures and benefits. Typical agricultural BMPs generally include conservation buffers, cover crops, reduced tillage, precision farming, integrated pest management, proper animal waste and mortality collection, treatment, storage or land application; and demonstration of new and improved technology. When agricultural best management practices are installed according to the prescribed standards and specifications presented below:



- ✓ The chemical, physical and biological integrity of waters of the state will be protected, restored and maintained
- ✓ Programmatic goals and objectives of the *voluntary* statewide NPS Management and *regulatory* Coastal NPS Management programs can be effectively, efficiently, and economically achieved.

Section 319 grant funded agricultural projects and practices will be implemented in accordance with:

I.) [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.

II.) [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.



III.) The following guidelines, references, and techniques provide additional information applicable to Section 319 grant-funded agricultural BMP implementation projects:

- NRCS: [Part 651- Agricultural Waste Management Field Handbook](#)
[National Water Quality Handbook](#)
- SWCC: [Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas](#)
- SWCC: [Protecting Water Quality on Alabama's Farms](#)
- ACES: [Comprehensive Nutrient Management Plans, Waste System Management Plans, and Nutrient Management Plans](#)
- AFC: [Alabama's Best Management Practices for Forestry](#)
- EPA: [National Management Measures to Control Nonpoint Source Pollution from Agriculture](#)
- NOAA/EPA: [CZARA 6217 - Coastal Zone Act Reauthorization Amendments](#)
- ADEM [Coastal Programs](#)
- ADCNR [Coastal Area Management Program](#)

Section A.5 Agriculture Category Partners and Programs

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

- A. Leveraging mutually beneficial program and project resources and efforts
- B. Supporting local conservation and watershed management activities
- C. Improving collaboration, coordination, cooperation, and communication with other programs, agencies, and organizations
- D. Improving the connection between planning and implementation
- E. Utilizing adaptive management to achieve mutual goals and objectives
- F. Concentrating program resources into "focus areas" based on multiple criteria
- G. Enhancing public and private accessibility, input, comments, participation and interest



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

- Develop and integrate processes for identifying priority NPS problems and/or watersheds
- Deploy available resources in a timely fashion to address priorities, including any critical areas requiring treatment and protection within watersheds
- Employ appropriate programmatic and financial systems that 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 assistance available from other federal, state, and local sources.

Section A.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 for putting state agency-funded best management practices on the ground. This approach helps to ensure water quality is protected and restored is effectively coordinated and state government and local producer economic benefits are sustained.

A.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



A.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 water quality protection and restoration projects, including nonpoint source, wetlands, estuary, and watershed projects, as well as NPDES permitted “point-source” municipal wastewater treatment systems. 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 for water quality projects. Loan repayments are then recycled to fund other water quality projects. Community groups, individuals, and agricultural and nonprofit organizations are eligible to apply to ADEM for CWSRF project consideration.

Concentrated animal feeding operations (CAFOs), although usually privately owned, may be eligible for CWSRF funding for a nonpoint source project if:

- The proposed remediation takes place outside the CAFO
- The agricultural operation has a Comprehensive Nutrient Management Plan (CNMP) developed by a public official or certified private party and is implementing it
- The proposed project is consistent with the Comprehensive Nutrient Management Plan.
- Stormwater runoff associated with land application of animal waste from CAFOs may be considered a nonpoint source discharge and could be eligible for CWSRF mitigation project funding.

A.5.2 Alabama Department of Agriculture and Industries (ADAI)

- Administers federal and state laws and regulations for agricultural products, businesses, goods and services
- Partners with state and federal agencies, land-grant universities, commodity interest groups, and agricultural producers to protect human, economic and environmental health
- Gathers and publishes Alabama-specific agricultural statistics in partnership with the [USDA-](#)



National Agricultural Statistics

- Manages agricultural animal, plant health, and pesticide programs
- Conducts agricultural food and other commodity production, control, inspection and safety programs

A.5.3 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

A.5.3.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.



A.5.3.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 agricultural land preservation



A.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 and 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
- 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 ADEM to implement the Alabama Clean Water Initiative (Clean Boating and Clean Vessel Act of Alabama)
- 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 agricultural land
- Provides partial oversight of project's to restore coastal resources from injuries sustained by the *Deepwater Horizon* oil spill.



