MISSISSIPPI'S NONPOINT SOURCE

POLLUTION CONTROL

SECTION 319(h) GRANT PROGRAM

WORK PLAN

FOR GRANT YEAR 2020



Prepared for

United States Environmental Protection Agency Section 319(h) of the Clean Water Act

Prepared by

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> September 30, 2019 Revised March 23, 2020

Introduction

The state's Nonpoint Source (NPS) Pollution Control Program is implemented under the guidance of the Mississippi Department of Environmental Quality's Mission Statement "to safeguard the health, safety and welfare of present and future generations of Mississippians by conserving and improving our environment and fostering wise economic growth through focused research and responsible regulation."

Information contained herein represents work outlined for fiscal year 2020 Section 319(h) NPS Grant funding and is structured to support the implementation of the long-term goals identified in the EPA approved update to the state's NPS Management Program Plan. The plan fulfills the requirements of both Section 319(h) of the Clean Water Act Amendments of 1987, and Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). It comprehensively describes a framework for agency coordination and cooperation and serves to implement a strategy for employing effective management measures and programs to control NPS pollution statewide.

The state's strategy for the management and abatement of NPS pollution relies on statewide and targeted watershed approaches. These approaches are implemented through both regulatory and non-regulatory programs on the federal, state, and local levels. The implementation of program activities or categories that are not regulated rely primarily on the voluntary cooperation of stakeholders and are supported financially through federal assistance programs such as Section 319(h) and available state resources. The strategy for addressing NPS pollution on a statewide level includes education/outreach, monitoring and assessment, watershed planning activities, BMP demonstrations, BMP compliance, technology transfer, consensus building, and partnering.

The work plan supports MDEQ's efforts to focus on nutrient pollution reduction activities and leverage multiple state and federal resources. Components of the nutrient reduction efforts support the Gulf Hypoxia Action Plan through the development and implementation of regional nutrient reduction strategies and Mississippi's Nutrient Criteria Development Plan. In support of these efforts, §319(h) NPS funding will continue to be used statewide to implement the nutrient pollution reduction efforts.

This grant year (GY) 2020 work plan includes specific restoration and protection projects. The work plan is divided into two major sections: *Program Fund Allocation and Watershed Project Fund Allocation*. The Program Fund Allocations from the GY 2020 §319 NPS funding will be used to implement program support activities such as program administration, statewide collaborative strategies, education and outreach programs, statewide monitoring and assessments, and watershed planning activities. The Watershed Project Allocation from the GY 2020 §319 NPS funding will be used to implement watershed restoration and protection plans which focus on implementing technical best management practices to reduce pollutants entering watersheds and engaging key targeted audiences to reduce nonpoint source pollutants from developed areas. These management practices will be in areas within the Sherman Creek, Catalpa Creek, and Owl Creek watersheds. These watersheds have been prioritized because they have impaired waters with completed total maximum daily loads (TMDLs) for identified pollutant(s); have existing water quality monitoring data and collection sites; have been

identified as having critical sediment and nutrient issues in the watershed(s); and, the local stakeholders and partners have expressed a desire to participate in area wide best management practice implementation to address the watershed issues of concern.

Implementation of the NPS Program is done in cooperation with numerous agencies, organizations, and groups at all levels of government and in the private sector. Priority will be given to activities that promote consensus building and resource leveraging opportunities to increase the overall effectiveness of the state's NPS Program.

To meet our NPS Management Program goals and the priorities selected in the Basin Management Approach, the following funding breakdown is proposed. Approximately 7% will fund Statewide NPS Program Administration, approximately 31% will fund Statewide NPS Program Implementation, and 11% will fund NPS Watershed Planning. These first three elements make up the Program Funds (49%) of the grant. For the Watershed Project Funds of the grant, 33% will fund NPS Watershed Project Implementation, and the remaining 18% will fund Support for Watershed Projects Implementation, thus totaling 51% for Watershed Project Funds. A thorough breakdown of funds by element is provided in Table 1 included at the end of this work plan.

NPS Program Fund Allocations

Statewide NPS Program Administration

The Mississippi Department of Environmental Quality (MDEQ), Office of Pollution Control (OPC) serves as the lead agency in Mississippi for water quality management. Therefore, OPC is responsible for the development and implementation of the State's NPS Management Program. To do this, OPC performs several key administrative functions to ensure statewide implementation of NPS initiatives. These functions include:

Budget and Grant Administration: This is a key component as many implementation activities are handled through sub-grants with other agencies. This task includes overseeing sub-grant preparation, sub-grant negotiation and signing, and budget oversight. Tracking of specific outputs required in these sub-grants and their budgets as well as the internal budget of the NPS Branch is a major function of Program Administration. As such, the Chief of the Basin Management and NPS Branch is dedicated to these functions.

Program Oversight: Oversight is provided by the OPC to ensure that targeted activities and milestones outlined in the NPS Management Program are achieved. This is accomplished by coordinating with all water program activities, NPS activities identified by other state and federal agencies and organizations, and by providing direction and ensuring coordination between the *Basin Management and NPS Branch*, the *Water Quality Standards and Special Projects Branch*, and the *Modeling and TMDL Branch*. The Chief of the Surface Water Division (SWD) provides the overall program oversight.

The overall completion date for the NPS Administration activity is the same as the grant period which is September 30, 2024. Funding to support the Program Administration functions represents 7% of the overall grant and therefore is in compliances with EPA's requirements that administration cost cannot exceed 10% of the grant.

FY14 Management Plan Long Term Goals Supported:

Long Term Goals: See goals 1, 2, 10, 12, 13, and 14 within the current 5-Year NPS Management Plan.

FY 20 Management Plan Goals Supported: Program Administration – Element 1: Goals 1 & 2

Statewide NPS Program Implementation

The Office of Pollution Control coordinates the statewide NPS Program and continues to implement the program in cooperation with several agencies, organizations and groups at all levels of government and in the private sector. It is recognized by the MDEQ that the level of success achieved in developing and implementing an effective NPS Program is greatly influenced by the level of stakeholder involvement both at the watershed and statewide levels and great focus is given to activities that promote consensus building and partnering. There are several partnerships in place to promote and ensure the overall effectiveness of the State's NPS Program. Additional efforts to support program implementation include development and

implementation of nutrient reduction strategies and projects along with implementation of statewide NPS programs such as numerous education and outreach activities targeting students, educators, and adults; the Statewide Forest Water Quality Protection Program; efforts to provide citizens with information regarding onsite wastewater disposal system installation and maintenance education; waste pesticide disposal events; agricultural assistance program; and other initiatives that help address nonpoint source pollution prevention and reduction.

A primary objective of the Statewide NPS Program is to increase public awareness of nonpoint source pollution and ways to reduce its impacts at the individual, community and watershed levels. Targeted audiences include private citizens, teachers, students, scout troops, civic leaders, contractors, farmers, urban neighborhood groups, civic organizations, lake community groups, environmental groups, foresters, and government resource agencies. To increase participation in program activities, funds may be allocated to procure refreshments and facilities for meetings with our target audiences as needed. Listed below are routine programs/activities implemented as part of the statewide NPS focused education and outreach program:

Education and Outreach Activities:

Environmental Education and Outreach Mobile Classroom – A mobile, interactive classroom activity targeted for Kindergarten through 5th grade students providing information about NPS pollution in watersheds and what people can do to improve water quality. Activities presented in the program align with the standards adopted by the Mississippi Department of Education.

Public Service Announcements – NPS messages and NPS workshop/event information are aired on radio and television stations throughout Mississippi. Other media utilized by MDEQ for NPS messages include newspaper, newsletter articles, etc.

Adopt-A-Stream – Workshops teach participants about watersheds, NPS pollution, land use, watershed delineation, water quality, and water quality indicators. Workshops are held in priority watersheds and various regions of Mississippi to promote NPS education. Meals and/or light refreshments will be served at these events.

In addition to the workshops, the program promotes the use of the *Storm Drain Marking Campaign* by providing an information packet and contact information to assist communities with storm drain marking projects. The packet includes examples of storm drain markers with a variety of pollution prevention messages, e.g. "No Dumping, Drains to River". Also included are examples of a NPS informational doorknob hanger, a sample press release and a "how to" brochure on conducting a storm drain marking program.

Envirothon – The Envirothon High School Competition tests student knowledge about water, soils, forestry, wildlife, and current environmental issues each year. The competition measures success by student oral presentations made to a panel of judges where each team applies their knowledge and field experiences to a real-life environmental problem/situation. It also includes both written and field tests. The Mississippi competition is sponsored by MDEQ's NPS Program and the Mississippi Association of Conservation Districts and is coordinated by the Mississippi

Soil and Water Conservation Commission. Meals and/or light refreshments will be served at these events.

Environmental Teacher Workshops – Teacher workshops are a major component of MDEQ's NPS education program each year. The teacher workshops include interactive classroom activities and field trips with some of the best environmental/natural-resource speakers in Mississippi instructing the classroom teachers and environmental educators. These workshops include sessions on water quality, NPS pollution prevention, green infrastructure, low-impact development, water chemistry, benthic macroinvertebrate community measures, and hands-on, water related activities. Educators can use all of the information provided in these workshops to teach students about natural-resource stewardship. In addition, the NPS program assists with workshop support for the following curricula: *Project Learning Tree; Project WET; Project WILD; Project Aquatic WILD; Project Food, Land and People; Private Eye;* and others. Meals and/or light refreshments will be served at these events.

Make-A-Splash Event – The *Make-A-Splash, A Water Education Event* is held each September at the Mississippi Museum of Natural Science in Jackson, Mississippi where students visit water-related interactive booths and guided museum exhibits to learn about polluted runoff, wildlife, water use, groundwater, surface water, macroinvertebrates, and other water quality and ecosystem indicators.

Project Earth Teacher Workshops – Workshops teach participants about NPS pollution, water quality, conservation ecology, and environmental problems and solutions. MDEQ partners for NPS workshops include universities and Soil and Water Conservation Districts in several regions of Mississippi. Meals and/or light refreshments will be served at these events.

Summer Ecology Day Camps – This summer camp exposes the 1st-6th grade students to various aspects of biology, environmental science and nonpoint source water pollution. The program is designed to increase the campers' knowledge of natural resource conservation, entomology, recycling, soil and water conservation along with alternative energy and the proper use of scientific equipment. This education and training creates an awareness of NPS water pollution that will lead to habit and behavior changes to improve water quality in Mississippi.

