Mississippi Department of Environmental Quality

2013 Annual Report

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STATE OF MISSISSIPPI
PHIL BRYANT, GOVERNOR
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
TRUDY D. FISHER, EXECUTIVE DIRECTOR

December 31, 2013

The Honorable Phil Bryant
Governor, State of Mississippi
Post Office Box 139
Jackson, Mississippi 39205

Dear Governor Bryant:

I hereby submit to you the annual report for the Mississippi Department of Environmental Quality for the state fiscal year ending June 30, 2013, and additional information about the agency for calendar year 2013.

The programs and initiatives promulgated by the agency further our mission to protect human health and the environment. The staff at the Mississippi Department of Environmental Quality are committed to conserving and improving our state's abundant natural resources and will continue to work together to achieve our mission in spite of the state's revenue challenges. We are proud to be the steward of the state's air, land, and water which provide a multitude of benefits for our citizens.

We appreciate your support and hope you find this report useful and informative.

Sincerely,

Trudy D. Fisher
Executive Director

TDF:jb

cc: Lieutenant Governor Tate Reeves

cc: Members of the Mississippi Legislature

Trudy D. Fisher was reappointed as the Executive Director of the Mississippi Department of Environmental Quality by Governor Phil Bryant in January 2012. Ms. Fisher was first appointed by former Governor Haley Barbour in January 2007, and is the first woman to serve as the agency's director. Prior to returning to MDEQ, she was in private practice where she led an environmental law practice. She had previously served as MDEQ's General Counsel.

As MDEQ Executive Director, she manages a staff of more than 400 and a budget of over $250 million. MDEQ is responsible for protecting the state's environment and administers most of the U. S. EPA programs, including air, water and waste management activities; monitors, models, and regulates water use; and functions as the state geological survey. After Hurricane Katrina devastated south Mississippi, under Fisher's leadership, the agency implemented a $640 million wastewater and water infrastructure program for the Mississippi Gulf Coast region.

In addition to her duties as Executive Director, Fisher serves as Mississippi's Trustee for natural resources under the Oil Pollution Act. She is tasked with leading Mississippi's recovery from the Deepwater Horizon oil spill and was a leader in negotiating the $1 billion Early Framework agreement with BP which has resulted in over $70 million in early restoration initiatives in the State of Mississippi to date. After passage of the RESTORE Act, Governor Bryant designated Fisher to be his designee on the Gulf Coast Ecosystem Restoration Council and has served as a member of the Council since its inception. Governor Bryant has also directed Fisher to lead the restoration efforts of the National Fish and Wildlife Foundation.

Trudy D. Fisher, Executive Director of the Mississippi Department of Environmental Quality

Fisher has been repeatedly recognized by her peers as one of the Best Lawyers in America and recently received a rating of "AV Preeminent," which is the highest possible legal rating in both legal ability and ethical standards.

Fisher earned a bachelor of science degree from the Mississippi University for Women and her juris doctor degree from the University of Mississippi School of Law, where she served as editor-in-chief of the Mississippi Law Journal.

Commission on Environmental Quality

Chair: Chat Phillips - At Large

Vice Chair: Charles Dunagin - 4th District

R. B. (Dick) Flowers - 1st District

Martha Dalrymple - 2nd District

Jack Winstead - 3rd District

Kay Kell - 5th District

W. J. (Billy) VanDevender - At Large

Flowers, VanDevender, Dalrymple, Winstead, Kell, Phillips, Dunagin

Mission Statement

The mission of the Mississippi Department of Environmental Quality is 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.

Values

- Truth is the foundation of everything we do.
- We vigilantly resist bias and prejudice.
- We respond promptly, courteously, and as completely as possible to every complaint question, or request for assistance.
- Inside the agency, we respect the capabilities, responsibilities, and contributions of every member of the MDEQ family. Outside the agency, we respect everyone, regardless of who they are or why we are brought together.
- We strive for a secure, stimulating, rewarding work environment in which all member of the MDEQ family are empowered and encouraged to reach their full potential.
- We are committed to the highest standards of performance in every aspect of our jobs.
- We are accountable, individually and collectively, for effective, efficient management and use of the resources provided to accomplish our mission.

DEEPWATER HORIZON [MC-252] OIL SPILL

The Mississippi Department of Environmental Quality (MDEQ) continues to lead the state's efforts to restore and enhance the state's natural resources following the *Deepwater Horizon* Oil Spill in 2010. Executive Director Trudy Fisher represents Mississippi as the state's Trustee on the *Deepwater Horizon* Natural Resource Damage Assessment (NRDA) Trustee Council and as the state's representative on the Gulf Coast Ecosystem Restoration Council (RESTORE). These bodies, comprised of federal agencies and the Gulf States, are working to implement multiple projects and initiatives to restore the natural resources of the Gulf of Mexico region.

At the state level, using a team of scientists and other subject matter experts, MDEQ is working with state agencies, local governments, NGO's, residents, industries, and business owners to make Mississippi whole.

Mississippi is the first, of the Gulf Coast states affected by the BP oil spill, to give the public an online process for submitting restoration project ideas at its website, www.restore.ms. In addition, MDEQ and Executive Director Fisher are using a texting service, website, and Twitter, among other outreach means, to disseminate information about the agency's upcoming projects, public meetings, and other information concerning restoration work on the coast.

Oil Spill Response

In May of 2013, response activities were shifted from the Gulf Coast Incident Management Team that had been in place since 2010 back to the National Response Center reporting system. MDEQ receives and participates in National Response Center reports and dispatches staff along with the U.S. Coast Guard as appropriate. MDEQ staff conduct periodic inspections of shoreline segments for any presence or accumulation of oil or tar balls, and respond to citizens' concerns. MDEQ is prepared to inspect shoreline segments and respond to other conditions such as landfall in the event of a hurricane.

GoCoast 2020

On January 28, Governor Phil Bryant announced the GoCoast 2020 Commission's final report, a compilation of work done by the group for five months. In August, 2012, Governor Bryant announced the creation of GoCoast 2020 to serve as the official advisory body for the allocation of funds received by the State of Mississippi under the Resources and Ecosystems Sustainability, Tourist Opportunity, and Revived Economies of the Gulf States Act of 2011 (RESTORE Act). The RESTORE Act directs that 80 percent of certain penalties assessed as a result of the Deepwater Horizon oil spill be directed to the five Gulf Coast states impacted by the spill. GoCoast 2020 was established to set a foundation and road map of priorities for Mississippi so the state will be better prepared as the final federal guidelines and regulations are set forth under RESTORE.

Brent Christensen, MDA, Mark Henry, MDEC, Gov. Bryant, Sen. Michael Watson, Trudy Fisher, MDEQ, U.S. Rep. Steven Palazzo.

Created by an Executive Order from Gov. Bryant, GoCoast 2020 was comprised of more than one hundred twenty business and community leaders, elected officials, and citizens from across the three Mississippi Gulf Coast counties and led by MDEQ Executive Director Trudy Fisher.

As a Coast-driven process with the goal of including a broad representation of input into the Final Report, the GoCoast 2020 Commission relied on involvement from a wide range of people and expertise. Several hundred citizens attended and participated in the three listening sessions that were held in each of the three coastal counties in October, 2012. Through several months of meetings, workshops, public listening sessions, and extensive research, GoCoast 2020 focused on eight key areas related to the activities specified in the RESTORE Act. The purposes of this activity were to chart a vision and to provide a framework of recommendations that will protect the environment as the foundation of the coastal lifeblood, improve the job creation climate to increase economic opportunities, and enhance the unique quality of life for Mississippi's coastal residents in the near term and for generations to come.

GoCoast 2020's eight key areas of focus were:

- Eco-restoration
- Economic development
- Seafood
- Infrastructure
- Tourism
- Workforce development
- Small business
- Research and education

The GoCoast 2020 Commission's eight committees, called GoTeams, all identified several common threads that should be followed as the Mississippi Gulf Coast prepares for the implementation of the RESTORE Act. First and foremost, each GoTeam focused on the need for any project considered in the future under RESTORE to have as positive an impact as possible on the entire Coastal region, not just one single area.

Among the other shared goals of each GoTeam included the need for the long-term sustainability of any projects that are ultimately undertaken as a result of RESTORE. That includes financial stability so that there is a strong foundation in place for the Coast's continued growth in the future.

The GoCoast 2020 Final Report can be viewed in its entirety at www.GoCoast2020.com.

The Gulf Coast Ecosystem Restoration Council

The Gulf Coast Ecosystem Restoration Council was established by the RESTORE Act to develop and oversee implementation of a comprehensive plan to help restore the ecosystem and economy of the Gulf Coast region in the wake of the Deepwater Horizon oil spill.

The Council is comprised of governors from the five affected Gulf States, the Secretaries from the U.S. Departments of Interior, Commerce, Agriculture, and Homeland Security as well as the Secretary of the Army and the Administrator of the U.S. Environmental Protection Agency. The Gulf States selected and President Obama appointed the Secretary of Commerce as the Council's Chair. MDEQ's Trudy Fisher serves for Governor Phil Bryant on the Council.

The Council will work with states and local communities to identify projects and programs that will restore the region's natural resources and help benefit local businesses, boost their economies, and create jobs.

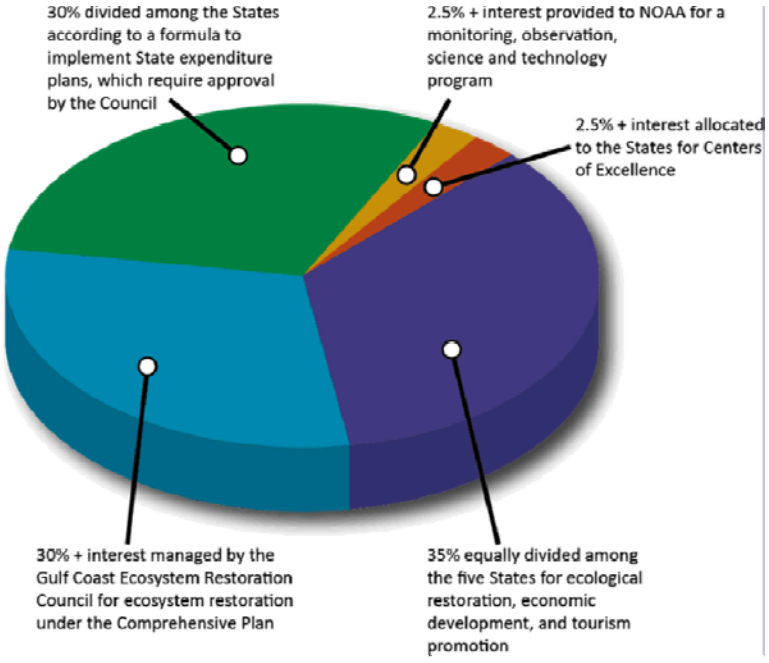
The RESTORE Act dedicates 80 percent of Clean Water Act administrative and civil penalties paid by responsible parties in connection with the Deepwater Horizon oil spill to the Gulf Region for ecological and economic recovery efforts.

The RESTORE Act sets forth the following framework for the Trust Fund:

●35 percent of the money divided equally between the five Gulf States for ecological and economic restoration efforts in the region;

●30 percent of the money through the Council to implement a comprehensive plan for ecosystem and economic recovery of the Gulf Coast;

●30 percent of the money for states' plans based on impacts from the Deepwater Horizon oil spill;



●2.5 percent of the money to create the Gulf Coast Ecosystem Restoration Science, Observation, Monitoring and Technology Program within NOAA; and

●2.5 percent of the money to the Centers of Excellence Research grants, which will each focus on science, technology, and monitoring related to Gulf restoration.

RESTORE Council Events in Mississippi in 2013

●The Gulf Coast Ecosystem Restoration Council and MDEQ hosted a public engagement session for around 250 citizens at the Mississippi Coast Coliseum and Convention Center in Biloxi on February 19.

The purpose of the session was to receive comments on *The Path Forward to Restoring the Gulf Coast,* a document released by the Council in January which described the path to develop an initial Comprehensive Plan.

It sets out an integrated approach to Gulf restoration, recognizing that ecosystem restoration is inextricably linked to economic growth and development.

●On March 7, Governor Phil Bryant named the Center for Gulf Studies, a research consortium led by The University of Southern Mississippi, as the RESTORE Research Center of Excellence for the state of Mississippi. The University of Mississippi, Jackson State University and Mississippi State University are partners in the research consortium. The RESTORE Act includes a 2.5 percent funding designation to establish Research Centers of Excellence.

Through the Center for Gulf Studies, Mississippi is already gaining a more comprehensive understanding of the northern Gulf of Mexico ecosystem and its relationship to environmental stressors like storms and oil spills. Now with the designation of the Center for Gulf Studies as a RESTORE Research Center of Excellence, Mississippi is further positioned as a leader in Gulf research.

Trudy Fisher at the announcement for the Center of Gulf Studies with Gov. Phil Bryant and Hank Bounds, IHL Commissioner.

The results of studies conducted by the center will be shared with other scientists, agencies and research groups to enhance coastal resource management and develop practical applications that can drive technology innovation and business development.

Governor Bryant was joined at the announcement by Trudy Fisher, Executive Director of the Mississippi Department of Environmental Quality; Dr. Hank Bounds, Commissioner of Higher Education; and Dr. Rodney Bennett, President of The University of Southern Mississippi.

●MDEQ Executive Director Trudy Fisher hosted a public engagement meeting in Biloxi on June 11 to solicit comments on the Gulf Coast Ecosystem Restoration Council's draft plan.

The "Draft Initial Comprehensive Plan: Restoring the Gulf Coast's Ecosystem and Economy" describes the objectives, the selection process, and the evaluation criteria for the ecosystem restoration projects and programs that will be funded by the Gulf Coast Ecosystem Restoration Council.

The two funding sources from the Gulf Coast Restoration Trust Fund established by the RESTORE Act addressed in the plan are the 30 percent managed by the Council for ecosystem restoration and the 30 percent that is distributed to the states through an allocation formula to implement state expenditure plans which require Council approval.


Alice Perry and her writing team.

● The Gulf Coast Ecosystem Restoration Council met on August 28 in New Orleans and approved the *Initial Comprehensive Plan: Restoring the Gulf Coast's Ecosystem and Economy*.

U.S. Secretary of Commerce Penny Pritzker, Chair of the Council, Louisiana Governor Bobby Jindal, Council representatives from all the Gulf States, and participating federal agencies discussed and approved the plan that provides a roadmap for implementing RESTORE Act restoration funds. MDEQ Deputy Director Alice Perry served a six month detail to Washington, D.C., as the manager of the team that wrote the *Initial Comprehensive Plan: Restoring the Gulf Coast's Ecosystem and Economy* mandated by the RESTORE Act.

National Fish and Wildlife Foundation

●In November, the National Fish and Wildlife Foundation (NFWF) announced $7.5 million for three Mississippi projects that address high priority conservation needs on the Mississippi coast. The projects, developed in consultation with MDEQ and federal resource agencies, are designed to remedy harm to natural resources that were affected by the 2010 Gulf oil spill.


Trudy Fisher and Jamie Miller

The monies are the first obligations from NFWF's Gulf Environmental Benefit Fund, created in 2013 as part of the settlement between the U.S. Department of Justice, BP, and Transocean to settle certain criminal charges against both companies in relation to the spill.

At an announcement in Moss Point MDEQ Executive Director Trudy Fisher and Jamie Miller, Executive Director of the Mississippi Department of Marine Resources discussed the projects representing the initial obligation of funds from the first disbursements received by the Gulf Fund. Under the allocation formula and other provisions contained in the plea agreements, $356 million will be paid into the Gulf Fund over the next five years for conservation projects in the State of Mississippi.