A.5.5 Alabama Department of Public Health (ADPH)

- Partners with ADEM to monitor selected swimming beaches along the Gulf of Mexico for the presence of fecal coliform and Enterococcus bacteria
- Fosters, promotes and provides information on seafood and shellfish sanitation through the cooperation of state and federal agencies, the shellfish industry, and academia
- Provides technical assistance, permits, investigations and enforcement of solid waste, unauthorized dump, and vector control programs including septage/grease land application sites
- Enforces the design, permitting, and installation of onsite sewage treatment and disposal systems
- Encourages the approximately 800,000 people (20% of the state population) who obtain drinking water from a private water well to conduct routine testing to assure their water is a safe to consume
- Develops and enforces safety and sanitation rules and regulations of food sold at retail in Alabama, and of food, other than red meat and poultry, processed in Alabama



- Administers and enforces state standards and labeling of food and drugs

A.5.6 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 quantity assessment information, metrics and data to provide resource managers and community planners with information to balance sustainable growth with natural resource 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



A.5.6.a Strategic Habitat Unit (SHU)

- A joint federal, state, and private sector partnership
- The USFWS, the Alabama Clean Water Partnership, and ADCNR focus resources on the recovery and restoration of rare aquatic animals
- 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.

A.5.7 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; provide data and information regarding instream flows, prepare flood maps, and conduct research and education and outreach
- Partners with 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



A.5.8 Alabama Department of Transportation (ALDOT)

- Establishes and manages [state intermodal environmental programs and strategies](#) to protect air, land and water resources
- Implements NPS pollution management measures and provides 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



A.5.9 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 and wastewater issues



A.5.10 Alabama Forestry Commission (AFC)

- Provides [resources and technical assistance](#) to the agricultural sector and other landowners to establish, re-establish, conserve, and sustain forested areas

- Partners with ADEM to implement [Alabama’s Best Management Practice for Forestry](#) to help protect air quality, surface water and groundwater quality, mitigate soil erosion, and stream siltation, and filter NPS runoff from multiple pollutant causes
- Developed an [Alabama Forest Action Plan](#) by assessing state forest resources in support of the [2014 Farm Bill](#). “[Forests at the Crossroads](#)” 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
- Facilitates research, training, and education and outreach designed to increase public awareness and involvement in finding the right balance between agriculture, urban sprawl, and forestland uses



Section A.6 Academia 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.

A.6.1 [Alabama Cooperative Extension System](#) (ACES)

- Delivers Alabama’s land grant institution’s ([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 natural resource management decisions
- Provides rural and urban economic, social, and cultural outreach programs



A.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



A.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

A.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

A.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

A.6.6 [Center of Environmental Research and Services \(CERS\) \(Troy University\)](#)

- Facilitates and conducts natural resource research, education and stewardship services
- 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 schools, and helped establish a recycling program for 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 for water and wastewater infrastructure



Section A.7 Federal Partners and Programs

Federal partners help state agencies, nongovernmental organizations and citizens identify and resolve NPS pollution and water quality problems, and provide research, education and outreach, and financial incentives in addition to enforcing regulatory programs. Several NPS management initiatives leverage funds and provide assistance to help stakeholders take needed actions to reduce sediment, nutrients, and other NPS pollution to Alabama's waterbodies.

A.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 [agricultural](#) NPS management measures
- Partners with NOAA to implement agricultural and other components of the [Coastal Zone Act Reauthorization Amendments of 1990](#) (CZARA Section 6217).

A.7.2 [National Oceanic and Atmospheric Administration \(NOAA\)](#)

- Co-federal lead (with EPA) to assure state agricultural program conformance with [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 coastal nonpoint pollution control programs that ensures the implementation of agricultural 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 to mitigate agricultural sources of NPS pollution in accordance with the [Coastal Management Act](#) (1972, as amended)

A.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



A.7.4 [United States Department of Agriculture \(USDA\)](#)

Conservation provisions of the 2008 Food, Conservation, and Energy Act (a.k.a. "[Farm Bill](#)") as amended or revised in future years) provide opportunities for farmers and ranchers to address high priority conservation and

environmental protection goals. Several [conservation initiatives and special emphases programs](#) target NPS pollution and water quality protection and restoration efforts. In addition, the USDA facilitates several natural resource conservation [planning, assessment and management strategies and policies](#). These efforts provide the public and private sectors with technical resources and information to help make informed natural resource stewardship decisions. Strategies address field-level soil and water quality conditions and trends on non-federal lands; other natural resource protection concerns, and conservation practices at various geographic levels. The USDA has also developed [water quality protection tools and guidance's](#) to raise water quality protection awareness and knowledge for both the public and private sectors.