Water Model Demonstration Talks – MDEQ and other entities conduct water-model demonstration speeches at student and adult events/activities each year.

Program Implementation/Support Activities:

In addition to the activities mentioned above, and to better support MDEQ's focus on strategic nutrient and sediment reduction activities, forest water-quality protection, and impacts from onsite wastewater disposal systems, the Statewide NPS Education and Outreach Program was expanded to include the following programs:

Community Growth Readiness – Formerly called Nonpoint Education for Municipal Officials (NEMO) is a presentation or workshop that is used by MDEQ and others to address water quality issues by linking land use and polluted runoff. Any county or city can use this 3-tiered strategy

of natural resource -based planning, better site design, and storm water best management practices. This information helps communities with their development plans and encourages them to adopt ordinances that incorporate low -impact development, sustainable growth, and green infrastructure.

Mississippi Statewide Forestry Water Quality Protection Program - The Mississippi Forestry Commission (MFC) evaluates the implementation and use of voluntary Best Management Practices for forestry activities throughout the state of Mississippi. By monitoring these voluntary practices on a continuous cycle and widely distributing the results, best management practice implementation rates will increase. The MFC works with other forestry related groups in promoting water quality within the State and implements monitoring of Best Management Practices, conducts educational workshops, and distributes outreach materials.

Onsite Wastewater Disposal System Installation and Maintenance Education - MDEQ will continue to collaborate with the MSDH to reduce adverse impacts from individual on-site wastewater disposal systems (OSDS) through homeowner and installer education, regulation of system installation and repair, and decommissioning of failing systems.

Agricultural NPS Implementation Assistance – The Mississippi Soil and Water Conservation Commission (MSWCC) supports the NPS program by providing assistance to conservation districts to implement educational and demonstration projects. Funds are used to support staff time. These projects will improve water quality through the reduction of nonpoint source pollution from agricultural and urban sources by promoting the use of best management practices.

Waste Pesticide Disposal Program - The Mississippi Legislature passed a law in 1993 directing that pesticide registration fees, or a portion of the fees, be used to fund the waste-pesticide disposal program. This law went into effect on July 1, 1993 and was repealed on July 1, 1998 (Miss. Code Ann. § 69-23-301). During the time this law was enacted, MSU's Extension Service worked in conjunction with the Mississippi Department of Agriculture and Commerce (MDAC) Bureau of Plant Industry to run the program and conduct numerous pesticide disposal events. After the law was repealed in 1998, there was no waste pesticide disposal program until MDEQ allocated funding through the Nonpoint Source (NPS) Program under §319 of the Clean Water Act. The program began again in 2000 and is implemented by the MSU Department of Agricultural and Biological Engineering and the MSU Extension Service. Each event is publicized in the surrounding counties and thus usually attracts farmers from nearby areas. Chemicals are weighed on-site on collection day, and the contractor bases their disposal costs on a "per pound basis", in addition to a "base-setup fee." The primary goal of this project is to help Mississippi farmers and property owners minimize the environmental risks associated with the disposal of waste-pesticide products by disposing of products in a safe and efficient manner. Events will be held as long as funding is available for the disposal of products. Events will be targeted in areas of high agricultural productivity throughout the Mississippi Delta region and in priority watersheds.

To assist with the implementation of the NPS Program, track projects, and meet federal reporting requirements, grant funding is used to support programmatic data management needs.

Grants Reporting and Tracking System - The Environmental Protection Agency's *Grants Reporting and Tracking System* (GRTS) is the primary tool for management and oversight of the EPA's Nonpoint Source (NPS) Pollution Control Program. Under the Clean Water Act Section 319(h), EPA awards grants for the implementation of state NPS management programs. State grant recipients are required to report annually in GRTS their progress in meeting milestones, including reductions of NPS pollutant loadings and on improvements to water quality achieved by implementing NPS pollution control practices.

In the past, MDEQ used a proprietary system developed by Cengea Solutions, Inc. to track NPS project information. This Water Resources Management System (WRMS) was used to track all components of the grant and to help populate required information into the national GRTS database. With the new enhancements to the data structure and new required elements in GRTS, along with new database requirements at MDEQ, the WRMS data system no longer meets the needs of the NPS program. Work is on-going to determine requirements for meeting both the enhancements to GRTS and internal NPS and Basin Management programmatic business function needs and to design, test, and develop a data system that meets those needs. MDEQ Office of Information Technology staff have been consulted and are supporting this work. Efforts are underway to leverage this database development endeavor with other internal database design/development efforts to allow for more efficient use of funding and for ease of data sharing and data flow amongst MDEQ programs and to EPA.

FY14 Management Plan Long Term Goals Supported:

Long Term Goals: See goals 1, 2, 3, 4, 5, 9, 10, 13, and 14 within the current 5-Year NPS Management Plan. **FY 20 Management Plan Goals Supported:** Program Implementation – Element 2: Goals 1 & 2

Project Implementation – Element 2: Goals 1 & 2 Project Implementation Support – Element 5: Goal 2

Watershed Planning

The NPS Management Program implements strategies that target priority watersheds throughout the state. Prioritization of these watersheds is an evolving process identified in coordination with resource agency partners as part of the Basinwide Approach to Water Quality Management. Mississippi's collaborative, leveraged approach to reduce excessive nutrients and their impacts focuses on the development and implementation of appropriate nutrient reduction strategies. The target audience for the strategic planning and implementation includes local agencies and organizations with a mission for environmental and water quality restoration and protection, and local, state and federal agencies with the authority to develop and implement nutrient reduction plans and practices.

In recent years, §319 NPS funding has been used increasingly to support nutrient reductions in large watersheds. The strategy behind this approach is to use the committed §319 resources to attract additional leveraging opportunities, that together, create a greater potential to achieve quantifiable reductions in nutrient concentrations/loadings.

The State's NPS Program incorporates the <u>Mississippi Coastal Nutrient Reduction Strategy</u>, <u>Mississippi Delta Nutrient Reduction Strategy</u>, the <u>Mississippi Uplands Nutrient Reduction</u>

<u>Strategy</u>, and the statewide strategy <u>Mississippi's Strategies to Reduce Nutrients and Associated</u> <u>Pollutants</u> in the development and implementation of NPS projects. The integration of these three regional strategies into the combined statewide strategy permits consistent, compatible, and coordinated watershed management plans to be developed and implemented statewide while addressing the distinct regional differences that exist for nutrient sources across the State In implementing these strategies, Mississippi continues to work in conjunction with the Mississippi River Gulf of Mexico Watershed Nutrient Task Force to achieve nutrient reductions and work collaboratively to reduce the size of the hypoxic zone in gulf waters.

Beginning in 2015, and in response to *EPA's Section 303(d) Vision Process*, MDEQ worked internally with Clean Water Act water program managers and staff to develop a *Prioritization Framework Document* as a first step in developing a comprehensive watershed framework for use in managing and preserving Mississippi's water resources. The outcome of the process was to identify a subset of watersheds that were identified as priorities in more than one program area. In these priority watersheds, activities could be implemented to address watershed specific issues of concern and, where applicable, to address waters on the Mississippi's Section 303(d) list. For the NPS Program's consideration the watershed priorities identified through this process have been included in the list of priority watersheds identified by the NPS Program and partners in the 5-yr Management Plan to allow for increased coordination, planning, and leveraging opportunities. A list of the identified combined priority watersheds is included in Appendix A.

Prioritization of watersheds for watershed plan development is done by multi-agency teams in the *Basin Management Approach* (BMA). The mission of the BMA is to foster stewardship of Mississippi's water resources through collaborative watershed planning, education, protection, and restoration initiatives. To accomplish this, nine of Mississippi's major river basins have been organized into four basin groups (see Figure 1). Each basin group has a basin team comprised of state and federal agencies, non-governmental organizations, Institutes of Higher Learning, and local organizations. This team provides the opportunity for multiple levels of government, non-profit, academic, and local stakeholders to coordinate their efforts. Together, basin team members help identify water quality concerns, and prioritize watersheds for water quality restoration and protection activities. The BMA also encourages and provides the opportunity for basin team members to pool both technical and financial resources to address priority watersheds.

During Basin Team meetings, members work collaboratively on a number of very important activities, some of the most critical being the prioritization and selection of watersheds for plan development. Team meetings are also used as a forum to report out on project activities, relevant basin scale work or research, watershed working group assignments, education and outreach activities, and opportunities to engage with project stakeholders.

In concert with these team meetings, and to incentivize stakeholder participation, project funding may be used to purchase food and other refreshments along with providing support for renting facilities in which to host those events. MDEQ plans to host two Basin Team meetings per year in each basin group during the time frame these GY 2020 funds will be used. Light refreshments and/or meals/beverages will be provided for Basin Team members and/or their designees and/or other meeting participants (speakers/landowners/project officers/sub-grantees/subject matter experts, etc.) The purpose of these meetings is to provide coordination opportunities, collectively

work to identify shared priorities, prioritize watersheds for plan development and allow members to leverage funding where available. Agenda, location, length and timing of events TBD.



Figure 1. Map of Mississippi's Basin Groups.

Watershed Implementation Plan Development-The major natural resource problems in many watersheds is nutrient loading and sedimentation. To help solve these problems, one of the management actions is to develop water quality projects on agricultural and urbanized lands within the State's watersheds to focus on these sources. This can be accomplished through developing watershed projects with the goals of reducing nutrients and sediment entering the streams and creeks in the watershed. Watershed implementation is composed of two important parts, the *Watershed Implementation Team* (WIT) and the *Watershed Based Plan* (WBP).

Successfully managing the state's water resources requires the input of all citizens in a watershed - from homeowners to farmers to businesses to local officials. The Basin Management Approach provides opportunities for local stakeholders to participate in decision making efforts and in shaping the future of water quality. Funding from this grant will be used to aid in the development of Watershed Implementation Teams (WITs) to protect and restore the integrity of priority watersheds. A WIT is generally comprised of employees from local, state, and federal agencies as well as landowners, local stakeholders and local conservation groups. A WIT has the role of helping gather all the information needed to write the WBP. The team identifies the strategies to achieve the goals outlined in the WBP. To support WIT efforts, teams participate in face-to-face meetings. In concert with these WIT meetings, and to incentivize stakeholder participation, project funding may be used to purchase food and other refreshments for the WIT (WIT members and/or their designees and/or other meeting participants, speakers, landowners, project officers, subgrantees, subject matter experts, etc.) along with providing support for renting facilities in which to host those events. The purpose of these meetings is to provide updates on implementation activities, education events and review and modify the watershed plan. Agenda, location, length and timing of events TBD.