One of the three projects will focus on expanding the Audubon Coastal Bird Survey program, a year-round volunteer-driven monitoring program for shorebirds that began in the wake of the oil spill. The stewardship program will focus on 22 sites in coastal Mississippi and carry out standardized monitoring; implement best management practices to secure nesting sites and reduce human use and invasive species threats; and educate diverse audiences to increase understanding of the needs and value of coastal water birds.

The Coastal Stream and Habitat Restoration and Management Initiative will create strategies and restoration designs to abate threats to priority coastal streams and restore associated habitat. Through a partnership among the MDEQ's Basin Management Program, Audubon Society, and the Nature Conservancy, funding will be utilized to complete Phase I of the Initiative and will generate conservation plans and restoration design plans for coastal watersheds in several communities.

The third project will restore and improve management of the State of Mississippi's system of Coastal Preserves to enhance the ecological value of these important coastal habitats. These actions are needed to maintain native habitats and to provide appropriate transition zones for inland migration of coastal marshes in the face of sea level rise. Actions on 26 Coastal Preserve sites will utilize invasive species control and native vegetation plantings to restore ecological function to these unique and important habitats. The program intends to target the most threatening and destructive invasive species including Chinese tallow, giant salvinia, common salvinia, and water hyacinth. By strategically restoring wetlands and removing invasive species, the Coastal Preserves Program project will revitalize ecologically and economically important fish and wildlife resources.

Natural Resource Damage Assessment (NRDA)

The *Deepwater Horizon* Natural Resource Damage Assessment (NRDA) is the legal process for developing the public's claim for natural resource damages against the party or parties responsible for the oil spill and to seek compensation for the harm done to natural resources and those services they provide. It also provides for the development of a restoration plan or a series of plans to restore or replace those resources as well as the structure by which Mississippi and others will plan and implement restoration of the Gulf of Mexico and/or compensation for damages. The *Deepwater Horizon* NRDA, given its geographic size, three-dimensional nature and ecological complexity, may continue for years.

Mississippi's *Deepwater Horizon* NRDA trustee is MDEQ Executive Director Trudy Fisher. Working with trustees from the U.S. Department of Commerce (NOAA), the U.S. Department of the Interior, U.S. Environmental Protection Agency, U.S. Department of Agriculture as well as the four other Gulf States--Florida, Alabama, Louisiana, and Texas--MDEQ is determining how the oil spill affected the Gulf of Mexico's natural resources, ecosystems and the associated human uses.

The NRDA process provides clear guidelines for assessing damages by calculating the value of the restoration required to return the injured resources to their pre-spill conditions and to compensate for interim losses. From the early days of the spill and continuing even now, NRDA teams are collecting data related to a wide range of natural resources. Here in Mississippi, using a team of scientists and other subject experts, MDEQ is conducting a comprehensive, data-driven assessment of the type and extent of damage to our ecosystem resources and habitats. This information is used to assess potential impacts to natural resources. Lost human uses of these resources and habitats such as recreational fishing, boating, hunting, and beach activities also are being assessed.

Typically in a NRDA, the natural resource trustee(s) develops a restoration plan or plans to compensate for the impacts following a damage assessment. Establishing a comprehensive restoration plan involves analyzing data to determine injuries. A draft restoration plan will be developed and offered for public review and comment. Upon approval of the plan, a claim will be made for funds from the responsible parties. These funds will be used to implement projects designed to both restore and compensate for the injured natural resources as well as the human use losses associated with public lands.

Under a NRDA, plans for the implementation of early restoration projects prior to the final quantification of injury may be developed to achieve restoration faster. On April 21, 2011, the Trustees announced the Framework for Early Restoration Addressing Injuries Resulting from the *Deepwater Horizon* Oil Spill (Framework Agreement), in which BP agreed to fund $1 billion in Early Restoration projects. Under the agreement, DOI, NOAA, and the five spill-affected Gulf states each will receive $100 million to implement early restoration projects. The remaining $300 million will be allocated by NOAA and DOI for early restoration projects proposed by state trustees.

The full NRDA process will continue until the trustees have determined the extent of damages caused by the *Deepwater Horizon* Oil Spill. At the end of the damage assessment process, the trustees will take into account any benefits that were realized from these early restoration projects. In addition to funding early restoration projects, BP will continue to fund the damage assessment and, together with other responsible parties, is obligated to compensate the public for the entire injury.

Eight Early Restoration projects have been funded to date, two of which are in Mississippi. The first was awarded at a cost of $11 million to enhance existing oyster beds, thus compensating for losses of natural resources within the Mississippi Sound exposed to oil, dispersant, and/or response activities following the *Deepwater Horizon* Oil Spill. Other benefits include providing additional oyster production in the western Mississippi Sound, increasing oyster harvesting opportunities, and enhancing existing Mississippi oyster management efforts.

Under this project, approximately 1,430 acres of oyster beds within marine waters of Hancock, Harrison, and Jackson counties will be enhanced through the deployment of cultch material (domestic limestone gravel) onto existing oyster beds. The cultch provides a hard surface where oyster larvae can attach and grow.

The first $3 million phase of the project was completed in October, 2012, with the deployment of 20,372 cubic yards of approved cultch material, which covered approximately 203 acres. Deployment of the remaining 1,227 acres of cultch took place in 2013.

The second Mississippi Early Restoration project is the Mississippi Artificial Reef Habitat Restoration Project and provides for the deployment of material to enhance up to 67 existing artificial reef areas in the coastal waters of Mississippi. Each reef is approximately three acres in size. Valued at $2.6 million, it addresses injuries to natural resources and creates new near shore reefs. This enhancement will support the recovery and production of Gulf marine resources by helping increase the overall productivity of the reefs, which is the base of the food web. This project completed in June 2013.

NRDA Activities in 2013

●On May 2, Governor Phil Bryant announced $69 million in proposed early restoration projects bringing Mississippi's early restoration total to $82.6 million.

Mississippi's projects were proposed as a result of a public comment process on the Gulf Coast and were negotiated with BP and Mississippi's federal and state partners.

The four proposed projects for this phase of NRDA funding are:

●Hancock County Marsh Living Shoreline
The project would provide for construction of up to six miles of living shoreline. Benefits would include reduction of erosion, re-establishment of oyster habitat, and enhanced fisheries resources and marsh habitat. Approximately 46 acres of marsh would be constructed to protect and enhance the existing shoreline near Heron Bay. In addition, 46 acres of sub-tidal oyster reef would be created in Heron Bay to protect the shallow bay and increase oyster production in the area. The estimated cost of this project is approximately $50 million of which NOAA is funding a portion.

●Restoration Initiatives at the INFINITY Science Center
INFINITY is a state-of-the-art interactive science research, education, and interpretive center located in Hancock County. Early restoration funds would be used to develop interactive exhibits at the INFINITY Science Center. These enhancements would replace lost recreational opportunities through enhanced visitors' access to coastal natural resources. The estimated cost of this project is approximately $10.4 million.

●Popp's Ferry Causeway Park
The project in Harrison County would provide for construction of an interpretive center, trails, boardwalks, and other recreational enhancements. This project would replace lost recreational opportunities by enhancing existing amenities allowing visitors to fish, crab, and observe nature. The estimated cost of this project is approximately $4.7 million.

●Pascagoula Beachfront Promenade
Early restoration funds for this project would be used to help complete a two-mile, 10-foot wide lighted concrete pathway complete with amenities. The purpose would be to restore the loss of recreational opportunities by enhancing access to the Mississippi Sound and its natural resources. The estimated cost of this project is approximately $3.8 million.

●On July 16, MDEQ hosted a public meeting in Long Beach to ask citizens to provide thoughts on the types of early restoration projects they would like to see implemented as part of the ongoing *Deepwater Horizon* Natural Resource Damage Assessment.

The public comments were considered as the *Deepwater Horizon* NRDA Trustees prepared a Programmatic Environmental Impact Statement (PEIS) for early restoration. The PEIS includes an evaluation of the potential effects of early restoration types—and specific projects—proposed as part of future early restoration phases.

NRDA public meeting in
Long Beach December 2013

●In December 2013, and into 2014, the NRDA Trustees are accepting comments on $627 million in proposed early restoration projects including the four in Mississippi.

The draft plan proposes $627 million in early restoration projects in the Gulf states and includes the programmatic plan and the complete list of 44 proposed projects. Some aim to restore barrier islands, dunes, marshes, shorelines, and oyster beds. Others, such as boat ramps and park enhancements, seek to address the lost recreational use of natural resources.

Mississippi's public meeting was held on December 17 in Long Beach and accepted comments from the attendees.

Early restoration projects represent an initial step toward fulfilling the responsible parties' obligation to pay for restoration of injured natural resources. Ultimately, the responsible parties are obligated to compensate the public for the full scope of natural resource injuries caused by the spill, including the cost of assessment and restoration planning.

In July and August staff from MDEQ participated in a cooperative study to monitor the health of dolphins in the Mississippi Sound. These activities are being conducted as part of the MDEQ's continuing efforts of documentation for Mississippi's Natural Resource Damage Assessment case. The two week study included participants from NOAA, the Louisiana Department of Fish and Wildlife, the National Marine Mammal Foundation, and the National Park Service.

AIR QUALITY

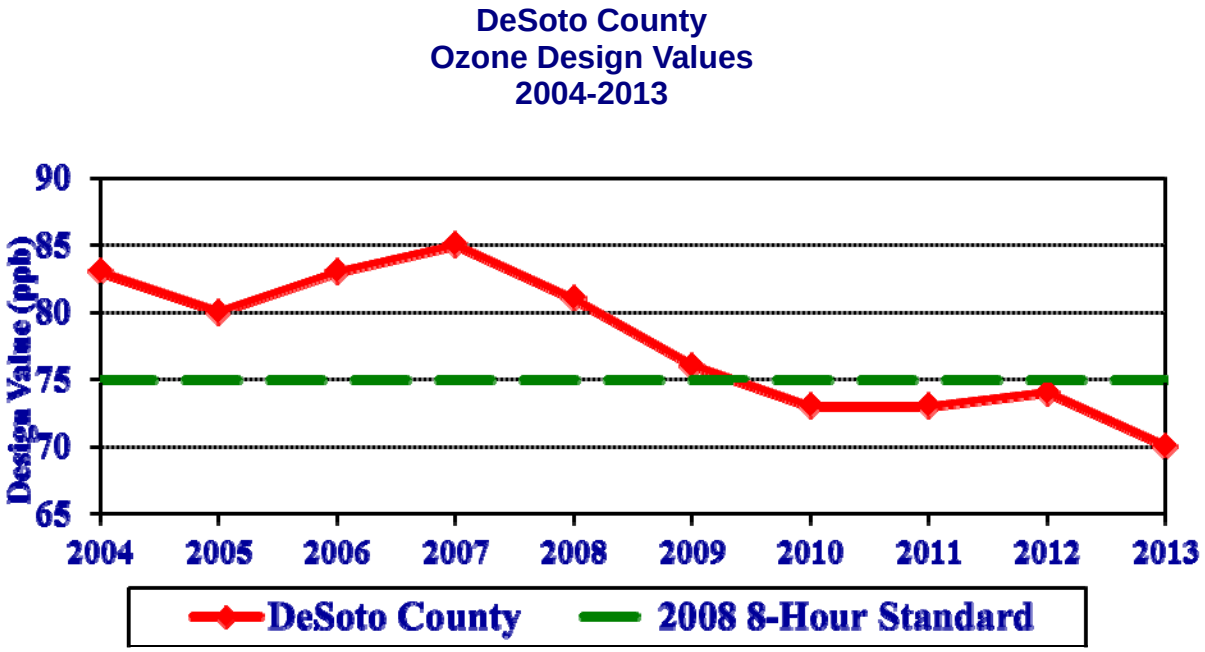
Air Quality Standards and Planning

Mississippi has historically met all federal ambient air quality standards. However, new, more stringent federal standards for ground-level ozone, nitrogen dioxide, sulfur dioxide, lead, and visibility recently promulgated by the U.S. Environmental Protection Agency (EPA) are jeopardizing the track record. Increased planning and monitoring efforts will continue for several years because of these changes.

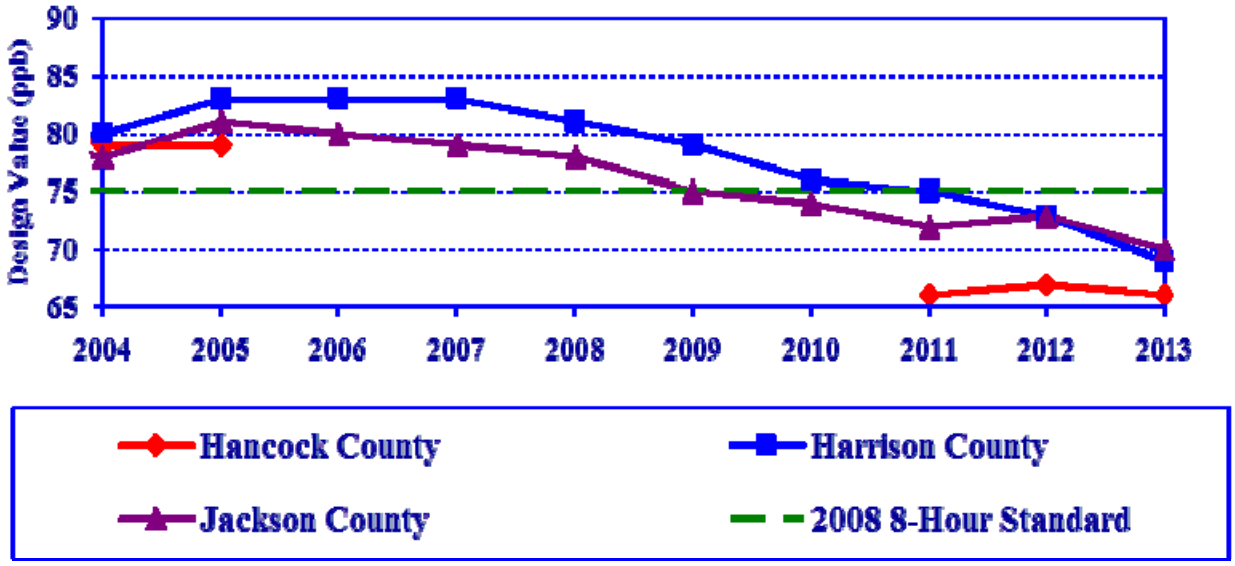
Emissions reductions in Mississippi and adjoining states, as well as favorable meteorological conditions, resulted in a recent downward trend in ozone concentrations culminating with all Mississippi counties being designated by EPA as attainment with the ozone standard of 84 parts per billion (ppb) in 2004. In 2008, EPA issued a new ozone standard of 75 ppb. Final designations of the standard were made in 2012. All Mississippi counties were again designated as attainment with the exception of DeSoto County. Although DeSoto County met the standard, most of the county was designated as part of the Memphis Nonattainment Area.

MDEQ is continuing a voluntary ozone precursor air pollution control program in partnership with governmental and business leaders on the Coast and in DeSoto County in efforts to prevent or mitigate future nonattainment.

In 2008, EPA issued a new lead standard that required MDEQ to monitor for lead starting in December 2011 to determine if the state will meet the new standards. Mississippi is meeting that standard. In addition, EPA has issued new standards for nitrogen dioxide and sulfur dioxide. In 2012, EPA designated all Mississippi counties as attainment with the nitrogen dioxide standards. Sulfur dioxide designations have not been issued yet to states attaining the standard using monitoring data, including Mississippi. EPA retained the current standards for carbon monoxide. Mississippi is meeting those standards. Proposed standards for annual average particulate matter were made in December 2012. The standard was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$. Final designations of the standard will be made in December 2014 using 2011-2013 data. The 24-hour average standard remained at 35 $\mu g/m^3$. Mississippi is meeting both of those standards.