A.7.4.a [Natural Resources Conservation Service \(NRCS - Alabama\)](#)

- The technical agency of the U.S. Department of Agriculture (USDA) responsible for conserving and protecting natural resources
- Provides resources to conduct agricultural research and outreach
- Promotes measures to enhance agricultural production and sustainability (e.g., conservation plans and comprehensive nutrient management plans (as a subset)
- Administers land-use programs and provides on-site technical assistance to farmers and ranchers to protect and conserve soil, water and air resources, improve and conserve wetlands, address flooding issues, and enhance fish, wildlife and forestry resources
- Partners with USACOE through joint guidance to conduct wetland determinations applicable to the [Food Security Act of 1985](#) and [Section 404 of the Clean Water Act](#)
- Implements applicable agricultural programs and provisions of the latest “Farm Bill” in Alabama
- 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



A.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:
 - ✓ [Precision Farming Incentive](#): Encourages the adoption of variable-rate application of nutrients and pesticides and promotes the use of GPS-enabled precision agricultural technology and equipment within the [Nutrient Management \(590\)](#) and [Pest Management \(595\)](#) practice standards to improve water quality by targeting applications to meet field-specific yield capabilities; reduce pesticide inputs, surface runoff, and leaching; conserve energy through improved field efficiency and more accurate placement of crop inputs; and enhance reduce soil compaction and erosion.
 - ✓ [Agricultural Water Enhancement Program \(AWEP\)](#): Leverages investments in natural resources conservation along with services and resources of other eligible partners to implement agricultural water enhancement activities on agricultural land for the purposes of conserving surface and ground water and improving water quality.
 - ✓ [Organic Farming Initiative](#): Financial assistance is provided for organic farmers, those transitioning to organic, or are organic exempt with unique practices to enhance organic agriculture on their farm. Examples of practices include experimenting with new cover crops and crop rotations, installing intensive grazing infrastructure (e.g., grazing plans, fencing, walkways, and water lines), high tunnels, and establishing wildlife and pollinator friendly habitat.
 - ✓ [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.
- [Emergency Watershed Protection \(EWP\)](#): Provides funding to address emergencies as a result of natural disasters and to mitigate hazards to life and property from floods and erosion created by sudden watershed impairments. Funding may be used to protect roads and bridge abutments, remove debris from streams, and control of caving gullies that threatened infrastructures such as homes, gas and power lines, and road ways.

- **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.

A.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 cover crops, filter strips and buffers systems, terraces, nutrient management systems, erosion control, conservation tillage, and pest management.
- ADEM monitors water quality in selected NWQI watersheds annually to assess water quality improvements and program success.

A.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 and ensure sustainable production of food and fiber.
- Promotes sustainable agricultural and wildlife habitat management systems and productivity; mitigate nitrogen, phosphorus, and sediment runoff and transport; and prevent 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)



A.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.



A.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 determinations geospatial data for producer maps

A.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

A.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 the environment and sustain economically viable agricultural production to ensure a safe and abundant food supply.
- 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 for farmers and ranchers. 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 forestland resources to establish, produce, and deliver biomass feed stocks.
- **Grassland Reserve Program (GRP):** Supports working grazing operations, enhancement of plant and animal biodiversity, and protection of grasslands under threat of conversion to other uses.
- **Livestock Indemnity Program (LIP):** Compensates livestock owners and livestock contract growers for livestock mortality as a direct result of adverse weather events such as hurricanes, floods, blizzards, disease, wildfires, extreme heat, and extreme cold.
- **Emergency Livestock Assistance Program (ELAP):** Provides emergency relief to producers of livestock, honeybees, and farm-raised fish to cover losses from disasters such as adverse weather or wildfires.
- **Farm Storage Facility Loans Program:** Used to build or upgrade farm storage and handling facilities.
- **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.