Funding from this grant will be used to support the continued development and expansion of active Section 319 NPS-funded projects across the state. All nutrient/pollutant reduction projects will use the appropriate nutrient/pollutant reduction strategies to guide watershed planning, monitoring, implementation, protection, and education and outreach activities. Individual WBPs will be approved by EPA before any project funds are spent and will, where TMDLs exist, be required to address the nine key elements identified in EPA guidance.

During this grant period, the WBP developed for Owl Creek will be submitted to EPA for approval. In addition, information detailing the Phase II incremental funding for Sherman Creek and Catalpa Creek will be provided to EPA for review and concurrence as 9 key element watershed based plans have already been reviewed and approved by EPA for these watersheds. In addition, funding will be allocated to continue the development of WBPs in priority watersheds to develop a pipeline of project ready plans to be funded in future grant years. These plans will be submitted to EPA for comment and approval. This allocation of funds to support the development of WBPs under this grant was done in response to EPA's comments requesting MDEQ work to develop more implementation ready, approved watershed plans.

The MDEQ collaborates with the USGS, state universities, non-governmental organizations (NGOs), and other key partners to carry out monitoring and other watershed support functions. Monitoring and assessment activities supporting NPS goals and initiatives are making significant progress in documenting water quality improvements in the State's water bodies. The MDEQ

maintains a quality management plan (QMP) for data management and prescribed procedures within the organization and the NPS Program will continue to work within QMP guidelines.

The MDEQ will continue to coordinate program activities to address the agency priorities of supporting the *Gulf Hypoxia Action Plan and the Gulf of Mexico Alliance Governors' Action Plan III*. All MDEQ monitoring funded by EPA grants is carried out under QAPPs prepared using *EPA QAPP Guidelines*. Monitoring activities conducted by MDEQ for parameters that are under the *Mississippi Water Quality Standards* are conducted in accordance with the *Mississippi Consolidated Assessment and Listing Methodology* (CALM) when possible. Laboratory procedures and data management are covered under approved MDEQ SOPs. Data collected in conjunction with the USGS is entered into the NWIS data system and is publicly available via their website.

This work is consistent with and supplements, but does not duplicate, commitments in the *FY* 2020 Section 106 grant Work Plan for TMDL, Monitoring, and Assessment Program Elements. MDEQ has a proven record of successfully managing and implementing water quality monitoring and assessment projects. MDEQ works to ensure that tasks are carried out as outlined in project work plans and carefully manages grant funds to make certain that cost effective measures are implemented.

In addition to watershed plan development, program Planning Funds from this GY will be utilized to support the following statewide and watershed monitoring and assessment activities: Nutrient Criteria and Standards Development; Nutrient Reduction Strategy refinement/update; Index of Biotic Integrity; Stressor Identifications; QAPP Development; and Evaluation and Enhancement of the Mississippi Watershed Characterization and Ranking Tool (MWCRT).

Nutrient Criteria and Water Quality Standards Development- The *Clean Water Act* requires that each state review their water quality standards at least every three years in a process called the triennial review. Water quality standards must include three components: (1) the designated uses of the State's water bodies; (2) the water quality criteria (narrative or numeric) necessary to protect those uses; and (3) anti-degradation provisions to protect water quality. During the triennial review, that latest science and information available are considered, and when needed, criteria are updated to protect human health and aquatic life.

MDEQ completed its most recent triennial review in 2015. A public comment period and public hearing were held to accept public comments and feedback regarding the proposed revisions to criteria. Following the public comment period and hearing, the proposed revisions were presented to and adopted by the Mississippi Commission on Environmental Quality in the spring of 2016. The revisions were approved by EPA in May 2016. MDEQ is currently in the process of conducting a triennial review.

Excessive nutrient (phosphorus and nitrogen) loss from watersheds is frequently associated with degraded water quality in streams. To reduce this impact to surface waters, NPS sources originating from cropland farming practices and other watershed activities, are being evaluated for implementation of control measures. Due to concerns about eutrophication in the Nation's water bodies, EPA directed the states to develop and adopt numeric nutrient criteria for surface

waters. Since it is thought that much of the Nation's and Mississippi's nutrient impairments are a result of NPS runoff, work is needed to confirm this premise and to develop scientifically defensible numeric nutrient criteria that are appropriate for Mississippi's surface waters.

Work under this grant will support MDEQ's efforts to provide water quality data and information to aid in the development and implementation of numeric nutrient criteria as required by EPA. Since FY2000, MDEQ has worked to gather data needed to develop scientifically defensible numeric nutrient criteria for the State's water bodies. The need remains for data collection to fill data gaps and characterize the causal and response relationships required to develop and implement numeric nutrient criteria. Any nutrient monitoring supported by this grant will be consistent with the most recent version of the Mississippi's Nutrient Criteria Development Plan that is mutually agreed upon with EPA. MDEQ plans to establish numeric nutrient criteria following a sequenced approach for (1) lakes and reservoirs (outside the Mississippi Alluvial Plain), (2) coastal and estuarine waters, (3) streams and rivers (outside the Mississippi Alluvial Plain), and (4) Delta waters. MDEQ's mission is to develop scientifically defensible criteria that are appropriate and protective of Mississippi's waters. The development of criteria for each water body type will be coordinated with other water body types to ensure consistency across the State and protection from downstream impacts. Nutrient criteria development work scheduled for GY20 includes continued data analyses as needed for the State's various water body types.

Water quality standards define the water quality goals of a water body or portion thereof, in part, by designating the use or uses to be made of the water. States adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the *Clean Water Act*. "Serve the purposes of the Act" (as defined in sections 101(a)(2), and 303(c) of the *Act*) means that water quality standards should:

- provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water ("fishable/swimmable"), and
- consider the use and value of State waters for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation.

These sections of the CWA describe various uses of waters that are considered desirable and should be protected. States must take these uses into consideration when classifying State waters and are free to add use classifications. Consistent with the requirements of the *CWA* and WQS Regulation, States are free to develop and adopt any use classification system they see as appropriate, except that waste transport and assimilation is not an acceptable use in any case. Once States have their use classification system in place, they must have criteria in place to protect these uses.

A State can choose to adopt subcategories (and/or seasonal classifications) in its use classification system to further refine designated uses. Mississippi currently has a very basic use classification structure outlined in the water quality standards regulations. Initial work has been completed by MDEQ in a collaborative effort with EPA to explore the potential to refine the use classifications in Mississippi and develop preliminary concepts for this effort. Stakeholders in

Mississippi were supportive of the concept and MDEQ is moving forward with developing a more refined system to appropriately classify our water bodies. MDEQ's work to refine designated uses/water body classifications scheduled for GY20 may include data analyses, data collection, policy development, technical support for criteria development as needed for "new" classifications, and stakeholder outreach.

Transparency and stakeholder involvement are a priority of the MDEQ Water Quality Standards Program. Stakeholder update sessions, small group discussions, presentation opportunities at meetings and conferences across the state, the MDEQ website, and social media are all tools being utilized by MDEQ to support transparency of information and enhance stakeholder awareness and involvement. The efforts listed above are in addition to the mandatory public comment period and public hearing that are required for all revisions to the water quality criteria regulations.

Index of Biotic Integrity-Mississippi has focused monitoring resources on developing tools to support attainment decisions and the development of Success Stories. Using an Index of Biotic Integrity (IBI) as an indicator of long-term water quality conditions, the State has made significant progress in accurately categorizing and characterizing water quality in water bodies where the IBIs are complete. To date, the State has fully developed an IBI for wadeable streams excluding the Mississippi Alluvial Plain, known as the Mississippi Benthic Index of Stream Quality (M-BISQ). An IBI for wadeable streams in the Alluvial Plain, known as the Delta Benthic Index of Stream Quality (D-BISQ), along with a Coastal IBI are currently in development.

In 2020, MDEQ plans to continue biological monitoring efforts as part of the M-BISQ, DBISQ, and Coastal IBI. Annually, the agency plans to monitor 100 locations as part of the MBISQ program, 30 locations as part of the DBISQ program, and 25 locations as part of the Coastal IBI program. As part of the annual monitoring, sites in both the MBISQ and DBISQ are targeted to continue refinement of the index as well as to support MDEQ water programs. As such, monitoring will be targeted in *Priority Watershed* areas where there are planned and/or ongoing projects in order to determine successes.

Stressor Identification- MDEQ has a strong team of scientists and engineers focused on evaluating water quality data and identifying stressors in water bodies that have been listed as being biologically impaired using benthic macroinvertebrate community data. If biological community data indicate that a water-body segment is impaired, an investigative, stressor-identification analysis using a strength-of-evidence approach is conducted to determine the cause(s) of the impairment. Such causes may range from specific pollutants (e.g. Total Nitrogen) to other causes of pollution such as sedimentation, habitat loss or hydrologic alteration. In most cases, nonpoint sources contribute to or are the primary causes of impairment. MDEQ relies upon all available monitoring and assessment data and conducts additional monitoring to gather the necessary data and information to help determine both the causes and sources of impaired waters. The *U.S. Environmental Protection Agency (EPA) Stressor Identification Process and Stressor Identification Guidance Document* (USEPA, 2000), is used to identify most probable stressors causing biological impairment to provide the information necessary to develop required TMDLs that will guide restoration activities.

The State will continue to perform stressor identification on biologically impaired waters to support TMDL development and other restoration activities. Stressor identification (SI) studies are needed to continue to prepare TMDLs and watershed plans for impaired state waters. MDEQ will conduct SI analyses on biologically impaired waters identified through the State's Prioritization Framework process. In addition to biological and chemical-monitoring data analyses, the Stressor identification process includes an assessment of NPS activities in the watersheds of impaired waters, land use/land cover analyses, use of the *Mississippi Watershed Characterization and Ranking Tool*, and extensive GIS work.

The statistical metrics used to inform the SI approach are calibrated to include the data from the most recent biological sampling events and the most resent multi-metric index. MDEQ has also been working on the development of a new database to house the physical, chemical and biologic data associated with biotic index sampling. As the database comes online, staff will be trained in developing and analyzing the statistical metrics and associations used to support the SI program. Additional monitoring to supplement existing and historical data used in SI analyses may be collected and incorporated. This monitoring can include critical-period measurements, geomorphic assessment, and seasonal water-sample collection to try and better distinguish individual stressors within paired stressor groups such as sediment/habitat or dissolved oxygen/nutrients used in the SI strength-of- evidence process.