Mississippi Gulf Coast
Ozone Design Values
2004-2013



MDEQ issues daily air quality forecasts for the Mississippi Gulf Coast and the Jackson Metropolitan Area from April through October each year. Also, MDEQ, in association with the Memphis-Shelby County Health Department, issues air quality forecasts for DeSoto County. These forecasts are made available through e-mail as well as the MDEQ web site. The purposes of these forecasts are to keep the public informed about the status of air quality, to issue health advisories when needed, and to notify the members of the respective ozone precursor reduction programs when they should implement their emissions reduction plans.

Southeast Modeling, Analysis, and Planning (SEMAP)

Mississippi is working with nine other southeastern states to address the many new air quality standards that have or will come out in a more efficient and effective way. The SEMAP group, which includes several MDEQ staff members, is addressing the new standards from a regional perspective. This is necessary because air emissions from Mississippi may impact other states' air quality and other states can impact Mississippi's air quality. It is also more efficient and cost effective because the group can hire contractors to help develop inventories and perform air quality modeling and analysis for much less than each state trying to do the work on their own. The modeling effort has been continuing and results will be available to use for the new standards.

Air Emission Inventory Branch

Emission Inventories

The Air Division develops an inventory that quantifies the air emissions from various sources each year. Every third year, EPA requires a complete inventory that quantifies emissions from all major Title V sources on a detailed level and estimated emissions from smaller stationary and mobile sources. The inventory quantifies emissions for over 200 air pollutants and also includes emissions related information such as control devices, exhaust stack parameters, and fuel type. This work involves gathering the emissions data from the emissions sources, quality assuring it, and submitting it to EPA in a prescribed format. An Inventory for Calendar year 2011 was due December 31, 2012. The 2011 inventory was a complete inventory year, meaning that all major sources had to be submitted and estimates for minor source and mobile sources had to be developed in conjunction with EPA. MDEQ completed and submitted the 2011 major source inventory prior to the December 31, 2012, submittal date and worked with EPA to clarify any issues and develop the minor and mobile source inventories. Work is currently being done on the calendar year 2012 inventory and is due by December 31, 2013.

Mississippi Diesel Emissions Reduction Project State Grants

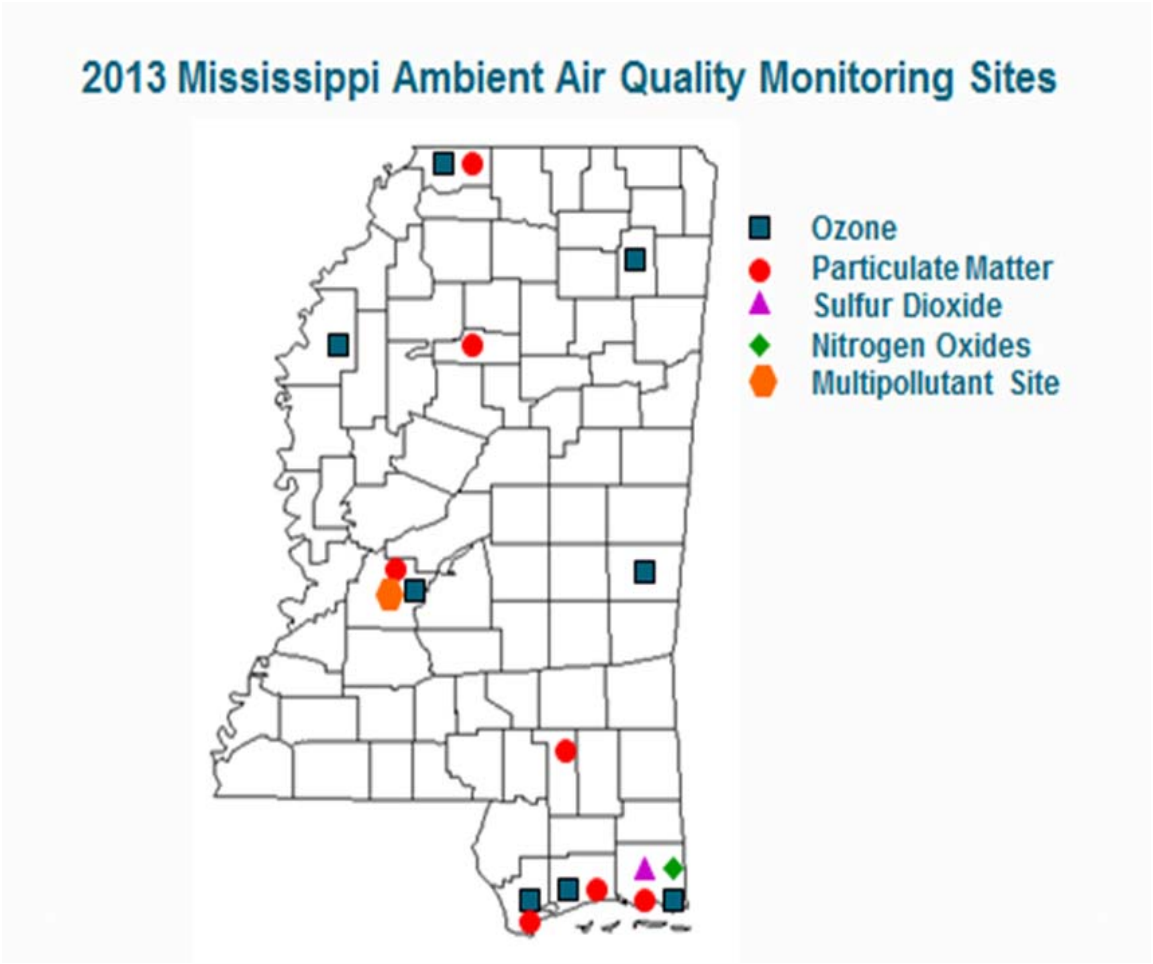
MDEQ used Diesel Emission Reduction (DERA) State Grant funds in 2012 and 2013 to fund competitive sub-grant projects in which entities applied for funding by submitting an application following a request for proposals. Entities proposed diesel emission reduction strategies and were encouraged to provide matching funds for their projects. Eligible projects included engine repowers, engine upgrades, engine replacement, retrofitting of equipment, cleaner fuels, or idle reduction technologies. Eligible entities for this project included universities, private organizations, non-profit organizations, businesses, and any county, city, and other local governments. In 2013, MDEQ received 20 applications requesting over $600,000 in funding. MDEQ awarded six grants for approximately $160,000. Due to the success of this grant program, MDEQ expects to continue this program with a new DERA State Grant from EPA.

Air Monitoring

During FY2013, MDEQ operated a network of automated continuous air analyzers and 24-hour manual samplers for the purpose of measuring ambient air levels of ozone, particulate matter, sulfur dioxide, nitrogen dioxide, lead, and carbon monoxide.

This monitoring network serves many purposes including:

- Determine attainment and nonattainment areas for ground-level ozone, particulate matter, sulfur dioxide, nitrogen dioxide, and carbon monoxide.
- Generate data to assist in determining methods to reduce visibility obscuration.
- Support ozone reduction programs and hazardous air pollutant programs.
- Determine general air quality trends.



Asbestos

MDEQ implements regulations to protect against the harmful hazardous air pollutant asbestos, a known human carcinogen. The regulations apply to most non-residential building demolition and renovation operations and require work practices designed to prevent asbestos air emissions. Implementation activities include communicating the requirements of the regulations to project owners and operators, educating home owners for safe handling procedures, and demolition/ renovation project inspections to ensure regulation compliant operations. MDEQ also works to protect school children and employees by performing school building asbestos management plan review inspections and by providing regulation assistance to school officials. Additionally, individuals are reviewed and approved for the performance of asbestos abatement work through an asbestos abatement certification program.

During 2013, MDEQ inspected 226 building demolition and renovation projects and investigated 38 complaints. There were also 1450 applicants who received certification to perform asbestos abatement activity and 37 school districts evaluated with asbestos management plan inspections.

Air Toxics

Many facilities are regulated for air toxics or air emissions that may cause acute or chronic health conditions. These hazardous air pollutant (HAP) emissions are primarily controlled or reduced under regulations that are called maximum achievable control technology (MACT) standards. Facilities typically must install additional control equipment and/or change process equipment or materials in order to significantly reduce HAP emissions. There are approximately 100 such standards affecting facilities in one of 174 source categories of major sources. Also, for the smaller HAP emission rate facilities, there are another 48 area source standards affecting operations at facilities in one of 70 source categories. MDEQ implements these regulations to approximately 200 major source facilities and thousands of area source facilities. The types of affected facilities range from large chemical plants and petroleum refineries to small dry cleaners, gasoline stations, and auto body shops.

Air toxic activities also include the implementation of accidental release prevention regulations. Certain chemicals used by facilities in communities across Mississippi could become very dangerous should there be an uncontrolled release. The regulated facilities are evaluated for appropriate measures to prevent releases, as well as their preparedness to minimize the consequences of a release, should one accidentally occur. These facilities are required to have an active risk management program and must submit a summary of that program called a risk management plan (RMP) for MDEQ review. Inspections are also performed to review and monitor facility compliance with the regulations. During 2013, there were 157 active regulated facilities and 38 facility RMP inspections performed.

Title V Program

Mississippi received full approval from EPA in January 1995 to administer the Title V Air Operating Permit program. This program originated in the amendments to the Clean Air Act enacted in 1990. Each major source of air pollution is required to obtain a Title V Operating Permit which sets out all air requirements applicable to the source and specifies the methods by which the source must demonstrate compliance. All aspects of Title V permitting are handled by the MDEQ Environmental Permits Division, while all compliance certifications and demonstrations are handled by the MDEQ Environmental Compliance and Enforcement Division.

The Air Division meets regularly with the Air Advisory Council to keep them updated with the Title V work and the level of effort. The Air Division evaluates the annual revenue and expenditures and the Air Advisory Council uses this data to recommend the Title V fee for the next year. The revenue needs are reported to the Commission on Environmental Quality so that the appropriate fee rate can be adopted prior to the September 1 annual fee payment date. The Air Division also handles the collection of emissions information from fee-subject sources and provides this fee-assessment information to the MDEQ Office of Administrative Services which handles fee billing and collection.

Lead-Based Paint Program

Exposure to lead-based paint is a serious health concern for children that are six years of age and under and for developing fetuses.

Lead-Based Paint:

- Lead is a heavy metal which is believed to have been a serious public health problem for centuries.
- Dust and debris from activities that disturb lead-based paint can be dangerous if not managed properly.
- Even children that seem healthy can have high levels of lead in their bodies.
- Lead poisoning can cause permanent learning and behavior problems and have medical consequences throughout a person's life.

Mississippi's Lead-Based Paint Program operates a certification program that has been delegated to the state by EPA. The Program establishes requirements for the certification of persons and firms engaged in lead-based paint activities, and it establishes work practice standards for performing such activities. The Program also establishes procedures and requirements for the accreditation of lead-based paint activity training programs. The regulations are applicable to all persons engaged in lead-based paint abatement and renovation activities in target housing and child-occupied facilities

Another important step in the goal to eliminate childhood lead poisoning was taken with the EPA's Renovation, Repair, and Painting (RRP) rule. The rule addresses hazards created by renovation, repair, and painting activities that disturb lead-based paint in target housing and child-occupied facilities. MDEQ's RRP regulations were modeled after the federal rules and went into effect in April 2010. MDEQ's Lead-Based Paint regulations were amended in 2013 to reflect changes to the EPA's regulation.

In addition to certifying persons and firms engaged in lead-based paint activities, program staff performs audits of training courses and performs inspections of job sites to ensure compliance with the regulations. During the FY 2013, the MDEQ Lead-Based Paint Section performed five training course audits, 156 site inspections (including investigations at 10 complaint sites) and certified 561 individuals and firms involved in lead-based activities.

WATER RESOURCES

Developing and Implementing Conjunctive Water Management Strategies for the Mississippi Delta through the Delta Sustainable Water Resources Task Force

The future of the Mississippi Delta's economic and environmental viability depends on abundant, accessible water of sufficient quality. Water needs in the region are broad and include personal consumption, irrigation, aquaculture, fisheries and aquatic habitat, wetland function, wildlife, and waste water assimilation. Over 17,000 permitted irrigation wells screened in the shallow Mississippi River Valley Alluvial Aquifer (MRVA) are used for irrigation and aquaculture and pump approximately 1.5 billion gallons of groundwater each day. However, this pumpage demand has exceeded the recharge to the MRVA resulting in continuing overbalances of groundwater withdrawals versus aquifer recharge, and notable water-level declines in the aquifer. Because of increased yields and profitability that irrigation provides over dry land farming, the level of water withdrawal permit applications continues to increase which further complicates this issue.

Fortunately, these challenges are in a region that experiences historically around 53-55 inches of rainfall each year, is adjacent to the 1-1.5 MM cubic feet/second flow of the Mississippi River, and is downstream from four adjacent major flood control reservoirs. So, although the challenges are significant, opportunities exist for the development of conjunctive water management options and alternative surface water supplies.

Conjunctive water management is the foundation for sustainable Delta water resources. In its simplest context, conjunctive water management is managing the coordinated use of surface and groundwater to satisfy desired water needs such that the total benefits exceed the sum of the benefits that would result from independent management of each water resource.

During December 2011, MDEQ formed the executive level, multi-agency and organization Delta Sustainable Water Resources Task Force. The Task Force's mission is to develop and implement approaches that will result in sustainable water resources for agriculture, fisheries, and wildlife in the Mississippi Delta. Office of Land and Water Resources (OLWR) staff lead a multi-agency Task Force work group designed to develop and implement conjunctive water management strategies in the Delta. Core strategies include identification and evaluation of alternative surface water supplies; advancement of irrigation efficiency and conservation practices; understanding historical trends, current status, water use, and water budgets as a management tool; modeling future scenarios for planning and implementation purposes; monitoring and assessing water resources information; and identifying and developing economic incentives and funding sources. Other supporting strategies are also being developed. OLWR staff also leads a Task Force work group that is addressing how to implement a program for producers to measure water used for irrigation and waterfowl management to foster conservation at the farm level. This activity will also provide needed water use information for regional modeling and management uses. OLWR staff also support a third Task Force work group led by a Delta stakeholder organization that is addressing stakeholder awareness, outreach, education, and training needs. Over the past year, three functional teams and eight alternative water supply teams were created to implement various plans developed to further the goal of conjunctive water management. OLWR staff is lead or co-lead of two of the functional teams and three of the alternative water supply teams.

Assessment and Study of Water Resources

The abundant water supplies in Mississippi constitute one of the most important and valuable natural resources in the state. These resources attribute directly to the quality of life and economic prosperity of the state. However, the water resources available in areas of the state can vary significantly depending on various hydrogeologic conditions that may affect base flow in streams, water quality and quantity, as well as the prolificacy of local aquifers. The highly variable nature of these resources means that a concerted effort must be maintained to collect related groundwater and surface water data that will allow proper decisions to be made regarding the management and development of the state's water resources.

In 2013, work continued on a project to evaluate the availability of groundwater resources in Lafayette County. Water levels were collected in the summer of 2012, and a subsequent set of water levels was measured in early 2013. Proprietary data were obtained from private sources, in an effort to supplement the geophysical logs being utilized. A preliminary set of cross-sections has been developed illustrating the subsurface hydrogeology of the county, which, along with hydrologic data and the use of geographic information systems, will result in a more complete understanding of the water resources available in Lafayette County.

In the spring of 2010, Office of Land and Water Resources staff completed work on the development of a numerical groundwater flow model of the Mississippi River Valley Alluvial Aquifer (MRVA) of the Mississippi Delta.