A.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



A.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 agricultural conservation measures to the NRCS, the State Conservationist, and other USDA agencies.
- Develops technical standards for conservation programs through specialized subcommittees
- Conducts economic and environmental impacts analyses of conservation activities, programs, practices, and payments



A.7.8 [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

A.7.9 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 healthy environments for people, fish, and wildlife



A.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



A.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, protect public health, discourage wasteful consumption, and proactively prevent pollution problems



A.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 the national defense
- Administers policies and programs to protect and enhance the nation's transportation systems, security, and services
- Partners with state partners to provide funding to enhance quality of life, environmental protection and economic sustainability



A.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 in agricultural projects to help protect Alabama's food, water and other resources from nonpoint sources of pollution. Effort should continue and scientific, technical, and funding resources enhanced to proactively address potential environmental and human health, economic, and social challenges. Nonpoint source impacts and issues relate to food and water security, chemical safety, animal/livestock disease, animal health emergencies, carcass disposal technologies; manure management, disease transmittal; and safety and use of pesticides and chemicals.

Section A.8 Non-Governmental Organization (NGO) Partnerships

Several NGO associations, federations, producer 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 is a critical link for efforts to provide an effective and efficient delivery system for BMP information, technology and technical assistance to address agricultural causes of NPS pollution in Alabama.

A.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 and tries to find solutions to mitigate those challenges
- Promotes improved communication, coordination and collaborative decision-making processes to protect and restore water quality using a voluntary (non-regulatory) management approach



A.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



A.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

A.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.

A.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 and concurrently protect environmental sustainability and economic growth



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

Several viable and vital private and corporate agricultural producer and commodity sector efforts continue to help protect and restore Alabama's land, water, and air resources, enhance producer economic benefits, and sustain national security. A diverse mix of NPS Management Program agricultural sector partners provide 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:

- Livestock and Poultry
- Row Crops
- Aquaculture
- Horticulture
- Forestry and Wildlife
- Agricultural-based Industry Products (e.g., food, fiber, pharmaceuticals, adhesives, building materials, lubricants, packaging, plastics, cleaning, biofuel, etc.)



A.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 for varied bio-geographical 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.

A.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 sources based on the specific soils, climate, pest history, and crop conditions in order to 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 use or misuse of pesticides align with science-based goals and information presented by the ACES and Alabama Integrated Pest Management Information Center.

A.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 agricultural and forestry plant material resources (e.g., woody biomass, energy crops, and agricultural "waste" products) present opportunities to integrate energy security issues with environmental protection programs. Increased funding and continued bioenergy and bioproducts research is needed to develop and assess processes and technologies, feed stock supplies, and biomass availability. A statewide systems approach emphasizes public and private sector partnerships, education and outreach, and technology demonstrations and pilot projects. State policies and programs address economic and environmental benefits and challenges. To mitigate threats to water quality and natural resources, 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].



A.8.9 [ACES Agricultural Irrigation Information Network](#)

Although on-farm irrigated acres is small compared to surrounding states (<10% of the state's 2.5 million acres of farmland is irrigated), efforts are underway to significantly expand and incentivize the technology in Alabama. Agencies, academia, and private sector interests continue to work together to support research and demonstrate environmentally-protective and economically-competitive technologies under varying geological, hydrological and farm-specific conditions. Nonpoint source pollution management practices are similar to those for nutrients, erosion, pesticide, and animal



waste and include effective and efficient management of the volume, application, and leaching to surface and groundwaters (i.e. reduce the potential for pollutant transport). Education and outreach efforts should be increased so that producers, landowners and others can make informed decisions regarding benefits and constraints. Comprehensive planning for irrigation surface and ground water withdrawal, storage or use and its impact on natural resources and water quality protection should be expanded. The primary source of information and recommendations endorsed by the AL NPS Management Program to protect surface and groundwaters in Alabama include the [ACES Ag Irrigation Info Network](#), USDA-NRCS [Conservation Practice Standard “Irrigation Water Management” \(Code 449\)](#), and suggested agricultural NPS pollution management pointers as presented in [EPA Fact Sheets](#).