The outcome of this process allows MDEQ to make decisions on the types of restoration activities that should be implemented in a watershed, so that we can achieve restoration goals and measure the success of restoration activities. The aforementioned work falls within the *Program Planning* part of the FY20 grant which utilizes Program Funds.

Quality Assurance Project Plan Development- The MDEQ is strongly committed to sound science and quality assurance (QA) practices that will produce environmental data of appropriate quality to be used for decision-making. This commitment is consistent with the goal of EPA. To achieve this goal, the MDEO has established a *Quality Management Plan* (OMP) (MDEO *Quality Management Plan*). It is the policy of MDEQ that there shall be sufficient Quality Assurance (QA) activities conducted by the environmental programs to provide a reasonable assurance that all environmental data generated and processed will be scientifically valid, of adequate statistical quantity, of known precision and accuracy, of acceptable completeness, representativeness, and comparability and, where appropriate, legally defensible. Under MDEQ Quality Assurance (QA) policy, the QMP provides a framework to plan, implement, and assess the effectiveness of quality assurance and quality control operations applied to environmental programs. The product of this process is called the Quality System. The Quality System of MDEQ is intended for use by MDEQ managers and staff, as well as those organizations producing environmental data under a MDEQ external agreement, i.e., contract, grant, cooperative agreement, or interagency agreement. This system provides a connection between QA policy and its implementation in Mississippi. Upon approval by EPA, the QMP is updated as needed, but at least every five years. The approved plan is made available electronically to MDEQ staff via the intranet and to the public on the MDEQ website.

FY14 Management Plan NPS Management Program Goals Supported Long Term Goals supported: 1, 2, 3, 4, 5, 9, 10, 13, and 14. **FY20 Management Plan Goals Supported:** Planning – Element 3: Goals 1 & 2

NPS Project Fund Allocations

NPS Watershed Project Implementation

To implement the nutrient/pollutant reduction strategy, §319 NPS funding will be used to support projects in all regions of the state. The projects will focus on watersheds with recently developed and approved WBPs so that achievable load reductions can be quantified through preand post-implementation water quality monitoring. Implementation of the strategies in these watershed projects will provide additional, cost-effective information related to achievable results and costs. The use of CZARA set-aside funds (**\$100,000**) will be used for coastal project(s) and/or activities.

Results of the projects will be used to adaptively manage and improve the nutrient and pollutant reduction strategies. MDEQ plans to prioritize implementation of the water-quality restoration projects based upon information and data gathered during the TMDL development process in addition to input from local stakeholders and the Basin Teams assembled for each basin group in the State. MDEQ staff, with input from the basin teams and work groups of appropriate team members, will identify potential watershed protection or restoration projects. Final project selections by MDEQ will incorporate recommendations from these efforts. All nutrient/pollutant reduction projects will use the appropriate nutrient/pollutant reduction strategies to guide watershed planning, monitoring, implementation, and education and outreach activities. MDEQ is committed to developing watershed-based plans. As such, WBPs in MDEQ's queue will be provided to EPA for approval. Individual watershed management plans will be approved by EPA before any project funds are spent.

Additional tasks that will be completed during the implementation of each watershed project in accordance with Section 319 funding shall include:

- Each watershed project will be entered in GRTS as an individual project; reporting will be done as per grant guidance requirements;
- Local participants who are candidates for BMP installation will be contacted;
- All funds requested for the NPS Watershed Project Fund Element will be obligated no later than one (1) year from the date of the grant award;
- Sub-grants awarded or work orders based on task order contracts issued and BMP installation/application will begin.
- NPS Management Branch staff will monitor installation/application of BMPs and process invoices.
- Sub-grantees will acquire landowners' and users' signatures to an agreement that ensures the continued operation and maintenance of all BMPs installed;
- Biannual reports will be prepared and submitted;

- Monitoring and assessment conducted will allow for determining the effectiveness of BMPs; based on determination of effectiveness and monitoring of a stream segment, MDEQ will submit the segment for delisting from the §303(d) list, or MDEQ will evaluate the need for more or different BMPs to achieve objective(s); if necessary, monitoring will be extended beyond the normal project life;
- Sub-grantees will submit final report to MDEQ; final project reports will be submitted to EPA upon completion of each project.

Watershed Projects

Incremental Funding for Sherman Creek-Panola-Quitman Floodway Watershed (080302020205), Yazoo River Basin

The Sherman Creek –Panola Quitman Floodway Watershed is located in the northern portion of Tallahatchie County in North Mississippi covering approximately 33,139 acres. According to the 2011 National Land Cover Database (NLCD), the landuse within this watershed is comprised of approximately 55% cropland, 16% wetlands, 19% forestland, and 9% other (water, scrub/barren, pastureland and urban).

The water-use classification for all water bodies in this watershed, as established by *Regulations* for Water Quality Criteria for Intrastate, Interstate, and Coastal Waters, is for Fish and Wildlife Support. Waters with this classification are intended for fishing and propagation of fish, aquatic life, and wildlife. Waters that meet the Fish and Wildlife Support criteria should also be suitable for secondary contact, which is defined as incidental contact with water including wading and occasional swimming.

The Sherman Creek –Panola Quitman Floodway Watershed has a long history with Mississippi's Section 303(d) List of Impaired Water Bodies beginning with the original listing of the Sherman Creek Drainage Area (DA) in 1996 (MS270E). The entire drainage area was considered as an "evaluated" §303(d) listing versus "monitored" listing as there were no water quality data to verify impairment status of the water bodies in the watershed. The State of Mississippi originally placed Sherman Creek drainage area and Panola Quitman Floodway, also located in this watershed, on the Section 303(d) List of Impaired Water Bodies due to evaluated causes of pesticides, siltation, nutrients, and organic enrichment (OE) / low dissolved oxygen (Low DO). In 2002, the Sherman Creek drainage area was replaced with East Levee Creek on the list as it captures the majority of the drainage in the watershed. East Levee Creek retained the segment identifier of MS270E along with the previously identified causes pesticides, nutrients, and siltation.

There are several Total Maximum Daily Load (TMDL) reports for water bodies within the Sherman Creek-Panola Quitman Floodway Watershed (HUC 080302020205). One of the TMDLs is *Total Maximum Daily Load Yazoo River Basin Delta Region for the Delta Region*. Both East Levee Creek and Panola Quitman Floodway are listed within the TMDL. This TMDL was completed for clean sediment. The State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters regulation does not include a numerical water quality standard for aquatic life protection due to sediment. The narrative standard for the protection of aquatic life is

sufficient for justification of TMDL development, but does not provide a quantifiable TMDL target. The target for this TMDL is based on reference sediment yields developed by the Channel and Watershed Processes Research Unit (CWPRU) at the National Sedimentation Laboratory (NSL). This TMDL calls for an 80 to 85% reduction in sediment.

Nonpoint loading of sediment in a water body results from the transport of the material into receiving waters by several processes including mass wasting, head cutting, gullying, and sheet and rill erosion. Sources of sediment come from improper agricultural and silvicultural practices as well as from a plethora of other improper land-use activities, e.g. construction, mining, channel alterations.

East Levee Creek also has a TMDL entitled <u>Total Maximum Daily Load Total Nitrogen and</u> <u>Total Phosphorus For East Levee Creek</u>. Mississippi does not have water quality standards for allowable nutrient concentrations. MDEQ currently has a Nutrient Task Force (NTF) working on the development of criteria for nutrients. The TMDL identified an annual concentration of 0.58 mg/l as an applicable target for TN and 0.09 mg/l for TP for water bodies located in the east side of the Delta. This TMDL calls for Total Phosphorus (TP) to be reduced by 96.42 % and Total Nitrogen (TN) to be reduced by 88.36%.

Non-point loading of nutrients and organic material in a water body results from the transport of the pollutants into receiving waters by overland surface runoff, groundwater infiltration, and atmospheric deposition. Unlike nitrogen, phosphorus is primarily transported in surface runoff when it has been sorbed by eroding sediment.

In FFY2018, funding was requested for the Sherman Creek-Panola Quitman Floodway Watershed. As part of the watershed based plan developed for this project, more conservation needs were identified than funds were available. As such, MDEQ proposed moving forward with a phased funding approach and identified a subset of BMPs to be funded along with education and outreach activities from the FY18 grant. With funding from the FY20 grant, MDEQ proposes to allocate and additional **\$400,000** to the project. This funding will be used to continue implementation of identified BMPs from the watershed based plan to address both sediment and nutrient sources in the watershed. A complete budget along with a corresponding table identifying the planned Phase II BMPs will be added to the approved in the watershed based plan as an appendix. The Phase II BMP list and budget table will be provided to EPA for review and approval prior to implementation. The Sherman Creek-Panola Quitman Floodway has a 9 key Element watershed based plan that has been reviewed and approved by EPA.



Figure 1: Map of Sherman Creek – Panola Quitman Floodway Watershed in Tallahatchie County, MS.

Catalpa Creek Watershed (031601040601), Tombigbee River Basin

The Catalpa Creek Watershed is located in Oktibbeha, Clay and Lowndes Counties in the northeast region of Mississippi and is part of the larger Tombigbee River Basin. The 28,928-acre watershed contains 31 miles of mainstream perennial stream length. The stream network empties into Tibbee Creek which flows into Columbus Lake on the Tennessee-Tombigbee Waterway north of Columbus. At the HUC-12 level, the watershed includes part of the Mississippi State University (MSU) Campus, the MSU South Farm Research Facility and dairy farm, as well as numerous privately-owned lands. Current land use includes 44% in hay production/pastureland, 10% in cultivated crops, 9% in developed land, and 8% in wetlands or open water.

Research activities of the university and continued development and construction of university lands appear to be a primary driver of stream, ecosystem, and water-quality degradation. Catalpa Creek is currently listed by the Mississippi Department of Environmental Quality (MDEQ) as impaired by sedimentation and a TMDL has been developed that sets challenging targets for sediment-load reductions.