The model is used to better understand the groundwater flow system, the potential effects of variations in pumping patterns, and to evaluate various water resources management scenarios. The model will eventually be refined to incorporate information developed through the MRVA topstratum and infiltration studies to improve its use as a management tool. Additionally, OLWR staff is expanding its information base on the Tertiary aquifers that also provide recharge to the MRVA. During 2013, significant effort and resources have also gone into enhancing the design and capabilities of the Delta Groundwater Model to support implementation of the Delta Conjunctive Water Management Strategies. A more comprehensive network of observation wells screened in the Cockfield and Sparta aquifers just below the alluvial aquifer is needed. OLWR staff are assessing which existing wells can be incorporated into a network for this purpose and determining the areas in which new monitoring wells should be constructed. This information will also be incorporated into the model.

In the southern third of Mississippi, sand beds of the Catahoula, Hattiesburg, Pascagoula, and Graham Ferry Formations form the main aquifers that are primary sources of water supplies. These formations contain numerous interbedded layers of sand and clay. The complexity of these sediments has made it difficult to map the surface geology and delineate the aquifers in the subsurface. The MDEQ Office of Geology and OLWR continued their work in this area to map the surficial geology and construct geologic cross-sections across the area. The objectives of this effort are to identify and protect the recharge areas of the aquifers that are sources of water in this region and to correlate and determine the extent of the sand intervals that form these aquifers in the subsurface.

In anticipation of an increase in demand for water resources due to recent exploration activities by oil and gas companies, OLWR initiated a study to evaluate groundwater resources in Wilkinson and Amite Counties to determine the availability of groundwater for use in an oil and gas well completion method known as hydraulic fracturing, and to assess the susceptibility of the fresh water sands to contamination. This work was performed in conjunction with the above-mentioned study of the aquifers of southern Mississippi which provided the foundation for the present work. Maps of the structural elevation of the tops of the Glendon and Moody's Branch Formations and geohydrologic cross-sections detailing the fresh water section in the subsurface have been completed. A map depicting the elevation of the base of fresh water relative to Mean Sea Level is being prepared.

Water Management Associated with Hydraulic Fracturing

In addition to the water resources study in Wilkinson and Amite Counties described in the preceding section, additional OLWR staff has been working to support development of the Tuscaloosa Marine Shale in Southwest Mississippi using hydraulic fracturing technology. Because of the significant volumes of water required for this procedure, the agency worked closely with petroleum companies to meet their water supply needs. Balancing the vast economic potential of the shale play with the effective management and protection of the local water resources is a priority of the agency. A long-term water management strategy for the region is under development that will include the use of alternative water supplies.

Source Water Protection

The OLWR staff continued its efforts to protect the drinking water supplies of the 1,200 public water systems operating in the state as part of activities related to the Source Water Assessment/Protection Program. This program focuses on the proper siting of new wells and addressing potential sources of contamination identified in the vicinity of drinking water supplies. MDEQ worked closely with the Mississippi State Department of Health's Water Supply Division to assist in the implementation of the EPA's new Groundwater Rule. MDEQ is also working to identify abandoned public water supply wells so they can be properly plugged by a licensed well driller. Improperly abandoned water wells can serve as potential conduits for the introduction of contaminants into drinking water aquifers. As of November 2013, 76 wells in 31 counties have been properly plugged and abandoned at a total cost of $1,073,804. This coordinated plugging effort is being funded by the Mississippi State Department of Health.

OLWR staff presented an educational exhibit at the 2013 Mississippi Gem and Mineral Society show, an event in the Trade Mart attended by thousands of people. The exhibit is called “Meet Your Aquifer” and allows “hands-on” contact with actual samples of the sands, gravel, and rocks that form aquifers in Mississippi from which most people obtain their drinking water.

Mississippi Agricultural Chemical Groundwater Monitoring Program

The Mississippi Agricultural Chemical Groundwater Monitoring (AgChem) Program was initiated in March 1989, for the purpose of determining if the use of agricultural chemicals is impacting groundwater quality in Mississippi. Thus far, the sampling of over 1,840 groundwater sources throughout the state does not indicate any significant impacts directly attributable to agricultural practices.

During the calendar year 2013, 48 samples have been collected for analysis. Included in this total were 41 drinking water samples, and seven irrigation, fish culture or wild-life management samples, which included one surface water sample. The program remains committed to testing wells statewide as well as those located in the highly agriculturalized Mississippi Delta. Two samples of the 48 analyzed detected organic compounds in excess of Federal Primary Drinking Water Standards. However, the subsequent resampling of these two wells found no detects of the original organic compounds. Analyses of the other samples performed by the Ag-Chem program did not detect any agricultural chemicals or other organic compounds exceeding Federal Primary Drinking Water Standards and/or State of Mississippi Groundwater Standards. One public supply well reported 5.0 mg/L for Nitrate-Nitrite-Nitrogen. Though below the Federal Primary Drinking Water Standard of 10.0 mg/L, this well may require periodic checking due to the combination of local surface geology and surrounding poultry industry.

In addition to monitoring groundwater for harmful compounds, the AgChem Program actively participates in other programs involved in protecting groundwater in Mississippi. One of these programs is the Mississippi Pesticide Container Recycle Program. During the calendar year 2013, a total of 529,542lbs pounds of plastic pesticide containers were recycled.

Dam Safety

The number of High Hazard dams in the state inventory currently stands at 265, while the number of Significant Hazard dams currently stands at 63. The number of Low Hazard dams on state inventory is currently 3,509. Mississippi is sixth in the nation for number of dams on inventory.

During 2013, 207 dams were inspected and, the information produced by these inspections resulted in dam owners initiating repairs or rehabilitation on ten dams. The Dam Safety Division also reviews designs for repairs or modifications to existing dams, inspects dams during critical stages of construction, and performs critical engineering analyses on dams. In 2013, eleven High Hazard dams and four Low Hazard dams were authorized for repairs and two new High Hazard Dams and twelve new Low Hazard dams were approved for construction. There are now 227 emergency action plans (EAPs) approved and on file, which is an increase of 25 since 2012.

Percy Quin State Park in Pike County.

The Dam Safety Division's goal is to have the owners of all High Hazard dams submit EAPs for review and approval. Compliance with this goal presently stands at approximately 85 percent. The approval process includes review and approval at the county level by the local Emergency Management Agency and all first responders that would be required to implement the plans. This procedure has extended the anticipated schedule for completing the documents, but the involvement of local agencies in the plan development greatly enhances the value of the plans in safe-guarding lives and property in the event of a dam failure.

The Dam Safety Division has also begun the process of re-evaluating the hazard classification of all inventory low hazard dams. Many of these dams have never been re-evaluated since they were added to the state's inventory more then 30 years ago. The project is being done through a contract and should be completed by February of 2014. Initial results indicate that there may be a significant increase in the number of high and significant hazard dams.

Staff members responded to five dam emergencies in 2013 and were able to handle each emergency successfully. During emergencies, the Dam Safety Division provides on-site response and technical assistance to the county emergency managers and to the dam owners.

Drillers Licensing

During 2013 the Drillers Licensing Program implemented the oversight of the continuing education program. The Drillers Licensing Program has reviewed and approved six education providers for the continuing education program. All licensed drillers now have to obtain four hours of continuing education per year as a part of maintaining their license. The program has renewed or issued 217 licenses and investigated several complaints.

Total Maximum Daily Load and Modeling Section

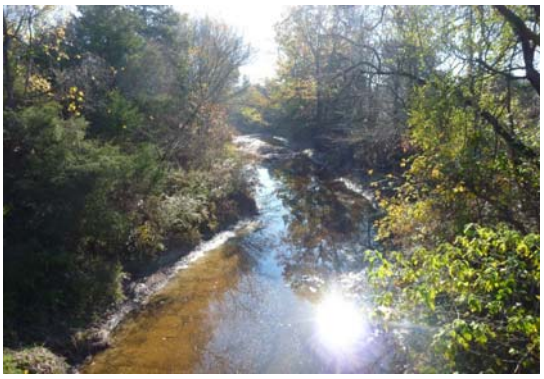
The Total Maximum Daily Load (TMDL) is a calculation of the greatest amount of any single pollutant that can assimilate in surface waters while continuing to meet water quality standards. The TMDL also determines how much of the pollutant come from point sources, such as industry and communities, or nonpoint sources, such as storm-water runoff from urban areas or agriculture.

Water bodies that do not meet water-quality standards are identified as "impaired" for the particular pollutants of concern. Under Section 303(d) of the Clean Water Act (CWA), states are required to develop a list of impaired waters needing TMDLs. MDEQ, biennially, creates this 303(d) List of Impaired Waters. MDEQ's 2012 list was adopted by the Mississippi Commission on Environmental Quality on June 28, 2012. In addition, MDEQ completed seven TMDLs between July 2012 and June 2013.

Sediment TMDLs in the Tombigbee River Basin

The Stressor Identification Process and Total Maximum Daily Load Projects

MDEQ has three water body segments, Greenwood Creek, Robert's Branch, and Tubbalubba Creek on the Mississippi 2012 Section 303(d) List of Impaired Water Bodies due to biological impairment. Biological monitoring in these streams indicated that something was stressing the environment. After finding impairment in the stream, MDEQ scientists and engineers began looking for the cause of the problem and potential solutions. EPA provides a formula for identifying the biological problems in a stream. The Stressor Identification (SI) Process takes a comprehensive look at all of the available information about the stream, the biology present, the land use in the water shed, and any historical data available to come up with the best answers to the environmental problems found in the stream. The SI process for these three segments identified an overabundance of sediment as a probable primary stressor present in the streams.



Tubbalubba Creek

Sediment is the clay, sand, and loamy soil transported by the stream. It is caused by erosion of stream banks or the movement of the stream bed downstream after a heavy rainfall. Sediment transport is a natural process in a meandering stream, but it can be harmful to the biota present when the sediment load overwhelms the natural habitat.

Field Erosion on Greenwood Creek

MDEQ regulations do not include a numerical water quality standard for sediment load transport, but there is a narrative standard for the protection of aquatic life which was used to justify the development of a TMDL for sediment. However, the narrative standard does not provide a numerical target, which is a critical component for TMDL development.

The sediment transport target for the TMDL is based on reference sediment yields developed by the Channel and Watershed Processes Research Unit (CWPRU) at the National Sedimentation Laboratory (NSL) located in Oxford, Mississippi. CWPRU developed reference sediment yields, or targets, for each level III ecoregion within Mississippi. These yields were derived from the empirical analysis of historical flow and sediment transport data for stable streams in each level III ecoregion.

The methods used to develop the level III reference yields are described in detail in the reports titled, *"Reference" and "Impacted" Rates of Suspended-Sediment Transport for Use in Developing Clean Sediment TMDLs: Mississippi and the Southeastern United States* (Simon, et al., 2002) and *Actual and Reference Sediment Yields for the James Creek Watershed – Mississippi* (Simon, et al., 2002).

According to 40 CFR §130.2(i), TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measure. The sediment TMDLs are expressed as the tons of sediment that can be discharged from an acre of a subwatershed during a day (tons/acre/day) at the effective discharge and still attain the applicable water quality standard. This method results in a range of acceptable reference yields of 0.0004 to 0.0018 tons per acre per day at the effective discharge. The effective discharge is the channel-forming flow or the flow that transports or moves the most sediment.

The effective discharge is obtained by combining flow frequency data with sediment transport relationships. These TMDL ranges are not applicable on an annual basis, because the effective discharge only occurs statistically once every one and a half years, not on a daily basis. However, because the effective discharge is the critical condition, compliance with the TMDL at effective discharge will result in the attainment of the water quality standards at all times.

For many impaired streams in the Tombigbee River Basin sediment data were either not available or were insufficient to calibrate a water quality model for prediction of existing sediment loads. Therefore, the TMDL does not provide an existing load specific to each water body segment. However, a source assessment is included. In addition, CWPRU also estimated the typical range for unstable streams within each level IV ecoregion in the Tombigbee River Basin. A range of unstable values was assigned to these three segments based on the level IV ecoregion.

These unstable ranges are representative of the existing loads that would be expected for these segments. The unstable range is 0.002 to 0.054 tons per acre per day at the effective discharge. The unstable yields are larger than the target yields, therefore, a reduction plan is recommended for the watersheds. Based on the ranges of stable and unstable yield values, a sediment load reduction of 77% to 97% is needed.

The TMDL concludes with a recommendation that the three watersheds be considered a priority for stream bank and riparian buffer zone restoration and any sediment reduction BMPs, especially for the road crossings, agricultural activities, and construction activities. The implementation of these BMP activities should reduce the sediment load entering the streams. The reduction of the sediment load in the watersheds to equal that of a relatively stable stream will allow the streams to approach stable conditions. This will provide improved habitat for the support of aquatic life in the water bodies and will result in the attainment of the applicable water quality standards.

MDEQ has adopted the Basin Approach to Water Quality Management, a plan that divides Mississippi's major drainage basins into four groups. During the next monitoring phase in the Tombigbee River Basin, these watersheds may receive additional monitoring to identify any changes or improvements in water quality.

For land disturbing activities related to silviculture, construction, and agriculture, it is recommended that practices, as outlined in *"Mississippi's BMPs: Best Management Practices for Forestry in Mississippi"* (MFC, 2000), *"Planning and Design Manual for the Control of Erosion, Sediment, and Stormwater"* (MDEQ, et. al, 1994), and *"Field Office Technical Guide"* (NRCS, 2000), be followed, respectively.

Modeling Permit Limits

The TMDL section is working with national pollutant discharge elimination system (NPDES) Permitted facilities to help with upcoming nutrient criteria, existing nutrient TMDLs, and new oxygen permit limits. These "life changing" limits potentially strain the existing capacity for treatment at many small towns in Mississippi. The TMDL section is working with all of these communities to improve the existing computer models through new survey methods and more intensive monitoring and research; these actions will ensure accuracy in the development of water quality based limits for these facilities.

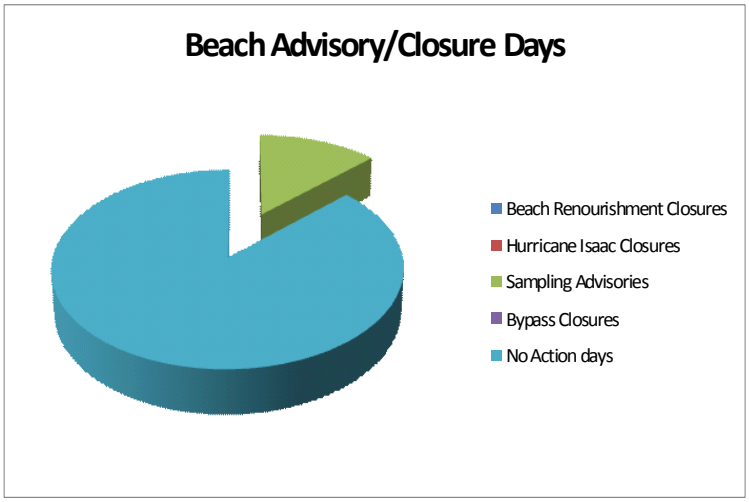
Fish Tissue Monitoring Program

MDEQ's Laboratory monitors fish tissue for contaminant levels that could be harmful to people that consume fish from the state's waters. When elevated levels of contaminants are found in fish tissue, the data is used by a multi-agency task force to determine if a fish tissue consumption warning or advisory is warranted. Presently, there are advisories for mercury, DDT, toxaphene, and PCBs on many state waters.

Ambient fish tissue monitoring was postponed due to NRDA response to the Deepwater Horizon oil spill and therefore was not conducted during 2013. MDEQ was however was able to participate on a couple of projects. Fish were collected in the Tenn-Tom Waterway as part of a Weyerhauser study and tissue was collected in the Mississippi Sound to monitor King Mackerel for Hg/Se levels.