A.8.10 Animal Waste and Manure Management: Methane

Livestock produce about 20 percent of the world’s methane emissions. Methane is a greenhouse gas that contributes to global climate change. Farmers can help reduce ruminant* methane emissions from livestock, improve productivity, and increase farm profits by feeding animals dietary supplements such as urea to improve the animal’s ability to digest food. The Alabama NPS Management Program supports voluntary implementation of the following animal waste management initiatives:

- **Methane:** The [Global Methane Initiative](#) is a national and international collaboration that aims is to reduce agricultural methane, enhance economic growth, reduce greenhouse gases, and improve local air quality.
- **Bio Gas / Greenhouse Gas Recovery:** [AgSTAR](#) is a methane recovery (biogas) technology program is jointly sponsored by EPA, USDA, and the U.S. Department of Energy. It encourages concentrated animal feeding operation (CAFO) livestock producers to reduce greenhouse gas (methane) in order to control obnoxious odors by managing manure as liquids or slurries. “FarmWare” is an analytical software tool that helps farmers with their technology, operation, and financial choices.



*Ruminant: Any cud-chewing hoofed mammal with an even number of toes and a stomach with multiple chambers (e.g., cattle, sheep, and goats).

Section A.9 Regulatory Partnerships and Programs

The Alabama NPS Management Program supports a flexible, targeted, iterative, and voluntary incentive-based approach to reduce NPS pollution loadings and protect and restore watershed health and water quality. If the voluntary NPS management approach does not appear to be environmentally protective, the state will use 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.

A.9.1 Animal Feeding Operations (AFO) and Concentrated Animal Feeding Operations (CAFO)
[ADEM Administrative Code Chapter 335-6-7](#) (effective April 1, 1999) establishes an AFO compliance assistance and assurance program and a Concentrated Animal Feeding Operation (CAFO) NPDES Registration-by-Rule program. Under the rules, all CAFOs are required to register with ADEM and all AFO/CAFOs are required to implement and maintain effective BMPs for animal waste production, storage, treatment, transport, and proper disposal or land application that meet or exceed USDA - NRCS technical standards and guidelines.

The ADEM partners with the following resource agencies to implement the AFO/CAFO program in Alabama.

- [USDA - Natural Resources Conservation Service](#) (NRCS): Animal waste production, storage, treatment, transport, disposal or land application technical assistance and cost-share. A Field Office Technical Guide [County Locator Map](#) is available for farmers and ranchers to identify and access assistance.
- [Alabama Cooperative Extension System](#) (ACES): Operator training and education and outreach
- [Alabama Department of Agriculture and Industries](#) (ADAI): [Certified Animal Waste Vendor \(CAWV\)](#) program, animal mortality issues, and animal disease issues
- [Alabama Department of Public Health \(ADPH\)](#): Public health and vector control issues
- [Alabama Soil and Water Conservation Committee](#) (ASWCC): AFO/CAFO Notice of Registration (NOR) tracking and potential cost-share
- [College of Agriculture - Auburn University](#): Agricultural research, technology transfer, and technical assistance

- [National Weather Service Weather Forecast Maps](#) (Birmingham, AL): An Internet site that highlights areas of the state where predicted precipitation conditions are favorable for spreading of waste/nutrients in accordance with an ADEM accepted Waste Management System Plan (WMSP) and/or nutrient management land application practices.

A.9.2 [Coastal Nonpoint Source Management](#) (EPA and NOAA)

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 Programs](#), which falls under [Section 6217 of the Coastal Zone Act Reauthorization Amendments \(CZARA\)](#), are 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.

A.9.3 Other Agricultural-related Water Quality and Environmental Protection Authorities and Programs

- [Alabama Administrative Code](#)
 - [Alabama Environmental Regulations and Laws](#)
 - [ADEM Enforcement and Compliance Information](#)
 - [Enforcement and Compliance](#)
 - [Water Programs](#) (TMDLs, Stormwater / NPDES, [State Revolving Fund](#), etc.)
 - [Drinking Water, Groundwater Rule, and Wellhead Protection Program](#)
- [CWA Section 404](#) (dredge and fill) and [CWA Section 401 Water Quality Certification](#)
- [National Water Quality Handbook](#) (USDA/NRCS.450-VI-NWQH, Sept 2003)
- [State Forestry BMPs](#) (AFC)
- [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](#)
- [Public Health](#) (e.g., [On-site Septage and Disposal Systems](#); [Fish](#) and [Seafood and Shellfish](#) consumption advisories; [Zoonoses/Arboviruses](#), etc.)