A comprehensive suite of management practices has been selected to address the agricultural resource concerns identified for the watershed. These concerns include sedimentation, over grazing, use of sustainable forestry practices, and the decline of wildlife habitats. The management practices to mitigate sedimentation include such things as grade-stabilization structures, sediment basins, grassed waterways, critical- area plantings, field borders, and terraces. Management practices to address protection of grazing lands include fencing, pond construction, prescribed grazing, heavy-use protection, livestock shelters, and watering facilities. Practices to foster sustainable forestry include good land-clearing, appropriate forest-site preparation, and tree and shrub establishment. Practices to restore declining wildlife include water-control structures, forage and biomass planting, and forest-stand improvement. Some of these practices address multiple resource concerns.

In addition to the agricultural resource concerns, urban storm-water management is a key need for the watershed and will be a focus of the restoration and protection plan. MSU's Master Plan (MSU, 2010) contains numerous urban storm-water management techniques and approaches. These techniques and approaches include: 1) design and implementation of low impact development (LID) solutions in future campus planning and development; 2) on-site storm-water treatment (where feasible) on all newly constructed campus buildings and landscape projects; 3) 100-foot buffers on all campus streams; 4) protecting and re-vegetating landscape areas around existing creeks and drainage ways; 5) directing storm-water flow from existing creek beds to water receiving landscapes that are designed to allow for infiltration and slow discharge; 6) enhancing landscapes around existing on-site water resources with vegetated filters and water absorbent plantings at storm water discharge points; and 7) construction of storm-water retention basins.

The project has numerous unique features. These features include an education, experiential learning and outreach approach that begins by better understanding the behaviors, perceptions, and beliefs of watershed stakeholders. This outreach approach will be addressed by pre- and

post-implementation surveys. Creation of experiential learning opportunities for students is also a focus of the project. A comprehensive monitoring and assessment approach will be implemented for this project, including the following: 1) traditional physical/chemical waterquality monitoring; 2) macroinvertebrate habitat assessments; 3) use of indicator species to evaluate ecosystem-restoration progress; and 4) social indicators to understand improvements in stakeholder behaviors and perceptions and the effectiveness of educational and outreach activities. Other unique features include analyses and designs to restore the structure and function of Catalpa Creek and for siting storm- water retention basins to mitigate downstream storm-water impacts. Also, incorporated into the project is a focus on watershed sustainability from several perspectives. These perspectives include items related to habitat/ecosystem health, water quality and quantity, and the continuance of concerted, collaborative efforts to involve local watershed champions and businesses to foster "collective ownership" of the watershed. Such an approach supports MSU's Vision 20/20 and will tie-in MSU's Office of Sustainability.

The *Water Resources Management Plan for the Red Bud - Catalpa Creek Watershed* was the result of a highly collaborative, volunteer effort on the part of over 30 faculty and administrators at MSU and over 10 staff with the MDEQ, U.S.D.A. Natural Resources Conservation Service (NRCS), Mississippi Soil & Water Conservation Commission (MSWCC), and the Oktibbeha County Soil & Water Conservation District (OCSWCD). It was review and approved by EPA along with a Phase I Implementation Plan detailing how the initial \$264,000 allocated from the FFY2016 Section 319 grant would be allocated to the needs identified in the overall watershed implementation plan. With funding from the FY20 grant, MDEQ proposes to allocate and additional **\$141,698** to the project. This funding will be used to continue implementation of priority BMPs and activities identified in the approved watershed based plan. A complete budget along with a corresponding table identifying the planned Phase II BMPs will be developed and added to the approved in the watershed based plan as an appendix. The Phase II implementation priorities and budget table will be provided to EPA for review and approval prior to implementation. The Red Bud-Catalpa Creek Watershed has a 9 key Element watershed based plan that has been reviewed and approved by EPA.



Figure 2: Map of Red Bud-Catalpa Creek Watershed in Clay, Lowndes, and Oktibbeha Counties, MS.

Owl Creek-Little Hatchie River Watershed (080102070101), North Independent Streams Basin

The Owl Creek-Little Hatchie River watershed is located in Tippah county in north Mississippi covering 25,740 acres. According to the 2016 National Land Cover Database (NLCD), the landuse within this watershed is comprised of approximately 59% forestland, 25% cropland and pastureland, 6% scrub/barren, and 6% urban, and 4% other (water and wetlands).

The water-use classification for all water bodies in the Owl Creek-Little Hatchie River Watershed, as established by *Regulations for Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*, is for *Fish and Wildlife Support*. Waters with this classification are intended for fishing and propagation of fish, aquatic life, and wildlife. Waters that meet the *Fish and Wildlife Support* criteria should also be suitable for secondary contact, which is defined as incidental contact with water including wading and occasional swimming.

MDEQ has conducted statewide biological monitoring using benthic macroinvertebrates as the indicator to develop a regionally-calibrated *Index of Biological Integrity (IBI)* for wadeable streams. This index, known as the *Mississippi Benthic Index of Stream Quality (M-BISQ)*, was used in the biological assessment of the State's wadeable streams and rivers including Owl Creek and Little Hatchie River. Based on the *M-BISQ* scores, both Owl Creek and Little Hatchie River water bodies were determined to be impaired. Therefore, Owl Creek (301412) was listed on the *Mississippi 2010 Section 303(d) List of Water Bodies for Biological Impairment (MDEQ, 2010a); and* Little Hatchie River (MS201E) was included on the *Mississippi 2002 Section 303(d) List of Biological Impairment(MDEQ, 2002a)*. A stressor identification study was then completed for the Little Hatchie River to determine the most likely cause(s) of the impairment. This analysis identified sediment as the most probable stressor of the water body and a Total Maximum Daily Load (TMDL) was developed in 2005. At this time Owl Creek is scheduled for a stressor identification study to determine the most probable cause of the impairment. Once that determination is made, a TMDL will be completed.

There are no facilities in the Owl Creek-Little Hatchie River watershed with NPDES permits that include limits for Total Suspended Solids (TSS) which is used as an indicator of sediment contributions from permitted activities. The pollutant of concern for the *Total Maximum Daily Load (TMDL) Little Hatchie River Watershed* is sediment from land-use runoff and in-channel processes. This TMDL was developed for clean sediment. Certain contaminants may be associated with sediment such as pesticides and nutrients. These contaminants were not addressed directly within this TMDL; however, these contaminants would also be controlled by some of the same best management practices (BMPs) that control the sediment from nonpoint sources of pollution. The target for the TMDL was based on reference sediment yields developed by the Channel and Watershed Processes Research Unit (CWPRU) at the National Sedimentation Laboratory (NSL). Based on the ranges of stable and unstable yield values, a reduction in sediment of 50% to 94% is recommended in Little Hatchie River.

Nonpoint loading of sediment in a water body results from the transport of the material into receiving waters by several processes including mass wasting, head cutting, gullying, and sheet and rill erosion. Sources of sediment come from improper agricultural and silviculture practices

as well as from a plethora of other improper land-use activities, e.g. construction, mining, channel alterations.

The watershed plan will identify best management practices along with education and outreach efforts that can be implemented to address sediment sources in the watershed. Total project funding allocated for this project is **\$433,000**. A complete budget will be included in the watershed based plan submitted to EPA for approval.



Figure 3: Map of Owl Creek-Little Hatchie River Watershed in Tippah County, MS.

Proposed Project Allocations:	
CZARA	\$100,000
Phase II Sherman Creek	\$400,000
Phase II Red Bud-Catalpa Creek	\$141,698
Owl Creek-Little Hatchie River	<u>\$433,000</u>
Total	\$1,074,698

FY14 Management Plan Watershed Project Implementation Goals Supported: Long-term goals supported are: 1, 2, 3, 4, 5, 6, 7, 10, and 11. **FY20 Management Plan Goals Supported:** Program Administration – Element 1: Goal 2 Project Implementation – Element 4: Goals 1 & 2

Support for Watershed Projects Implementation

The Nonpoint Source (NPS) Management Program is designed to support a wide variety of technical assistance, environmental education, technology transfer, demonstration, monitoring, analysis, watershed planning and watershed protection and restoration projects. The NPS Program provides financial assistance to state agencies, local governments, resource agency partners, universities, and non-profit organizations to support the development and implementation of these projects.

The NPS Program business process focuses primarily on targeting priority watersheds, identified under the State's *Basin Management Approach* and *Prioritization Framework* by implementing specific watershed protection and restoration projects. In most instances, TMDLs provide the NPS program with the measurable water quality load reduction goals needed to restore waterbodies to their designated use. Important activities supported under this element include: water quality monitoring, data gathering, and assessment; water quality data analysis and evaluation; iterative watershed characterization and tracking of landuse practices; watershed plan implementation; and watershed plan evaluation and if needed, modification.

The Office of Pollution Control staff, in cooperation with the Office of Land and Water, the NRCS, the USGS and Mississippi Soil and Water Conservation Commission will continue to act as resource agencies for information on managing NPS Support for Watershed Projects. Public education and technical support for these projects are provided for all categories of NPS. The purpose of this funding support is to provide assistance to ongoing Watershed Nutrient Reduction Projects, NPS demonstration projects, active NWQI watersheds, and previously funded watershed implementation projects where continued monitoring is needed to show success. Milestones/Outputs for the technical assistance activities for the Support for Watershed Project tracking, and other watershed project type activities that are directly supporting a NPS Watershed project. Specific examples of watershed project support activities include:

Mississippi Conjunctive Water Management - The Mississippi Alluvial Plain (hereafter referred to as the Delta) has been experiencing declines in both surface water and groundwater for several decades. These declines have reached levels that potentially place agricultural production, community welfare, and environmental quality at risk. These declines have also

added an additional level of complexity and influenced the approaches MDEQ and its partners have developed to reduce excessive nutrient loadings in the Delta. To address these issues, a Delta Sustainable Water Resources Task Force has been formed to develop and implement approaches that will restore and sustain surface and groundwater resources in perpetuity. Technical support is needed to develop, expand and/or implement scientifically sound, economically feasible, and socially acceptable strategies that can be implemented in the Delta, adding further to the Delta Nutrient Reduction Strategies developed in 2009. Many of the strategies and practices being implemented through the Delta Nutrient Reduction Strategies not only reduce nutrients, but also conserve water. The Path Forward concept was developed by the Conjunctive Water Management Work Group of the Delta Sustainable Water Resources Task Force in order to apply quantitative ranking criteria to prioritize alternative water supplies and to develop a metric(s) that is quantitative and consensus-based as well as illustrative of sustainable water resources in the Delta. Through this concept, numerous strategies will be implemented and advanced in GY20 including: watershed characterization, current and historical trends, economic incentives and funding, stakeholder awareness/education/outreach, best management practices, monitoring, and analytical tools.