Coastal Beach Monitoring Network

MDEQ's Coastal Beach Monitoring Program, operated in conjunction with the University of Southern Mississippi's Gulf Coast Research Laboratory (GCRL), conducts routine bacteria and water chemistry sampling at 22 beach stations located along Mississippi's Gulf Coast. MDEQ is a partner within the multi-agency Beach Monitoring Task Force composed of the EPA Gulf of Mexico Program, the Mississippi Department of Marine Resources, GCRL, Mississippi Secretary of State Office, and the Mississippi State Department of Health. This Beach Monitoring Task Force oversees the program and issues beach advisories when needed. MDEQ and the Beach Monitoring Task Force rely on data collected under this program to assess health and safety issues for users of Mississippi's recreational beaches. When *Enterococcus* bacteria concentrations reach unsafe levels, beach advisories are issued. In addition, the monitoring data provide information concerning the seasonal water quality conditions of the immediately accessible waters along the public bathing beaches. Beach water quality conditions are made available to the public via a Beach Monitoring webpage developed by GCRL that can be accessed on the MDEQ homepage. Information is also available via Facebook, Twitter, or by advisory email notification.

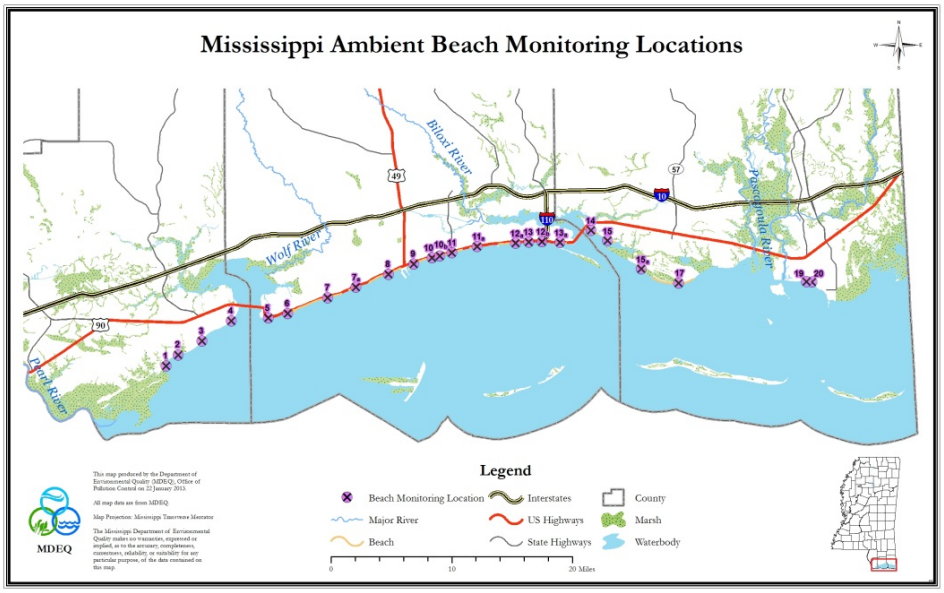


During 2013, a total of 36 advisories were issued for elevated bacteria detected through routine sampling. The average length of advisory was seven days.

A precautionary closure was issued for a Non-Standard Beach Segment* (NSS) in Harrison County. The City of Biloxi had reported a lift station malfunction and that sewage entered the beach area. The closure area included Grande View Drive eastward to Brady Drive

*Since this segment is not monitored by the BEACH Monitoring Program, the action days are not included in calculations shown below.

The 36 bacteria advisories covered 243 beach days or three percent of the 8,030 beach days available in the year. The MC252 oil spill had no impact on beach advisories during the reporting period.

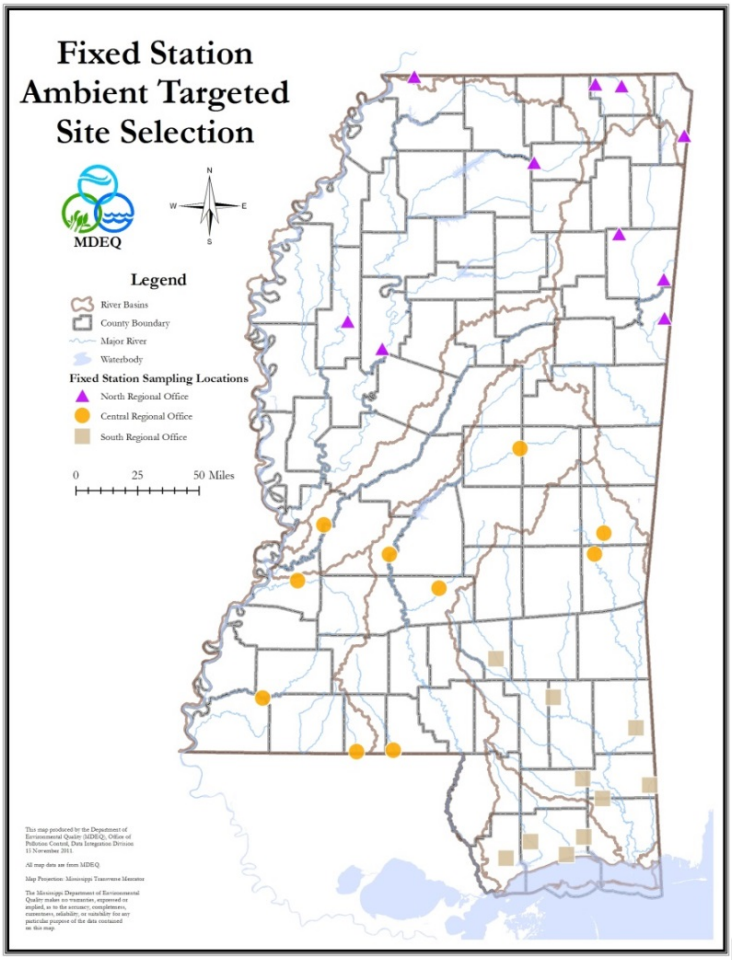


Mississippi Benthic Index of Stream Quality (M-BISQ)

The Mississippi Benthic Index of Stream Quality (M-BISQ) is an index of biological integrity (IBI) that is used to assess all wadeable non-tidal streams in Mississippi with the exception of wadeable streams located in the Mississippi Alluvial Plain. Monitoring efforts completed as part of this effort have greatly increased the number of biological assessments conducted on state waters. The M-BISQ sampling program and the established sampling and analytical methodology contained therein now serves as the foundation for routine biological monitoring in MDEQ's statewide Ambient Monitoring Network. This index was originally developed using biological and environmental data collected from 463 stream locations. In 2013, MDEQ collected biological data at 66 sites. To date MDEQ has completed 12 phases of M-BISQ monitoring for a total 1564 biological samples at 1363 sampling locations. Results from the M-BISQ effort are being used to assess the health of wadeable streams and to steer future biological monitoring and assessment activities. Much of the basis for Mississippi's §305(b) water quality assessment is from data collected and analyzed from the M-BISQ monitoring project. Approximately 100 sites have been scheduled for M-BISQ monitoring in 2014.

Mississippi Alluvial Plain Monitoring

In 2002, MDEQ began collecting biological community, physical, chemical and habitat data on wadeable streams in the Mississippi Alluvial Plain, commonly referred to as the Mississippi Delta. These data, along with historical monitoring in the Mississippi Alluvial Plain were will be used to develop an index of biological integrity for the Mississippi Delta. In addition, the data collected are also being used to evaluate the dissolved oxygen levels in the Delta as well as support nutrient criteria development. With each new set of data collected annually during September to October, the index will be refined and when finalized, biological monitoring in the Mississippi Delta will be incorporated into MDEQ's Ambient Monitoring Program. Since monitoring was initiated in 2002, approximately 100 have been monitored. In 2011, MDEQ has acquired Light Detection and Ranging (LIDAR) data for the Mississippi Alluvial Plain and has used that data to establish drainage areas for each of the monitoring locations. Land use analyses have been completed, and were used to refine the preliminary index. A draft report has been provided to MDEQ and currently in the review process. The final report should be available in 2014. The effort to develop an index of biological integrity for the Mississippi Alluvial Plain is an ongoing effort with the USGS.



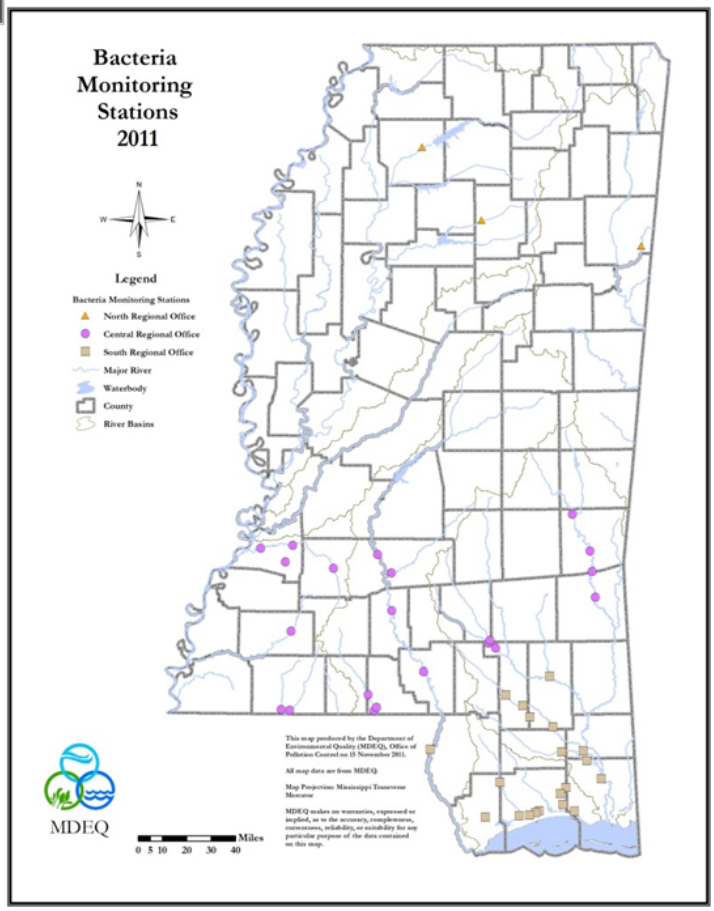
Fixed Station Ambient Monitoring

This network of statewide stations provides systematic water quality sampling at regular intervals and uniform parametric coverage to monitor water quality status and trends over a long-term period. Sampling is carried out by MDEQ scientists from each of the three regional offices. Each office is responsible for the stations in its region.

There are currently 10 stations in the north and central regions and 11 in the southern region for a total of 31 stations statewide. Laboratory analyses for the samples are carried out by MDEQ's laboratory located in Pearl. Several stations in the sampling network are historical stations that have monitoring dating back to the 1970s.

Ambient Recreational Monitoring Network

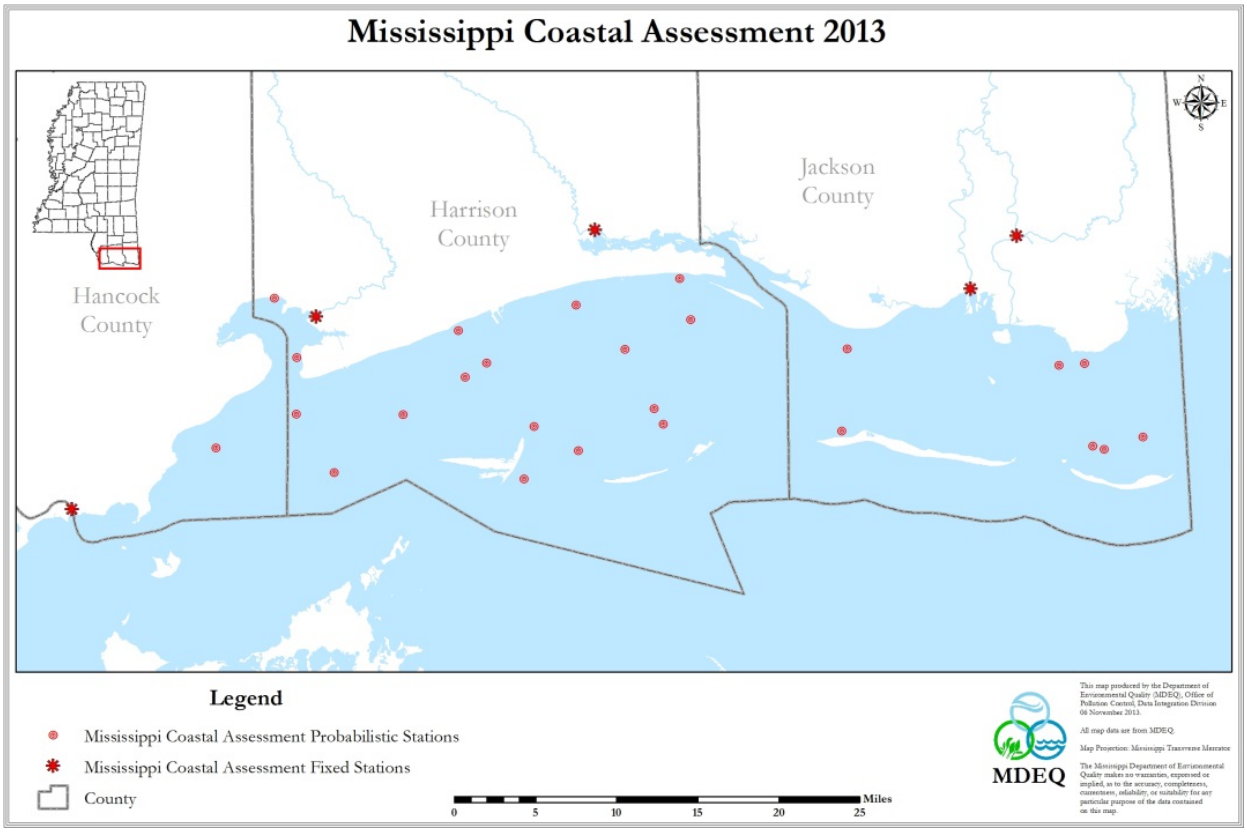
MDEQ maintains a monitoring network for flowing waters in the state that are used for primary contact recreation. These sites are located on the recreational water bodies to monitor fecal coliform for the safety of Mississippi citizens that use these waters for recreational purposes. Monitoring is done at these locations in order to collect five samples within a 30-day period. This sample frequency allows for the calculation of a geometric mean for the fecal coliform data. In 2013, 46 stations were monitored for recreational purposes in the state. Each location is monitored in both the contact (May-October) and non-contact (November-April) seasons.



Coastal Monitoring

MDEQ participated in the EPA National Coastal Assessment (NCA) Program from its inception in 2000 through 2006. When EPA suspended funding for the NCA program, MDEQ partnered with the Gulf Coast Research Lab and the Mississippi Department of Marine Resources to continue a very similar sampling program, the Mississippi Coastal Assessment (MCA) Program. This monitoring was planned to help evaluate long term coastal water quality conditions, and was particularly valuable after Hurricane Katrina and during the rebuilding efforts. This data will also be utilized to help examine long term environmental impacts following the Deepwater Horizon Oil Spill.

MCA monitoring is conducted during the late summer index period (July-September) and includes biological, chemical and physical sampling. Sites are selected using a probabilistic site selection methodology. At the end of a five year cycle, a total of 125 sites will be sampled for the coastal monitoring program.



Ambient Lake Monitoring

In 2009, MDEQ began collecting chemical, physical and biological samples from public lakes throughout the state. Candidate lakes are greater than 100 acres in size and without nutrient enrichment. Since the program's inception MDEQ has selected 20 lakes per year to sample so that over a five year cycle, approximately 100 lakes will be sampled for the ambient lake monitoring program.