APPENDIX A AGRICULTURAL NONPOINT SOURCE POLLUTION

ATTACHMENT 1: S. 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 conservation 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 Agricultural 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 A.1 Achieve State Water Quality Standards, Use Classifications and Other Beneficial Uses.

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

- Implement 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)
- Focus available resources 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 the USDA-NRCS National Water Quality Initiative (NWQI) in Alabama
- Continue to leverage Farm Bill programs to support applicable agricultural efforts of the Gulf of Mexico Alliance, Gulf of Mexico Initiative, CZARA 6217, ADEM Coastal programs, and other multi-state and multi-agency NPS nutrient management strategies in the coastal zone
- Coordinate “unavoidable” land / stream disturbance compensatory activities with applicable wetland and stream restoration or “mitigation banks” and efforts (e.g. ADOT, ADCNR, state-approved private sector efforts)
- 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.
- Assess land use activity setback requirements 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 water quality restoration and protection and beneficial use success

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

Action Item A.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 producers and landowners/users to develop and implement natural resource, comprehensive farm, nutrient, and watershed-based 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 natural resources and human health.
- Mutually prioritize projects and leverage Section 319 grant resources with agricultural incentive programs
- Research and promulgate new or improved technologies, guidelines, standards, and practices.
- Enhance greater collaboration with a full spectrum of partners to accelerate research, innovation and new technologies to address NPS pollution challenges and to restore impaired water resources.
- Develop and implement watershed-based 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 landowners and producers with financial incentives to voluntarily install NPS pollution management measures
- Target NPS pollution measures based on producer and landowner interests, site-specific conditions, 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 NPS mitigation resources to best address site-specific 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 NRCS Field Office Technical Guide as a primary agricultural reference resource for Section 319 grant-funded watershed management projects and other NPS best management practice implementation 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 the agricultural sector and landowners to improve productivity and strengthen agronomic conditions, 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 water, etc.,)
- Coordinate efforts to minimize or abate soil erosion and sedimentation (siltation) to waters of the state
- Coordinate efforts minimize or abate potential water quality impairments associated with irrigation
- Facilitate NPS management measures 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 transport (e.g., odors associated with animal husbandry)
- Coordinate efforts to prevent or restrain the spread of invasive species to preclude detrimental impacts to agricultural-based environmental and economic health and sustainability

Strategy A.3 Achieve Nonpoint Source Pollutant Load Reductions

Action Item A.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/monitoring protocols
- Assess current data and historical water quality trends to target NPS pollutant load reduction resources
- Implement management measures 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 project results to illustrate 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 A.4 Provide and Enhance NPS Pollution and Water Quality Education and Outreach (E&O)

Action Item A.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 (soil), water, 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 Credentialed Professionals to enhance delivery of conservation 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 best 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 pollutant load reduction “success-stories” to characterize 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 A.5: Develop and Sustain Public and Private Sector NPS Pollution Management Partnerships

Action Item A.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 all natural resource programs and services are made accessible to the public
- Engage 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 agricultural producers and 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 focus the implementation of management measures
- Partner with stakeholders to develop and implement a 9-key element watershed management plan (e.g., EPA Section 319 grant guidelines) to address the 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 Agreement or Memorandum of Understanding
- Continue to conduct surveys and interviews to assess citizen knowledge, awareness and attitude

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

Action Item A.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, USDA-NRCS National Water Quantity Initiative, 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 priority and progressively address identified watersheds
- Develop and implement EPAs 9-key element watershed-based management plans and NRCS conservation plans as authorities and resources allow
- Continue to periodically (minimum every 5 years) revise Strategies and Action Items as necessary to reflect progress or problems encountered in achieving AL NPS Management Program goals and objectives.
- Continue to adopt adaptive management approaches to meet and maintain 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, leverages funding, meetings to share information and ideas)
- Continue to ensure that the 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 conservation programs with state agricultural-based program resources (e.g. ADAI, ASWCC, AFC, etc.,)
- Continue to make strong sustained efforts to coordinate, integrate and leverage the significant resources of the CWSRF loan program for eligible nonpoint source activities.
- Continue to look for new and innovative ways to develop and implement conservation and nutrient 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 agricultural 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 agricultural sector through the NRCS Conservation Delivery Streamlining Initiative (CDSI)