Natural Resource Conservation Service - The NPS Program is implemented in cooperation with several agencies, organizations, and groups at all levels of government and in the private sector. A great focus is given to activities that promote consensus building and partnering to increase the overall effectiveness of the State's NPS Program. One key partnership to increase this overall effectiveness of the program is with the USDA Natural Resources Conservation Service (NRCS). The memorandum of agreement between MDEQ and NRCS provides for Section 319 funds to be used to support the implementation of *National Water Quality Initiative* (NWQI) and *Mississippi River Basin Initiative* (MRBI) programs where the NRCS has or will implement various conservation practices such as cover crops, filter strips, and terraces. In addition, information from the *Mississippi Watershed Characterization and Ranking Tool* (MWCRT) is used to help identify priority watersheds for targeted funding under the NWQI and MRBI as well as other NRCS funding initiatives. The NWQI was established by the NRCS to assist qualified landowners in targeted watersheds improve water quality and aquatic habitats in impaired streams.

United States Geological Survey - The U.S. Geological Survey (USGS) - Mississippi Water Science Center and the Mississippi Department of Environmental Quality (MDEQ) have an ongoing partnership to develop and implement watershed monitoring plans to include pre- and post- monitoring for selected §319-funded restoration projects. Water quality data (e.g. biological, physical, chemical, and/or stream flows) is collected annually at various locations throughout the State in waters that have been assessed as impaired and where BMPs have been implemented in the recent past. All final data are available on USGS's publicly facing data warehouse NWIS and interpretations will be published as an interpretive report at the conclusion of each individual project. All MDEQ monitoring funded by EPA grants is carried out under QAPPs prepared in accordance with the EPA QAPP Guidelines.

FY14 Management Plan NPS Watershed Project Support Goals Supported

Long Term Goals supported are: 4, 5, 8, 9, and 10. **FY20 Management Plan Goals Supported:** Project Implementation Support – Element 5: Goals 1 & 2 Table 1: FFY 2020 Section 319 Grant Budget Summary

Table 1-Program Budget Summa	ry for FY20 Grant
Object Class Category (Non-construction)	Total Budget Period Cost
Personnel	\$434,301.00
Fringe Benefits	\$145,490.00
Travel	\$18,000.00
Equipment	\$42,000.00
Supplies	\$14,410.00
Contractual	\$463,000.00
Construction	\$0.00
Other	\$3,922,648.00
Total Direct Charges	\$5,039,849.00
Indirect Costs	\$203,484.00
Total Recipient Share (Match 40%)	\$2,097,333.00
Total (Share: Recipient 40% Federal 60%)	\$5,243,333.00
Program Income	\$0.00
Total EPA Amount Award	\$3,146,000.00
Total Grant Award	\$5,243,333.00

Appendix A

Priority Watershed List by Basin



HUC 12	HUC 12 NAME
031601011002	Fulton-Tombigbee River
031601020403	Carmichael Creek-Town Creek
031601040603	Red Bud Creek-Catalpa Creek
031601060307	Broken Pumpkin Creek
031601080206	Skinner Creek-Hollis Creek
031700030404	Evans Creek-Chickasawhay River
031700040304	Cole Branch-Oakohay Creek
031700040305	Sullivans Hollow Creek-Oakohay Creek
031700040601	Skiffer Creek-Bouie Creek
031700040602	Williams Branch-Bouie Creek
031700040603	Dry Creek-Lone Star
031700040604	West Bouie Creek-Bouie Creek
031700040605	Town Creek-Terrible Creek
031700040606	Cooks Branch-Bouie Creek
031700040607	Clear Run-Bouie Creek
031700040608	Tick Creek-Bouie Creek
031700040701	Dry Creek-Okatoma Creek
031700040702	Goodwater Creek-Okatoma Creek
031700040703	Shelby Creek-Okatoma Creek
031700040704	Blakely Creek-Okatoma Creek
031700040705	Rogers Creek-Okatoma Creek
031700040707	Big Swamp Creek-Okatoma Creek
031700040801	Cross Creek-Big Creek
031700040901	Upper Oakey Woods Creek
031700040902	Oakey Woods Creek-Station Creek
031700050602	Reese Creek-Leaf River
031700050604	Gum Branch-Leaf River
031700050904	McMillan Creek-Leaf River
031700060101	Whiskey Creek
031700060102	Whiskey Creek-Pascagoula River
031700060103	Beaverdam Creek-Big Creek
031700060104	Plum Bluff Cutoff-White Creek
031700060105	Big Creek-Pascagoula River
031700060106	Little Cedar Creek
031700060107	Lyons Creek-Big Cedar Creek
031700060108	Indian Creek-Pascagoula River
031700060201	Wolf Branch-Bluff Creek
031700060202	Cowpen Creek-Bluff Creek
031700060203	Threemile Branch-Moungers Creek
031700060204	Little Bluff Creek-Bluff Creek
031700060301	Black Creek-Pascagoula River

031700060302	Upper West Pascagoula-Pascagoula Rivers
031700060303	Lower West Pascagoula-Pascagoula Rivers
031700070101	Monroe Creek-Black Creek
031700070102	Perkins Creek-Black Creek
031700070103	Sandy Run-Black Creek
031700070104	Black Tom Creek-Black Creek
031700070105	Boggy Hollow-Little Black Creek
031700070106	Little Beaver Creek-Little Black Creek
031700070107	Potato Creek-Big Creek
031700070108	Granny Creek-Black Creek
031700070201	Walls Creek
031700070202	Poplar Creek-Chaney Creek
031700070203	Pearces Creek
031700070204	Bowens Bay Creek-Beaverdam Creek
031700070205	Browns Creek-Beaverdam Creek
031700070206	Middle Creek-Black Creek
031700070301	Dry Branch-Red Creek
031700070302	Hickory Creek-Red Creek
031700070303	Double Branch
031700070304	Hurricane Creek-Red Creek
031700070305	Mill Creek-Kirby Creek
031700070306	Chaney Creek-Red Creek
031700070307	Bridge Creek-Flint Creek
031700070308	Tenmile Creek-Red Creek
031700070401	Old Creek-Red Creek
031700070402	Cypress Creek-Red Creek
031700070403	Clear Creek-Bluff Creek
031700070404	Cooper Hill Creek-Red Creek
031700070405	Little Red Creek
031700070406	Clay Creek-Red Creek
031700070501	Joes Creek-Cypress Creek
031700070502	Beaver Creek-Hickory Creek
031700070503	Cypress Creek-Black Creek
031700070504	Little Sweetwater Creek-Sweetwater Creek
031700070505	Long Branch-Black Creek
031700070506	Black Creek-Big Black Creek
031700080301	Long Branch-Brushy Creek
031700080302	Scarborough Creek-Brushy Creek
031700080303	Powell Creek-Escatawpa River
031700080401	Rocky Branch-Rocky Creek
031700080402	Red Creek-Escatawpa River
031700080403	Juniper Bay-Escatawpa River
031700080404	Flat Creek

031700080405	Spring Creek-Escatawpa River
031700080406	Cunningham Branch-Escatawpa River
031700080601	Pierce Creek-Big Creek
031700080603	Collins Creek-Big Creek
031700080701	Jackson Creek
031700080702	Franklin Creek
031700080703	Lyons Creek-Escatawpa River
031700080704	Black Creek Cooling Pond-Black Creek
031700080705	Beardslee Lake-Escatawpa River
031700090101	Bayou Heron-Grand Bay Swamp
031700090301	Bayou Casotte-Pt Aux Chenes Bay
031700090302	Singing River Island
031700090303	Pt Aux Chenes Bay-Mississippi Sound
031700090304	Petit Bois Island
031700090401	Hurricane Creek-Railroad Creek
031700090402	Bayou Costapia
031700090403	Bayou Billie-Tchoutacabouffa River
031700090404	Bigfoot Creek-Tuxachanie Creek
031700090405	Hester Creek-Tuxachanie Creek
031700090406	Hog Branch-Tuxachanie Creek
031700090407	Cypress Creek-Tchoutacabouffa River
031700090501	Horse Creek-Biloxi River
031700090502	Crow Creek-Biloxi River
031700090503	Saucier Creek
031700090504	Upper Little Biloxi River
031700090505	Lower Little Biloxi River
031700090506	Palmer Creek-Biloxi River
031700090507	Fritz Creek-Biloxi River
031700090601	Flat Branch-Bernard Bayou
031700090602	Bernard Bayou-Big Lake
031700090603	Turkey Creek Diversion Canals 1-3-Bayou Portage
031700090604	Old Fort Bayou
031700090605	Back Bay of Biloxi
031700090606	Davis Bayou-Biloxi Bay
031700090701	Graveline Bayou
031700090702	Biloxi Bay-Mississippi Sound
031700090703	Horn Island
031700090801	Beach Drainage
031700090802	Little Deer Island
031700090803	Deer Island
031700090804	Ship Island Pass-Mississippi Sound
031700090804	Ship Island Pass-Mississippi Sound
031700090805	East Ship Island

031700090806	West Ship Island
031700090807	Cat Island
031700090901	Upper Hickory Creek
031700090902	White Cypress Creek-Hickory Creek
031700090903	Blacksnake Creek-Mill Creek
031700090904	Dead Tiger Creek
031700090905	Catahoula Creek
031700091001	Devils Swamp-Bayou la Croix
031700091002	Lower Devils Swamp-Bayou Phillip
031700091003	Lower Bayou la Croix
031700091101	Boggy Branch-Wolf Creek
031700091102	Wolf Creek-Wolf River
031700091103	Murder Creek
031700091104	Alligator Creek-Wolf River
031700091105	Pen Branch-Wolf River
031700091201	Crane Creek
031700091202	Sandy Creek-Wolf River
031700091203	Big Creek-Wolf River
031700091301	Bayou Bacon
031700091302	Bayou La Terre
031700091303	Rotten Bayou
031700091304	Bayou Talla-Jourdan River
031700091305	Cutoff Bayou-Jourdan River
031700091306	Saint Louis Bay
031700091401	Campbell Bayou-Bayou Caddy
031800010904	Hontokalo Creek
031800020101	Sugar Bogue-Coffee Bogue
031800020102	Beach Creek-Coffee Bogue
031800020103	Lee Branch-Coffee Bogue
031800020201	Hurricane Creek-Fannegusha Creek
031800020202	Red Cane Creek-Fannegusha Creek
031800020203	Deer Creek-Fannegusha Creek
031800020301	Upper Pelahatchie Creek
031800020302	Ashlog Creek-Pelahatchie Creek
031800020303	Eutacutachee Creek
031800020304	Hollybush Creek-Clear Creek
031800020305	Snake Creek-Pelahatchie Creek
031800020306	Riley Creek-Pelahatchie Creek
031800020307	Mill Creek-Pelahatchie Creek
031800020401	Pellaphalia Creek-Pearl River
031800020402	Lake Creek-Pearl River
031800020403	Cane Creek-Pearl River
031800020404	Mill Creek-Pearl River