Mississippi's Numeric Nutrient Criteria Development Activities

In 2013, MDEQ continued development of numeric nutrient criteria for Mississippi's various water body types. MDEQ's mission is to develop scientifically defensible criteria that are appropriate and protective of Mississippi's waters. The 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. Highlights of MDEQ's numeric nutrient criteria development efforts include:

- MDEQ established the Mississippi Nutrient Technical Advisory Group (TAG) in 2010. The mission of the TAG is to provide technical expertise and regional knowledge to MDEQ for the development of scientifically defensible numeric nutrient criteria. The TAG consists of over 30 members representing multiple state and federal agencies, and four Mississippi universities. The Mississippi Nutrient Technical Advisory Group held four meetings in 2013 focused on providing continued technical input on developing nutrient criteria for Mississippi's wadeable and non-wadeable streams, lakes and reservoirs, coastal and estuarine waters, and Mississippi Delta waters. MDEQ continues data analyses efforts based on recommendations from the TAG. The Mississippi TAG will continue to meet regularly throughout the criteria development process to help MDEQ meet the timeline and schedule within Mississippi's Nutrient Criteria Development Plan.

- In 2013, MDEQ continued to provide Nutrient Criteria Update Sessions for Mississippi stakeholders. MDEQ held four stakeholder update sessions provide stakeholders with an update regarding the work MDEQ is performing to develop the criteria as well as promote open communication between MDEQ staff and stakeholders. MDEQ plans to hold update sessions regularly with this group throughout the numeric nutrient criteria derivation process. MDEQ's goal is to promote transparency of the process and provide stakeholders an opportunity to ask questions and provide feedback to MDEQ and the Mississippi TAG.

- As a result of feedback received from our stakeholders at the update sessions, MDEQ is focusing on addressing issues related to implementation of numeric nutrient criteria. Along with the technical work behind the development of the criteria, the plan for how numeric nutrient criteria will be implemented must also be developed and understood by both MDEQ staff and Mississippi stakeholders. MDEQ is working concurrently on both the criteria development and implementation approach for Mississippi.

- MDEQ continues to collect data and conduct studies to support nutrient criteria development. In 2013, ongoing activities included development of a benthic index for Mississippi's coastal waters, a benthic index for Delta waters, as well as data collection efforts across the state. MDEQ also continues to conduct modeling efforts within St. Louis Bay through grant funding awarded to MDEQ by the EPA Gulf of Mexico Program Office. The intensive monitoring portion of this grant was completed in 2011. Data analyses and modeling efforts will be completed for this study in December 2013.

The Gulf of Mexico Alliance Nutrients Priority Issue Team: Reducing Nutrients and Nutrient Impacts

Mississippi continues to lead the Nutrients Priority Issue Team (PIT) of the Gulf of Mexico Alliance. The Gulf Alliance is a partnership between the states of Alabama, Florida, Louisiana, Mississippi, and Texas working to address the priority issues related to the ecological health of the Gulf of Mexico. The Nutrients PIT is providing a collaborative approach to building and evaluating tools needed to reduce excess nutrients and restore coastal waters that have been negatively impacted by excess nutrients. The four focus areas for the Nutrients PIT include (1) characterizing nutrients and nutrient impacts, (2) supporting state efforts to develop numeric nutrient criteria, (3) reducing hypoxia, and (4) reducing nutrient inputs to the Gulf of Mexico.

Storm Water Regulations

Implementation of Mississippi's Storm Water General Permits and regulations continued in Fiscal Year 2013.

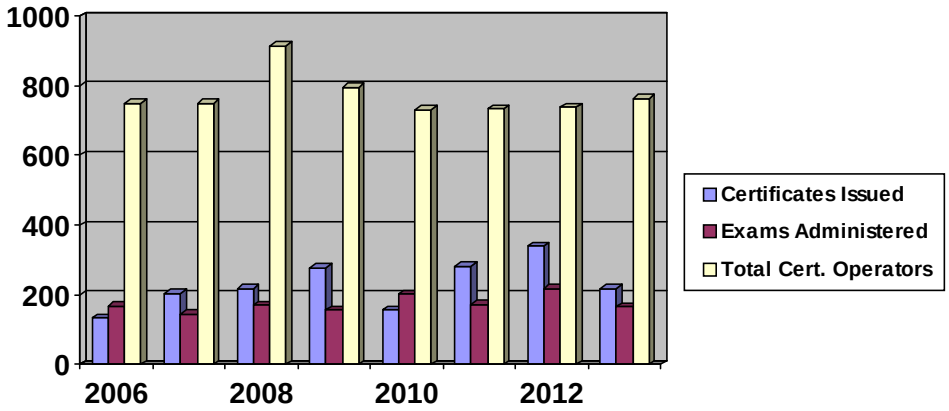
- The Environmental Permits Division (EPD) issued general permit coverage for 258 large construction projects (five acres or greater).
- EPD issued general permit coverage for 44 regulated industrial facilities under the Baseline Storm Water General Permit for Industrial Activities.
- EPD received and processed 33 "No Exposure Certifications" from potentially regulated industrial facilities. Facilities that certify "no exposure" of industrial activity to storm water are not required to obtain storm water coverage under the Baseline General Permit.
- EPD reissued the Small Construction General Permit (MSR15) on April 18, 2013. MSR15 covers the State of Mississippi and authorizes the discharge of treated/managed storm water runoff into the waters of the state. This permit covers construction activities, including clearing, grading, and excavating, that disturb one acre to less than five acres. Small construction activities disturbing less than one acre are designated if the project is part of a larger common plan of development or sale with a planned disturbance of equal to or greater than one acre but less than five. This reissuance will allow the continued discharge of treated/managed storm water for an additional five-year period.

Environmental Operator Training

The Operator Training program began in 1969 to provide instruction and technical assistance to municipal and domestic wastewater personnel and facilities. The training, provided at no cost to the operator, was initially associated with a voluntary certification program offered by the Mississippi Water & Pollution Control Operator's Association. Administration of the certification program was transferred to the agency in 1987 when the State Legislature mandated certification of all municipal and domestic wastewater operators. The certification regulations include a requirement for continuing education during each three year certification period.

The 2013 training calendar included 48 days of agency-sponsored training classes. Of these training days, 32 were the agency continuing its relationship by co-sponsoring and participating in training activities with the three wastewater related associations in the state (Mississippi Water and Pollution Control Operator's Association, Mississippi Water Environment Association and Mississippi Rural Water Association). Attendance at Agency sponsored sessions totaled 794 operators, utility managers and engineers. Certification exams were administered to 166 prospective operators with a total number of 218 new and renewal certificates issued. There are currently 762 certified pollution control operators in the state.

The training staff also provides on-site technical assistance to municipal, commercial and industrial wastewater facilities. This assistance program is aimed at providing no cost assistance in returning to or maintaining compliance with their wastewater permit. In 2013, the staff conducted 130 technical assistance and outreach visits.



LAND

Office Of Geology

Surface Mining and Reclamation of Surface-Mined Lands

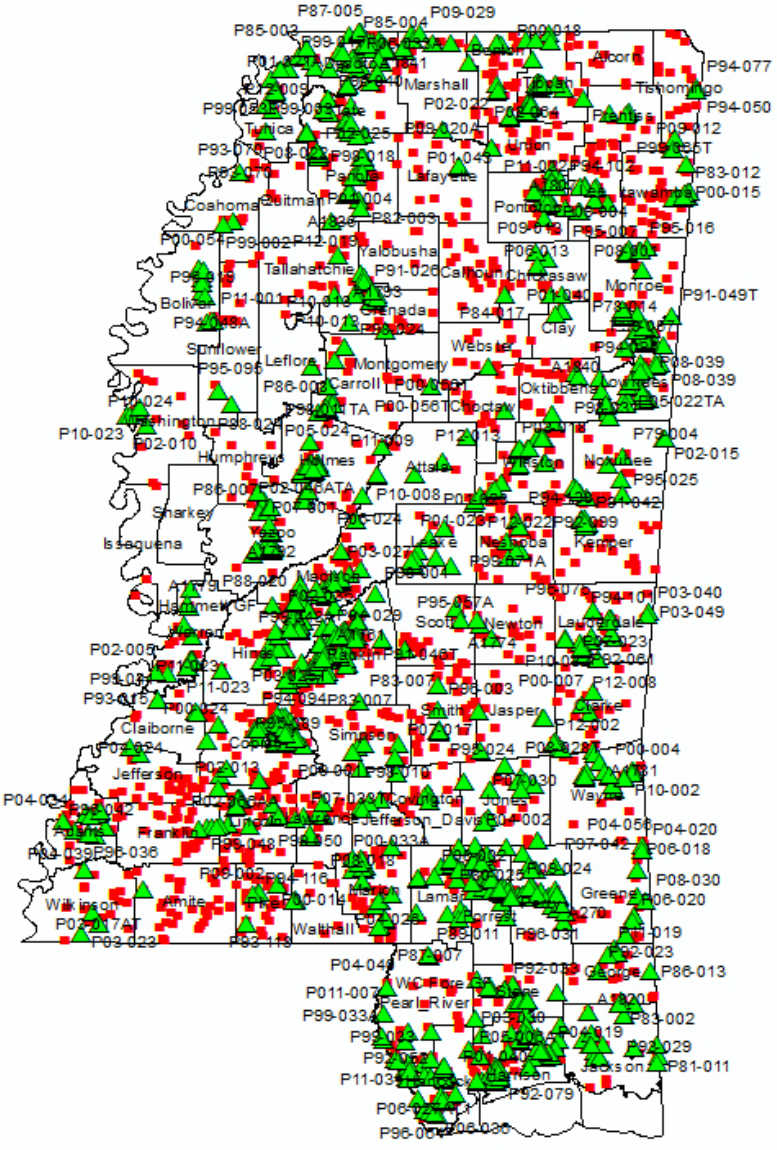
MDEQ continued to regulate all non-coal surface mines in the state as provided for in the Mississippi Surface Mining and Reclamation Act of 1977. This includes issuing surface mining permits and notices of exempt operations, inspecting permitted areas and inspecting complaints, overseeing the reclamation done by operators, and enforcing the law as per the promulgated Rules and Regulations and Commission orders. Coal and lignite mines are regulated under the Mississippi Surface Coal Mining and Reclamation Law of 1979, with oversight of the program by the federal Office of Surface Mining. This year, the coal and non-coal regulations were renumbered to meet the style mandated by the Administrative Procedures Act.

During FY2013, some 783 inspections were performed, 21 initial permits were issued, 11 amended permits were issued, and 60 Notices of Exempt Operations (operations less than four acres in size) were received. A total of 1,742 exempts are on file, covering approximately 6,968 acres, and 1,068 acres were completely reclaimed as a result of the Mining and Reclamation Division's efforts to oversee reclamation. The state currently has 710 permits covering 33,439 acres.

The Mining and Reclamation Division continued to update the mining database to provide data to the Mississippi Digital Earth Model program. This database provides valuable mining information in a GIS format so that mining sites can be located and viewed by anyone on the internet. More work will be done during the coming fiscal year to add new data to the database.

The Mining and Reclamation Division continued to provide the required Mine Safety and Health Administration (MSHA) training for mining operations in the state. MSHA regulations require an eight hour refresher training course be taught to all mine workers. In FY/2013, division staff provided training to 90 miners and 129 contractors working in the mining industry.

The Coal Mining Division was established during 2007 to focus on the complexities of coal mine regulation. Mississippi has an industry-estimated five billion tons of surface mineable lignite, a low-grade coal ranked just below sub-bituminous coal. Lignite is not considered economic to ship any distance and usually has an adjacent power plant.



Map of Surface Mining and Reclamation of Surface-Mined Lands

The Mississippi Lignite Mining Company is mining lignite at their Choctaw County Red Hills Mine to supply fuel for an adjacent 440 MW mine-mouth power plant. The mine produces over 3.5 million tons of lignite per year and has permitted 6,090 acres. This permit was initially issued in 1998, and was renewed in February 2013 for its fourth five-year term. The planned life of the permit is 30 years. North American Coal Corporation, the parent company of Mississippi Lignite Mining Company, is in discussions with another company over using lignite to produce an EPA approved biological remediation material, as well as a soil amendment material.

The Liberty Fuels, LLC mine permit in southwestern Kemper County was issued in December 2011. The initial permit is for 2,299 acres. The Liberty Mine will produce an average of 2.2 million tons of lignite per year for the initial five-year term, and 4.5 million tons per year for the planned forty-year life of mine. The life of mine area is planned to be approximately 18,200 acres, in Kemper and Lauderdale counties. The under construction, first-of-its-kind, adjacent power plant is designed to produce 550 MW of electricity, be fueled by gas produced on-site from the lignite, and be online in mid-2014.

Staff inspections of both mines are conducted at least monthly. One or more joint inspections of each mine are conducted annually with the federal Office of Surface Mining (OSM).

Work under Mississippi's Abandoned Mine Land Program to identify and locate abandoned historic coal mines has been completed and has identified four sites, two in Choctaw County and one each in Winston and Lauderdale counties. All of these sites are believed to have been active sometime in the period from the mid-late 1800s to the late 1920s. The landowners of the two sites in Choctaw County do not wish to have reclamation work done on the sites. The landowners of the Lauderdale and Winston counties sites do want reclamation work done. These two sites have been determined to be a physical threat to public safety and well-being; none has been determined to have any acid mine drainage or to be an environmental hazard. Work is ongoing to determine the appropriate reclamation at each site.

Geological Data Collection Activities

The department's geologic mapping program for FY/2013 was funded in part by a federal STATEMAP 2012 grant of $85,041 and an NCRDS grant of $15,000. Deliverables for the STATEMAP grant include Duffee, Collinsville, Chunky, and Meehan 7.5-minute geologic quadrangle maps in Newton and Lauderdale counties in east-central Mississippi and the Terry, Whites, Crystal Springs, and Hopewell 7.5-minute quadrangles in Hinds, Rankin, Copiah, and Simpson counties in south-central Mississippi. These maps were published in color at a scale of 1:24,000 as Open-File Reports OF 256-263. The 2012 STATEMAP deliverables were due at the end of April 2013. Geologic units mapped in east-central Mississippi in FY2012 and 2013 include the Tuscahoma, Hatchetigbee, Tallahatta, Winona, Zilpha, and Kosciusko formations of Eocene age and Holocene alluvium. Geologic units mapped in south-central Mississippi in FY2012 and 2013 included the Vicksburg Group of Early Oligocene age and the Catahoula and Hattiesburg formations of Miocene age, and Holocene alluvium. Geologic mapping in FY2014 will be funded by the STATEMAP 2013 grant, which was awarded funding of $78,967. Additional assistance for mapping will come from a federal NCRDS grant of $15,000. Mapping work for FY2013 will include the Meridian South, Vimville, and Whynot 7.5-minute geologic quadrangle maps in Lauderdale County in east-central Mississippi and the Star, Harrisville, and Mendenhall East 7.5-minute quadrangles in Rankin and Simpson counties in south-central Mississippi.

Two test holes were drilled to support geologic mapping: the Plum Creek Timber #1 Limestone Creek in Simpson County to a depth of 360 feet and the Plum Creek McNeil #1 in Newton County to 470 feet. Twenty-four papers were published, including 15 articles in *Environmental News*, one article in *Paläontologie, Stratigraphie, Fazies*, 3 abstracts in the *Journal of the Mississippi Academy of Sciences*, and 5 articles in *Rocky Echoes* (Mississippi Gem and Mineral Society).

Proposed work for the STATEMAP 2014 grant includes six geologic quadrangle maps. These are the Stonewall, Sable, and Snell quadrangles in Lauderdale and Clarke counties in east-central Mississippi and the Easen Hill, Vancleave, and Gautier North quadrangles in George and Jackson counties in southeastern Mississippi.

Excellent progress is being made in posting scans of publications on the website, thus making out of print items available again and digital publications more accessible to customers.

The Environmental Geology Division gathers, studies, and archives subsurface geological and geophysical data for ongoing projects and other studies within MDEQ. Focused research is being done with regard to groundwater and other environmental issues. The division also provides support to other state agencies and academia. The Environmental Geology Division's geologist answers requests for information on groundwater availability, depth of wells, and potential yield of wells. In some cases, quality of groundwater is critical and this information is often available through data searches. These requests come from water well contractors, engineering firms, consultants, and private individuals.

MDEQ staff continue to be involved in the eight CUSEC states work in disaster planning regarding the New Madrid Earthquake Zone (NMEZ). Northwest Mississippi is at risk of significant damage to roads, bridges, utility systems, power grids, and other infrastructure along this active fault zone. Geologists from the Office of Geology are in contact with and involved in meetings regarding future projects and studies.

The Environmental Geology Division's geologist and technicians worked on numerous drilling and sampling programs in the state. Drilling, sampling, and monitor well construction activities were performed for the Surface Geology Division's STATEMAP program and the Office of Land and Water Resources groundwater project in the Mississippi Delta. During FY2013 the division's drill crew drilled a total of two test holes in support of the STATEMAP grant. One of these holes was drilled in Simpson County and one in Newton County. Total footage drilled and sampled amounted to 830 feet. These cuttings and samples were preserved and archived in the Office's core and sample library. Two test holes and two monitor wells were drilled and completed for the U.S. Department of Agriculture for their scientists studying groundwater withdrawal from the Mississippi River Alluvium.

Environmental Geology's geologist and technicians wireline logged a total of 57 test holes in 27 counties throughout the state. Total footage logged was 33,860 feet or approximately 6.41 miles of geophysical wireline data. Stakeholders included 11 water well contractors, one environmental firm, and one state agency. Two companies tied for the shallowest test holes wireline logged during FY 2013. Water Well Services, Inc. (Brandon, Mississippi) and Easley Water Well Service (Brookhaven, Mississippi) both drilled wells to depth of 260 feet. Conversely, the deepest test hole wireline logged was secured in a 1,913 foot hole drilled by Mid-South Water & Machine Works, Inc. (Cleveland, Mississippi) for the Rose Hill Water Association in Jasper County. The vast majority of the wells and test holes wireline logged during FY 2013 were for utility systems, industrial applications, and poultry wells. Nine wells were for private individuals.

The Environmental Geology Division's technicians pulled, shipped and re-filed samples and cores for 16 scientists in other state agencies and oil and gas explorationists. A total of 403 boxes of cores and samples were examined during FY 2013. Staff re-boxed 249 boxes of cores amounting to 408 feet.

The Geospatial Resources Division focused its emphasis on remote sensing (RS) and geographic information systems (GIS) activities. The division manages the Mississippi Flood Map Modernization Initiative (MFMMI). This program develops and updates digital flood insurance rate maps (DFIRMs) for the 82 counties under funding by the Federal Emergency Management Agency (FEMA). These resulting DFIRMs and supporting digital data will be available online.

The division is involved in collecting statewide subsurface geothermal information. With funding provided by the U.S. Department of Energy, the division is collecting bottom hole temperatures from oil and gas wells drilled throughout the state. This data will be organized by the Association of American State Geologists (AASG). This project will bring data from all 50 states into the National Geothermal Data System (NGDS).

The division acts as staff for the Mississippi Coordinating Council for Remote Sensing and Geographic Information Systems. The Council exists to set policies and standards that will promote the sharing of information, as well as facilitate the cost-sharing potential. The Council is also charged with oversight of the development of the Mississippi Digital Earth Model (MDEM).

The Office of Geology is responsible for MDEM's development, and the Geospatial Resources Division handles the assignment. MDEM consists of developing digital geographic information that will serve as the state base map. MDEM consists of eight layers of digital information that will be available on the Web: (1) geodetic control, (2) elevation and bathymetry, (3) orthoimagery, (4) hydrography, (5) transportation, (6) government boundaries, (7) cadastral, and (8) the Gazetteer. The division is responsible for the management and monitoring of MDEM data development contracts and the QA of the MDEM mapping products that result from this work. Products from this work may be used by state and local governments, engineering firms, and construction companies involved in planning, development, construction or regulatory work throughout the state.

In FY 2013 the Geospatial Resources Division dealt with the FEMA flood mapping, the GIS Council, MDEM, other GIS data development, and collection of oil and gas well bottom hole temperature data.

Working with FEMA and MEMA, the division continued work on completing the updating of flood map (DFIRM) projects. As of June 2013, 75 of the new countywide DFIRMs had become effective for NFIP flood insurance purposes.

In FY 2013, the division hosted one GIS Council meeting and supported the Council as staff. In mid-2013 Council leadership moved from MDEQ to the Mississippi Emergency Management Agency (MEMA). The division will no longer act as staff for the Council but will continue to be involved in its GIS activities. The division continued work with the Mississippi Department of Information Technology Services (ITS), supporting the updating and development of the Mississippi GIS Clearinghouse / Portal Project. The Portal houses and distributes digital MDEM data for the state. The division will continue this work activity into the foreseeable future.

During 2013, the division continued monitoring and managing contractors completing work on different MDEM data sets. These data included road centerlines, hydrography, and elevation / topography and Lidar data in different areas of the state. All data developed are of MDEM quality and will be made available for distribution through the Mississippi Geospatial Clearinghouse web site at: www.gis.ms.gov/Portal. During FY/2014, the division will continue working on projects that include development of MDEM data, including attributed road centerlines and large-scale hydrography for several HUC eight river sub-basins in northwest and central Mississippi, and Lidar development over two areas of the state.

The division maintains three web sites. For an information-rich site for oil and gas related information: www.library.geology.deq.state.ms.us. Another has a wealth of coastal data as a result of our twelve years of active research: www.geology.deq.state.ms.us/coastal. The division continues to maintain a web site for the Mississippi Flood Map Modernization Initiative (MFMMI): www.geology.deq.ms.gov/floodmaps. By visiting this site the public and local government officials are able to learn the current status of their county's DFIRM mapping project. Also, when a county's new preliminary flood maps are available, the public and local government officials will be able to download and review individual DFIRM map panels.

Environmental Permitting

The professional staff of MDEQ spends thousands of hours each year developing various types of environmental permits which are then presented to the Environmental Quality Permit Board for issuance. The Permit Board issues, reissues, modifies, denies, transfers, and revokes Mississippi permits and certifications administered under the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Surface Mining Control and Reclamation Act, state mining laws, and state water resource control laws.

MDEQ's Environmental Permits Division's (EPD) functions include reviewing the majority of the permit related issues, including permit applications, meeting with the permit applicants, reviewing permit renewal and modification applications, and making recommendations to the Permit Board. Currently there are over 20,000 sites in the permitting universe. Many of these sites have permits that by state and federal regulation expire every five years and have to be re-issued. As new companies come into the state and existing companies have changes or modifications, these activities also require permitting actions.

The Environmental Permits Division works closely with Mississippi Development Authority (MDA) in helping site these new industries to Mississippi. EPD believes that a key element in effectively addressing environmental issues surrounding greenfield projects is early interaction between the proposed company and the MDEQ. EPD offers and encourages pre-application meetings. Time spent in refining the information needed for permit applications at the front end of a project typically reduces the overall time to bring a project and permitting to a decision point. EPD and MDA just coordinated a training session in December of this year. Numerous MDA project managers and MDA executive staff met with MDEQ executive staff, EPD Branch managers, and other permitting staff to train each other on our processes and to reinforce the commitment to working together effectively.

Improving Environmental Information Management

MDEQ continues implementation efforts for a new Regulatory Services Portal (RSP) for electronic submittal of environmental reports, permits applications, and required notifications. MDEQ's CROMERR application was approved by EPA in 2013 and enhancements were made to the RSP to achieve CROMERR compliance. Currently, MDEQ is working on the development and implementation of RSP services for minor air permit modifications (502b10s) and Baseline Storm Water coverage termination. These services should be available for public use in 2014. EPD is also working with ECED and DID to develop an improved system for electronic DMR submittals using the RSP. Other RSP services under development include General Permit NOI submittals. MDEQ, in partnership with other states began a modernization effort on their enSite system in 2012. MDEQ has completed acceptance of the Tempo360 software and plans to implement in 2014.

Other MDEQ offices that work with permitting matters are the Office of Geology and the Office of Land and Water Resources. EPD is responsible for most environmental permitting done for the Office of Pollution Control, including:

- **Air Construction and Air Operating**
- **Air Title V Operating**
- **Wastewater-State No Discharge**
- **Wastewater-National Pollutant Discharge Elimination System**
- **Wastewater – Pretreatment**
- **Storm Water Construction and Operating**
- **Solid Waste**
- **Hazardous Waste**
- **Tire Programs**
- **Wetlands Impacts**

Performance Improvements

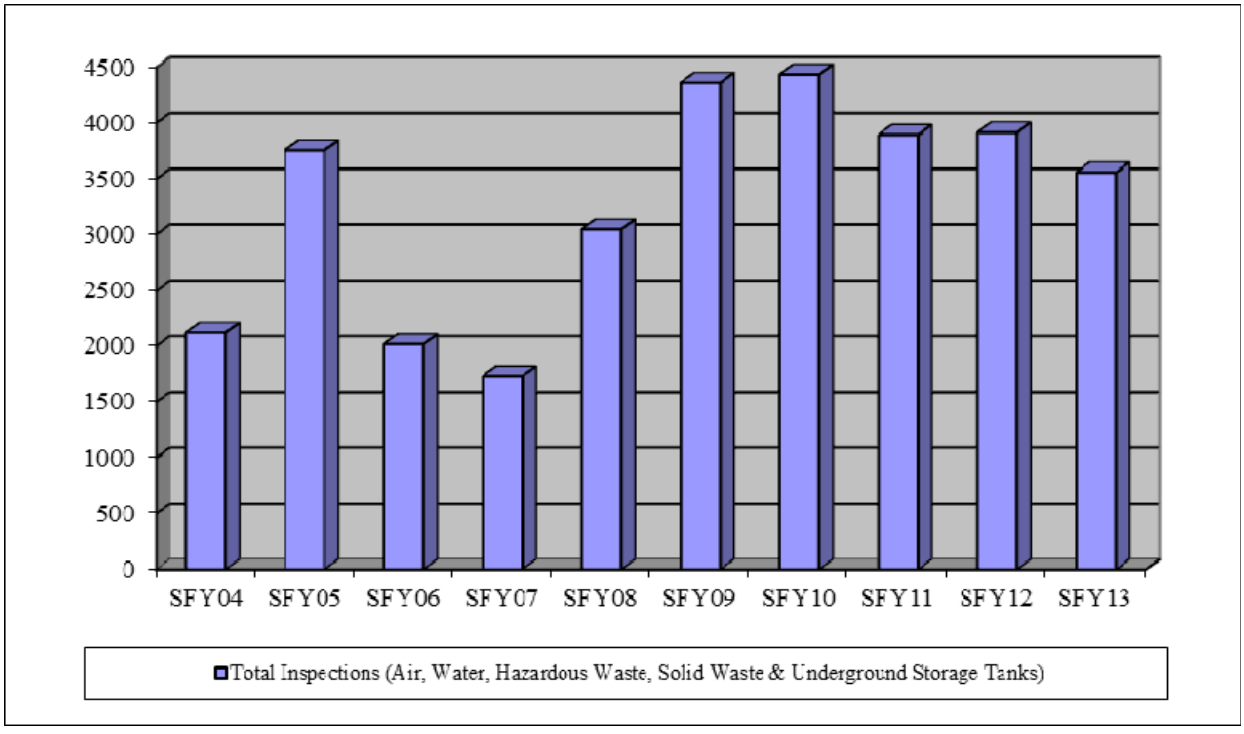
EPD continued to partner with the Data Integration Division of MDEQ in the development of new functionality for the agency's enterprise-wide data management system – *e*nSite. *e*nSite has become the agency's primary electronic storage database for information. This has made it possible for the department to provide much more information over the internet to the regulated community, other state agencies, EPA, and citizens. MDEQ continues to look for opportunities to make more environmental data available to stakeholders.

Environmental Compliance And Enforcement

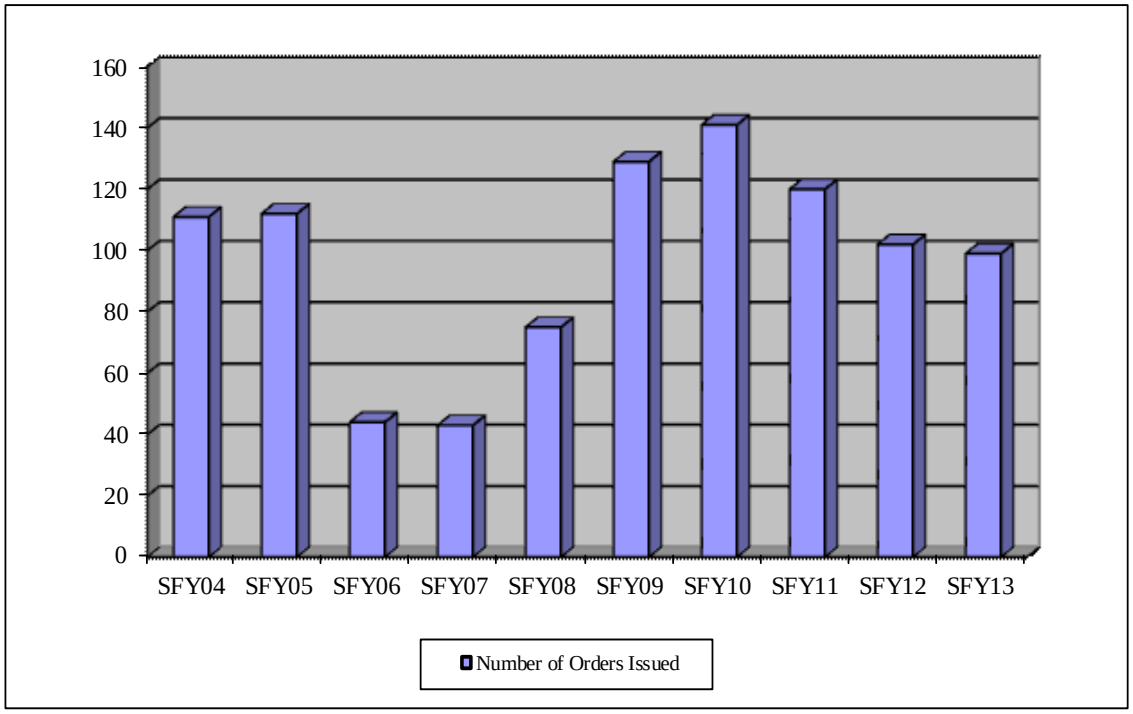
The Environmental Compliance and Enforcement Division (ECED) implements and oversees the majority of the compliance and enforcement programs for MDEQ. ECED is responsible for the regulation of sites for compliance with applicable air, water, hazardous waste, and non-hazardous waste permits and regulations. The goal is for continuous compliance with all applicable environmental laws, regulations and standards. When a site fails to comply with the permit(s) or regulations, appropriate enforcement action is taken to promptly return the site to compliance.