031800020504	Lower Richland Creek
031800020601	Brashear Creek-Pearl River
031800020602	Hanging Moss Creek
031800020603	Hog Creek-Pearl River
031800020604	Town Creek-Pearl River
031800020605	Neely Creek-Conway Slough
031800020606	Lynch Creek-Pearl River
031800020607	Cany Creek-Pearl River
031800020701	Robinson Creek
031800020702	Upper Strong River
031800020703	Barber Creek-Caney Creek
031800020704	Davis Creek-Strong River
031800020705	Raspberry Creek
031800020706	Purvis Creek
031800020707	White Oak Creek
031800020708	Jump Creek-Strong River
031800020801	Rocky Creek
031800020802	Brushy Creek-Clear Creek
031800020803	Campbell Creek
031800020804	Sellers Creek
031800020805	Crooked Creek-Strong River
031800020901	Thompson Creek-Dabbs Creek
031800020902	Lower Dabbs Creek
031800020903	Rials Creek
031800020904	Sanders Creek
031800020905	Allen Creek-Strong River
031800020906	Westville Creek
031800020907	Little Creek-Big Creek
031800020908	Harper Creek-Big Creek
031800020909	Banks Creek-Strong River
031800021006	Steen Creek-Pearl River
031800021007	Rocky Creek-Pearl River
031800021008	Weeks Mill Creek-Pearl River
031800021011	Reno Creek-Pearl River
031800030101	Russell Creek-Bahala Creek
031800030102	Little Beaverdam Creek-Bahala Creek
031800030103	Fords Creek-Little Bahala Creek
031800030104	Bird Branch-Bahala Creek
031800030201	Little Copiah Creek-Copiah Creek
031800030202	Lick Creek-Copiah Creek
031800030203	Indian Creek-Pearl River
031800030204	Vaughns Creek-Pearl River
031800030205	Mallard Creek-Pearl River

031800030301	Little Fair River-Fair River
031800030302	Perch Creek-Fair River
031800030303	Johnson Branch-Bear Creek
031800030304	Bear Creek-Fair River
031800030305	Saddlebags Creek-Pearl River
031800030306	Crooked Creek-Pretty Branch
031800030307	Monticello-Pearl River
031800030401	East Prong Silver Creek
031800030402	West Prong Silver Creek
031800030403	Silver Creek-Silver Creek
031800030404	Hooker Hollow Creek-Silver Creek
031800030501	Walker Branch-White Sand Creek
031800030502	Jaybird Creek
031800030503	Dry Creek-White Sand Creek
031800030601	Upper Holiday Creek
031800030602	Dry Creek-Pierce Creek
031800030603	Lower Holiday Creek
031800030701	Halls Creek
031800030702	Coopers Creek
031800030703	Mill Creek-Pearl River
031800030704	Tilton Creek-Pearl River
031800030705	Greens Creek
031800030706	Cypress Creek-Pearl River
031800040101	Harper Creek-Pearl River
031800040102	Richland Creek-Silver Creek
031800040103	Mays Creek-Pearl River
031800040201	Polk Creek-Upper Little Creek
031800040202	Hurricane Creek-Upper Little Creek
031800040203	Big Creek-Upper Little Creek
031800040301	Jacks Creek-Gully Creek
031800040302	Half Moon Creek-Lower Little Creek
031800040303	Little Prong Creek-Lower Little Creek
031800040401	Tenmile Creek
031800040402	Dillon Creek-Pearl River
031800040403	Sandy Hook-Hurricane Creek
031800040404	Sandy Hook-Sandy Hook Creek
031800040405	Middle Fork Creek
031800040406	Ball Mill Creek-Pearl River
031800040501	West Fork Pushepatapa Creek-Pushepatapa Creek
031800040502	East Fork Pushepatapa Creek
031800040503	Crains Creek-Pushepatapa Creek
031800040504	Muster Ground Creek-Pushepatapa Creek
031800040601	Mill Creek-Pearl River

031800040602	Mayfield Creek-Pearl River
031800040603	Baughman Creek-Big Creek
031800040604	Peters Cutoff-Pearl River
031800040607	Chinquapin Creek-Pearl River
031800040701	Lees Creek-Pearl River
031800040702	Pearl River Canal-Pearl River
031800040704	Wilson Slough-Pearl River
031800040705	West Pearl River-Pearl River
031800040801	Jumpoff Creek-East Hobolochitto Creek
031800040802	Moran Creek-East Hobolochitto Creek
031800040803	Bay Branch-East Hobolochitto Creek
031800040901	Little Hell Creek-West Hobolochitto Creek
031800040902	White Sand Creek-West Hobolochitto Creek
031800040903	Big Branch-West Hobolochitto Creek
031800040904	Kennedy Creek-West Hobolochitto Creek
031800040905	Long Branch-West Hobolochitto Creek
031800040906	Mill Creek-West Hobolochitto Creek
031800040907	Hobolochitto Creek
031800041001	Old Channel-Pearl River
031800041002	Second Alligator Branch-Pearl River
031800041003	Mikes River
031800041004	Middle River-Pearl River
031800041005	Pearlington-Pearl River
031800041006	Mulatto Bayou
031800041007	Rigolets-Pearl River
031800050101	West Bogue Chitto
031800050102	East Bogue Chitto
031800050104	Boone Creek-Bogue Chitto
031800050105	Myers Creek-Bogue Chitto
031800050201	East Topisaw Creek
031800050202	West Topisaw Creek
031800050203	Upper Topisaw Creek
031800050204	Carters Creek-Topisaw Creek
031800050301	Lazy Creek-Bogue Chitto
031800050302	Clear Creek-Bogue Chitto
031800050303	Leatherwood Creek-Bogue Chitto
031800050304	Love Creek-Bogue Chitto
031800050305	Silver Creek-Bogue Chitto
031800050401	Upper Magees Creek
031800050402	Varnell Creek-Magees Creek
031800050403	Union Creek-Magees Creek
031800050404	Kirklin Creek
031800050405	Collins Creek-Magees Creek

031800050501	Snell Branch-Silver Creek
031800050503	Mud Creek-Hays Creek
031800050504	Clifton, LA-Bogue Chitto
080102070101	Owl Creek-Little Hatchie River
080102070203	Clear Creek-Hatchie River
080102070502	McElroy Creek-Tuscumbia River Canal
080102070503	Tarebreeches Creek-Tuscumbia River Canal
080102070504	Coon Creek-Tuscumbia River Canal
080102070601	Bell Creek-West Prong Muddy Creek
080102070602	Turkey Creek-Muddy Creek
080102070603	North Branch Hurricane Creek-Hurricane Creek
080102070604	Big Creek-Muddy Creek
080102070801	Goose Pond Creek-Hatchie River
080102080201	Porters Creek
080102100201	Goose Creek-Wolf River
080102100202	Grogg Creek-Wolf River
080102100204	Blind Tiger Creek-Wolf River
080102100206	Indian Creek
080102100207	Grays Creek
080201000302	Lake Beulah-Mississippi River
080301000200	Cottonwood Chute-Mississippi River
080301000300	Paw Paw Chute-Mississippi River
080302010301	Duncans Creek-Cane Creek
080302010303	Lower Mud Creek
080302010404	Jasper Creek
080302010406	Middle Creek-Hell Creek
080302010407	Little Mud Creek-Little Tallahatchie River
080302010502	North Tippah Creek-Tippah River
080302010503	Caney Creek-Shelby Creek
080302010504	Campbell Creek-Yellow Rabbit Creek
080302010505	Rhoden Creek-Tippah River
080302010601	Little Snow Creek-Snow Creek
080302010602	Oaklimeter Creek
080302010603	Chewalla Creek
080302010604	Chilli Creek-Tippah River
080302010605	Potts Creek-Tippah River
080302010701	Cane Creek-Lockes Creek
080302010702	Mitchell Creek-Little Tallahatchie River
080302010703	East Cypress Creek-Cypress Creek
080302010704	Puskus Creek-Cypress Creek
080302010705	Cornersville Creek-Mill Creek
080302010706	Fice Creek-Little Tallahatchie River
080302010707	Bagley Creek-Little Tallahatchie River

080302010801	Upper Big Spring Creek
080302010802	Lower Big Spring Creek
080302010803	Little Spring Creek
080302010804	Graham Mill Creek
080302010806	Turner Creek-Little Tallahatchie River
080302010906	Hudson Creek-Clear Creek
080302020301	Simmons Creek
080302020302	South Fork Tillatoba Creek
080302020303	Upper Tillatoba Creek
080302020304	North Fork Tillatoba Creek
080302020306	Sherman Creek-Panola Quitman Floodway
080302030102	Toccopola Creek-Yocona River
080302030103	Kettle Creek-Yocona River
080302030105	Yellow Leaf Creek
080302030106	Pumpkin Creek-Yocona River
080302030305	Long Branch-Yocona River
080302040101	Hudsonville-Coldwater River
080302040102	Dawson Creek-Coldwater River
080302040103	Red Banks-Coldwater River
080302040104	Little Coldwater Creek-Coldwater River
080302040105	Lee Creek-Coldwater River
080302040201	Nunnally Creek-Pigeon Roost Creek
080302040202	Cuffawa Creek
080302040203	Cuffawa Creek-Pigeon Roost Creek
080302040204	Red Banks Creek
080302040205	Byhalia Creek Canal
080302040206	Red Banks Creek Canal-Pigeon Roost Creek
080302040301	Lewisburg-Coldwater River
080302040302	Nolehoe Creek-Camp Creek
080302040303	Short Fork Creek-Coldwater River
080302040304	Little Beartail Creek-Beartail Creek
080302040305	Beartail Creek-Coldwater River
080302040401	Beards Creek-Hickahala Creek
080302040402	James Wolf Creek
080302040403	Basket Creek-Hickahala Creek
080302040404	Tolbert-Jones Creek-Senatobia Creek
080302040405	Nelson Creek-Mattic Creek
080302040406	Senatobia Creek-Hickahala Creek
080302040501	Cane Creek-Arkabutla Lake
080302040502	Mussacuna Creek-Arkabutla Lake
080302040503	Nesbit-Hurricane Creek
080302040504	Frees Corners-Hurricane Creek
080302040505	Wolf Creek-Hurricane Creek

080302040506	Arkabutla Lake-Coldwater River
080302040601	Upper Arkabutla Creek
080302040602	Butterbowl Creek-Arkabutla Creek
080302040603	Middle Arkabutla Creek
080302040604	Patent Creek-Strayhorn Creek
080302040605	Egypt Creek-Strayhorn Creek
080302040606	Lower Arkabutla Creek
080302040701	Buck Creek-Coldwater River
080302040702	Johnson Creek
080302040703	Upper Lake Cormorant Bayou
080302040704	Buck Island Bayou
080302040705	Lower Lake Cormorant Bayou-Coldwater River
080302040801	Little White Oak Bayou
080302040802	Seven Mile Bayou
080302040803	Flag Lake
080302040804	Brushy Bayou
080302040901	Beaverdam Lake
080302040902	Bear Lake
080302040903	Yazoo Pass
080302041001	McNeil Bayou
080302041002	Ark Bayou
080302041003	Brady Bayou
080302041004	Thomasson Bayou
080302041101	David Bayou
080302041102	Indian Creek
080302041103	Burrell Bayou
080302041104	Lower Coldwater River
080302050106	Little Topashaw Creek-Topashaw Creek Canal
080302050206	Cowpen Creek-Skuna River Canal
080302050308	Cypress Creek-Turkey Creek
080302050309	Organ Creek-Perry Creek
080302050310	Grenada Lake-Skuna River
080302050601	Riverdale Creek
080302050602	McSwine Creek-Yalobusha River
080302060101	Upper Pelucia Creek
080302060102	Gilmore Lake-Pelucia Creek
080302060103	Lower Pelucia Creek
080302060104	Roebuck Lake-Yazoo River
080302060105	Catfish Bayou-Alligator Bayou
080302060106	Abotcaputa Creek-Yazoo River
080302060201	Murdock Creek-Abiaca Creek
080302060202	Dry Creek-Abiaca Creek
080302060203	Merrill Branch-Coila Creek

080302060204	Coila Creek-Abiaca Creek
080302060205	Old River-Abiaca Creek
080302060301	Gayden Brake
080302060302	Eldrin Fondren Ponds Dam
080302060303	T.W. Aust Ponds
080302060304	Burns Slough
080302060305	Snake Creek-Wasp Lake
080302060306	Bear Creek-Wasp Lake
080302060307	Blue Hole
080302060401	Morgan Bayou-Morgan Brake
080302060402	Upper Millstone Bayou
080302060403	Chicopa Creek
080302060404	Lower Millstone Bayou
080302060405	Upper Tchula Lake
080302060406	Tchula Lake Cutoff-Tchula Lake
080302060407	Lower Tchula Lake-Yazoo River
080302060501	Upper Black Creek
080302060502	Shipp Creek-Black Creek
080302060503	Tarrey Creek
080302060504	Williams Creek
080302060505	Harland Creek
080302060506	Gourdvine Creek-Black Creek
080302060601	Little Fannegusha Creek-Fannegusha Creek
080302060602	Bophumpa Creek
080302060603	Long Creek-Fannegusha Creek
080302060604	Tipton Bayou
080302060605	Blissdale Swamp-Parker Bayou
080302060701	Upper Tesheva Creek
080302060702	Lower Tesheva Creek
080302060703	Old Creek-Yazoo River
080302060704	Upper Piney Creek
080302060705	Lower Piney Creek
080302060706	Jonestown Cut-Off-Yazoo River
080302060801	Short Creek
080302060802	Rocky Bayou-Yazoo River
080302060803	Thompson Creek
080302060804	O'Neil Creek
080302060805	Dump Lake-Yazoo River
080302060901	Big Kilby Lake
080302060902	Wade Bayou
080302060903	Whittington Auxiliary Channel- Will M. Whittington Auxiliary Channel
080302060904	Lake George
080302070101	Black Lake Bayou

080302070102	Little Sunflower River Headwaters
080302070103	Big Sunflower River Headwaters
080302070201	Yellow Bayou-Hushpuckena River
080302070202	Edward Bayou-Hushpuckena River
080302070203	Pecan Bayou-Hushpuckena River
080302070301	Overcup Slough-Harris Bayou
080302070302	Bobo Outlet-Harris Bayou
080302070303	Clark Bayou-Harris Bayou
080302070304	Hopson Bayou
080302070305	Dry Bayou-Harris Bayou
080302070306	Black Bayou
080302070401	Hyde Bayou
080302070402	Beaver Bayou-Mound Bayou
080302070403	Long Lake
080302070404	Burrell Bayou
080302070405	Lead Bayou
080302070406	Standing Stump Bayou
080302070501	Headwaters Jones Bayou
080302070502	Outlet Jones Bayou
080302070503	Upper Porter Bayou
080302070504	Middle Porter Bayou
080302070505	Lower Porter Bayou
080302070506	Gorman Lake
080302070601	Watson Bayou
080302070602	Lower Quiver Headwaters
080302070603	Parks Bayou-Parks Bayou
080302070604	Wild Bill Bayou
080302070701	Ruleville Lagoon
080302070702	Rattlesnake Bayou
080302070703	Fighting Bayou-Fighting Bayou
080302070704	Ashland Brake
080302070705	Pecan Bayou
080302070801	Little Jack Bayou
080302070802	Lake Henry
080302070803	Gin Bayou
080302070804	Moorhead Bayou
080302070805	Roundaway Bayou
080302070901	Deep Slough
080302070902	Bear Creek
080302071001	Indian Bayou-Indian Bayou
080302071002	Gravel Bayou
080302071101	Brook Bayou
080302071102	Conservatioin League Lake

080302071103	Tommie Bayou
080302071104	Dry Bayou
080302071105	Little Bradford Bayou
080302071106	Stokes Bayou
080302071201	Christmas Lake Bayou
080302071202	Stillwater Bayou
080302071301	West Bogue Hasty
080302071302	Pecan Bayou-Bogue Hasty
080302071303	Knox Bayou-Bogue Hasty
080302071304	Bee Bayou-Bogue Hasty
080302071305	Clark Bayou-Bogue Hasty
080302071401	Headwaters Bear Lake
080302071402	Jones Bayou
080302071501	Locust Bayou
080302071502	Beaver Dam Bayou-Dawson Bayou
080302071503	Short Bayou
080302071504	Beasley Bayou
080302071601	Tupper Bayou
080302071602	Beasley Bayou
080302071603	Little Atchafalaya Bayou
080302071604	Bucker Catfish Pond Dam
080302071605	Fourmile Bayou
080302071606	Mills Bayou
080302071607	Buck Bayou-Ditchlow Bayou
080302071608	Hard Cash Lake
080302071609	De Viney Bayou
080302071610	Turkeyfoot Bayou
080302071611	Fish Bayou
080302071701	Sunflower Lagoon Dam
080302071702	Big Widow Bayou
080302071703	Headwaters Big Widow Bayou
080302071704	Widow Bayou
080302071705	Silver Creek-Silver Creek
080302071706	Panther Creek
080302071707	American Churte
080302071801	Big Monocnoc Lake
080302071802	Straight Bayou
080302071803	Deer Creek-Rolling Fork Creek
080302071901	Fifteen Mile Island
080302071902	Howlett Bayou
080302071903	Coon Bayou
080302071904	Six Mile Bayou
080302071905	Little Sunflower Diversion Canal

080302080101	Collins Creek
080302080103	Skillikalia Creek-Yazoo River
080302090101	Headwaters Granicus Bayou
080302090102	Ditch Number Eighty Eight
080302090103	Swiftwater Bayou
080302090104	Granny Baker Bayou
080302090201	Horseshoe Bayou
080302090202	Rolling Bayou
080302090203	Aqua Farms Dam
080302090204	Arcola City
080302090205	Widow Bayou
080302090206	Moon Lake
080302090301	Ditch Number Fourteen
080302090302	North Lake Washington
080302090303	Swan Lake
080302090304	South Lake Washington
080302090305	Lafayette Lake
080302090401	Otter Bayou
080302090402	Flag Lake
080302090403	Gross Bayou
080302090404	Steele Bayou
080302090405	Steele Bayou Cutoff
080302090501	Mills Bayou
080302090502	Carlisle Lake
080302090503	Goose Lake
080302090601	Five Mile Lake
080302090602	Cypress Lake
080302090603	Eagle Lake
080302090604	Newman Road
080302090605	Deer Creek Mouth
080302090606	Cypress Bayou
080302090607	Steele Bayou Mouth
080601000301	Dowd Creek-Mammy Judy Bayou
080602010106	Salt Creek-Big Black River Canal
080602010306	Big Bywy Ditch-Big Black River Canal
080602010404	Flowers Creek-Big Black River
080602010501	Horse Creek-Big Black River
080602020304	Tilda Bogue-Bear Creek
080602020504	Deer Creek-Big Black River
080602020507	Bluff Creek-Big Black River
080602020508	Mound Creek-Big Black River
080602020702	Poplar Creek-Big Black River
080602020703	Beaver Creek-Big Black River

080602020704	Porter Creek
080602020705	Halls Creek-Big Black River
080602020707	Summer Seat Creek-Big Black River
080602021001	Muddy Creek-Clear Creek
080602021002	Markham Creek-Big Black River
080602021003	Fivemile Creek
080602021005	Commissioners Creek-Big Black River
080602021101	Hamer Bayou-Big Black River
080602021102	Gunns Bayou-Big Black River
080602021104	Kennison Creek-Big Black River
080602030201	Wesson Lake-Dye Branch
080602030204	King Creek-Bayou Pierre
080602030205	Johnson Creek-Jones Creek
080602030207	Holcomb Creek-Bayou Pierre
080602030502	Booths Creek-Bayou Pierre
080602050703	Chase Bayou-Sammy Creek
080702050103	Little Tangipahoa River
080702050104	Osyka-Tangipahoa River
080702050105	Upper Bala Chitto Creek
080702050106	Lower Bala Chitto Creek
080702050108	Irving Branch-Tangipahoa River