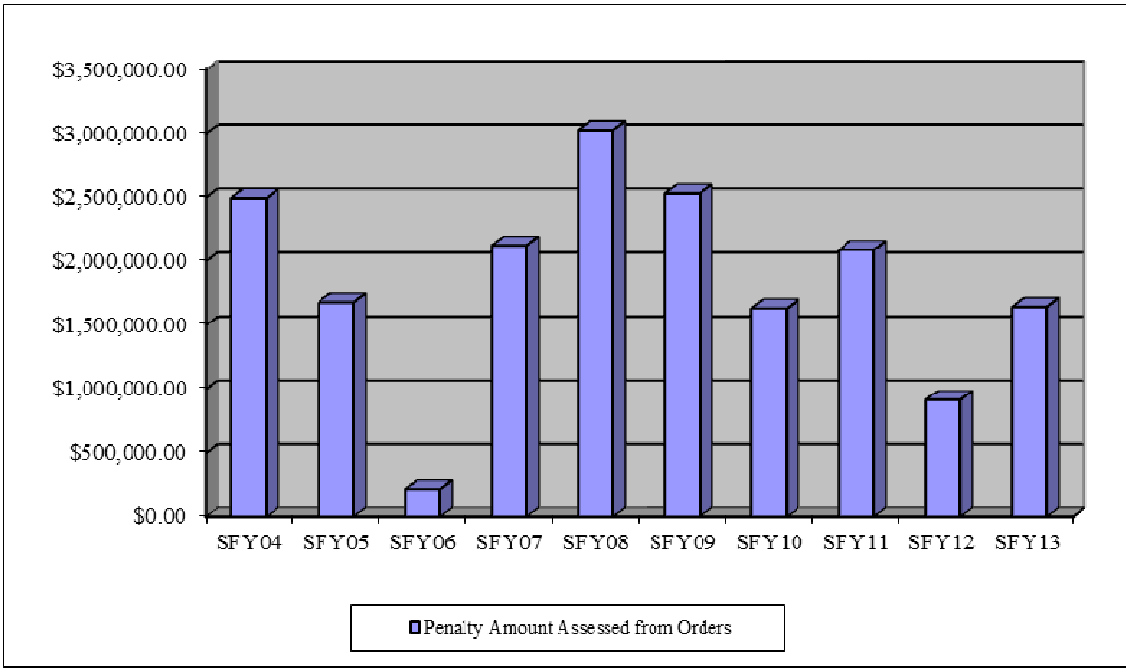
During Fiscal Year 2013, the following numbers of on-site inspections were performed by ECED and the Field Services Division:

- 197 for compliance with air pollution regulations/permits
- 1594 for compliance with water pollution regulations/ permits
- 72 for compliance with hazardous waste regulations/permits
- 797 for compliance with solid waste regulations/permits
- 898 for compliance with underground storage tank regulations/permits



During Fiscal Year 2013, ECED actions resulted in 99 Orders being issued for non-compliance with air, water, solid waste, and/or hazardous waste regulations/permits. Eight-seven of these Orders contained provisions for a penalty with a total assessed penalty amount of $1, 642,207.48. When appropriate, MDEQ allows the use of Supplemental Environmental Projects (SEP), projects that go beyond what is required to comply, to offset a portion of the cash penalty. Four Orders allowed the use of a SEP.





ECED, in conjunction with the Field Services Division, is also responsible for responding to citizen complaints regarding air, water, solid waste, and/or hazardous waste matters. During Fiscal Year 2013, MDEQ received 914 complaints related to air, water, solid waste, and/or hazardous waste matters. When citizens report an environmental problem, they are asked to explain the nature of the problem and give the location of the problem, including directions to the site. A name is not required; however, if a name and contact information is provided, MDEQ either contacts the complainant during the investigation or provides the results of the investigation after the investigation is complete.

Clean Up Of Contamination

Accidents, spills, leaks and past improper disposal and handling of hazardous materials and waste have resulted in a number of sites that have contaminated land, water, and air. Through five programs, the Brownfields Program, the Uncontrolled Sites Program, the Voluntary Evaluation Program (VEP), the CERCLA Program, and the Underground Storage Tanks (UST) Program, the staff of the Groundwater Assessment and Remediation Division (GARD) is responsible for the protection of human health and the environment by overseeing the assessment and remediation of contaminated sites in Mississippi.

Brownfields

Mississippi Receives Two National Awards at 2013 Brownfield Conference

Phoenix Awards Ceremony
National Brownfields Conference

The Mississippi Department of Environmental Quality (MDEQ) has joined a distinguished group of entities who can proudly say they have won a Phoenix Award for excellence in brownfield redevelopment. MDEQ, CSX Transportation, Inc. (CSXT), the General Services Administration (GSA), and ARCADIS were recognized at an awards ceremony in May at the National Brownfield Conference in Atlanta. These collaborative partnerships have been cited as among the best of the best in the Southeast in 2011 and 2012 when it comes to remediating and transforming brownfield sites into significant community assets. The National Brownfield Conference is the largest event in the nation that focuses on environmental revitalization and economic redevelopment. The Phoenix Awards are awarded by a nonprofit entity, The Phoenix Awards Institute, Inc., to recognize successful revitalization projects, honor project participants, and encourage project participants to share their knowledge/techniques so these model projects can be replicated across the country. This marks the third time that MDEQ has been recognized nationally for its brownfield redevelopment efforts. In 2008, MDEQ and the City of Tupelo won the Phoenix Award for the Tupelo Fairgrounds project that involved the redevelopment of the old fairgrounds and a former dry cleaner into Tupelo Fairpark. Mississippi was the only State to receive two Phoenix Awards during

CSX Gautier Oil Cleanup & Restoration
2011 Phoenix Award Winner

Since 1992, CSXT has spent nearly $20 million on the environmental investigation and cleanup of the former Gautier Oil Site. The project is a successful model for low impact, community friendly remediation/restoration of a former wood treating facility that would typically include abundant engineered structures, systems, and ongoing remediation. The acceptance and implementation of practical, low maintenance remedial components has resulted in re-establishing near natural estuarine environs along the Pascagoula River, the only unimpeded (no dams) river that flows into the Gulf of Mexico. The site, now a healthy and vibrant green space, has been recognized on state and national levels. Most recently the site was certified by the Wildlife Habitat Council under its Wildlife at Work certification program in November 2012. The site restoration efforts have also been recognized by multiple professional organizations and societies for the innovative restoration of estuarine habitats.

The redevelopment and construction of the Jackson Federal Courthouse over two city blocks located in the Central Business District of Jackson Mississippi, had a total project cost was approximately $150M of which total environmental cost was approximately $1.5 million. The GSA has transformed vacant lots, a former dry cleaner, former vehicle maintenance facility into a state of the art, energy efficient courthouse to replace the former Eastland Federal Courthouse. The Jackson Federal Courthouse was designed with a number of sustainable features. The facility is expected to reduce potable water consumption by as much as 50 percent. Construction involved the use of over 14 percent recycled content materials, resulting in over 75 percent reduction of construction waste being diverted to a landfill. The courtroom doors were made from salvaged lumber from site demolition and were part of the Art and Architecture Program.

Jackson Federal Courthouse
2012 Phoenix Award Winner

One additional Brownfield Agreement was reached in 2013. The Commission and The District Land Development Company ("The District") reached a Brownfield Agreement regarding the remediation of brownfield property located at the former Mississippi School for the Blind in Jackson, Mississippi. Prior to demolition of the existing buildings onsite, The District agreed to remove asbestos and property recycle or dispose of abandoned transformers at the site. The proposed use of the site after completion of all remediation will be the District at Eastover mixed-use development. The project's first phase is expected to include a Residence Inn by Marriott and as much as 500,000 sq. feet of retail, office space and residential lofts. The project is expected to create 600 jobs and involve a $150 million dollar investment.

The District at Eastover Brownfield Project

Underground Storage Tanks

The goal of the Underground Storage Tanks Program is to protect groundwater from leaking underground storage tanks. To meet this goal there is a two-pronged approach. First, a compliance program inspects UST facilities in order to ensure the systems do not leak. In Mississippi, the UST compliance personnel are responsible for ensuring approximately 8,286 tanks at 3,141 facilities have the appropriately maintained equipment in order to protect the groundwater. Secondly, in the event of a release, there is a fund available for eligible tank owners to help in the assessment and cleanup resulting from leaking USTs. The Mississippi Groundwater Protection fund began in 1987 and has committed $167 million to eligible tank owners for the assessment and cleanup of sites contaminated from leaking underground storage tanks. The average fund commitment per site has been $152,943. At the end of 2013, the Mississippi Groundwater Protection Trust Fund had assessed 1095 sites, completed assessment and/or remediation of 872 sites, and had 223 active sites. This past fiscal year $8.3 million were reimbursed to eligible tank owners. Also, this year 51 new sites were assessed and 36 sites were closed.

Vacuum Truck Cleanup at a UST Site

Uncontrolled Sites

Over the past 12 months, GARD actively oversaw 172 sites. During that same timeframe, the number of sites brought to GARD's attention was 31, bringing the total number of sites in MDEQ's public record to 1,849 sites. Also, MDEQ issued "State No Further Action" (SNFA) letters for four of these sites that were evaluated and remediated to levels protective of human health and the environment. In addition, MDEQ issued Restrictive Use Agreed Orders/Environmental Covenants for one site, thereby allowing the site to be reused with certain activity and use limitations. Through MDEQ's efforts, 39 acres were put back into productive use in 2013. The staff continues to respond expeditiously to requests from MDOT and other governmental agencies for the review of environmental assessments and remediation of contaminated sites and those sites with economic development potential.

Cleanup of the Vicksburg Chemical Site

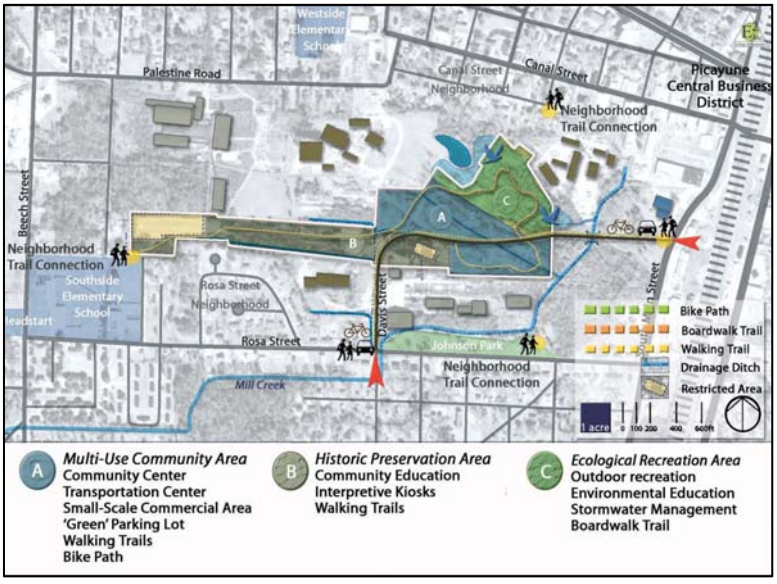
Voluntary Evaluation Program

The Voluntary Evaluation Program (VEP) offers participants an opportunity to receive an expedited review of site characterization and remediation plans and reports for uncontrolled sites that they have an interest in. The VEP is funded entirely by these participants who pay for MDEQ's oversight costs. Typically, individuals involved in property transfers find the VEP attractive because of the expedited review process. There were seven new VEP sites that joined the program this fiscal year. MDEQ issued one "State No Further Action" (SNFA) letter.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

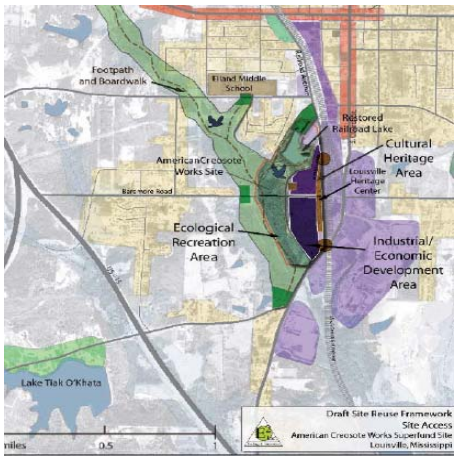
Oversight of the site assessment and restoration of hazardous waste sites at federal facilities continues to be a large portion of the work involving the CERCLA Branch of MDEQ. Oversight is conducted at seven Department of Defense (DoD) Sites, a Department of Energy Site (Salmon Test Site), a NASA facility (Stennis Space Center), and several formerly used defense sites (FUDS). MDEQ is funded for this oversight work through agreements with the Department of Defense, Department of Energy, and NASA.

Through the grants from the Environmental Protection Agency, CERCLA staff performed preliminary assessments, site investigations and site inspections at hazardous waste sites for National Priority List (NPL) consideration, coordinated with EPA on emergency/ removal projects at the Copiah County Manufacturing Co., Hazlehurst and the Southeastern Wood preserving Site, Canton, and assisted the Environmental Protection Agency with the oversight of the assessment and future remediation of four Superfund Sites in the State—Sonford Products, Flowood; Davis Timber, Hattiesburg; American Creosote, Louisville; and Wood Treating, Picayune. At the present time it is estimated that the remediation costs for these four sites is approximately $80 million. The state will ultimately have to pay 10 percent of these remediation costs or $7.3 Million. In addition, Red Panther Chemical, Clarksdale; Kerr-McGee (Tronox), Columbus; and Southeastern Wood, Canton, have been listed as NPL sites, however, there has been no estimation of remedial costs to date.



Wood Treating Superfund Site - Picayune Reuse Plan

The Red Panther Chemical, Clarksdale site is a potential responsible party (PRP) site and the responsible party(s) will be paying for the further assessment and remediation of this site. The Kerr-McGee (Tronox), Columbus site went into bankruptcy and further legal proceedings. The initial bankruptcy proceeding resulted in a Trust being set up that will provide some money toward the further assessment and remediation of the site and if ongoing legal proceedings by the U.S. Environmental Protection Agency, U.S. Department of Justice, and many States is successful then a responsible party will pay for all the assessment and remediation of this site and many other sites previously owned by Kerr-McGee in Mississippi and other states. The Southeastern Wood, Canton site does not have a potentially responsible party and will require a 10 percent state match for the remediation costs.



American Creosote Superfund Site Louisville Reuse Plan

Emergency Response

During Fiscal Year 2013, the Emergency Services Branch continued to respond as needed to emergencies across the state involving hazardous materials, oil spills or any pollutant that poses a threat to human health or the environment. While contractor expenditures for response actions exceeded $182,000 the agency was reimbursed approximately $27,000 from responsible parties. The Emergency Services staff in total handled approximately 870 calls for assistance or to reported emergency releases.

Emergency Services staff also provided Hazardous Materials Awareness Training to personnel at the Mississippi Law Enforcement Training Academy (MLEOTA), and with the State Fire Academy as well as participating in numerous exercises and drills with state, federal and local counter parts and companies such as pipelines and refineries that operate in the state. During Fiscal Year 2013 MDEQ staff responded to several crude oil spills, including a tank battery spill in Wayne County, a pipeline spill in Jasper County and a crude oil barge on the Mississippi River in Warren County. In addition, staff responded to several hazmat spills involving commercial fuel tankers across the state.

Homeland Security remains a top priority for training and planning. MDEQ along with the FBI and EPA responded to a Ricin event in north Mississippi. The Emergency Services staff continues to work with numerous agencies including fire, police and emergency management at the local level, other state agencies, EPA, U.S. Coast Guard, F.B.I., and other federal agencies to conduct well-coordinated responses, in order to protect Mississippi's citizens and environment.

MDEQ's Emergency Response Team is on-call statewide 24 hours a day, seven days a week. MDEQ and the Mississippi Emergency Management Agency (MEMA) work together to provide effective around-the-clock spill response. MEMA is notified of emergencies by calling 1-800-222-6362. They in turn contact MDEQ personnel who provide on-site response and technical assistance.

Solid Waste Management and Recycling

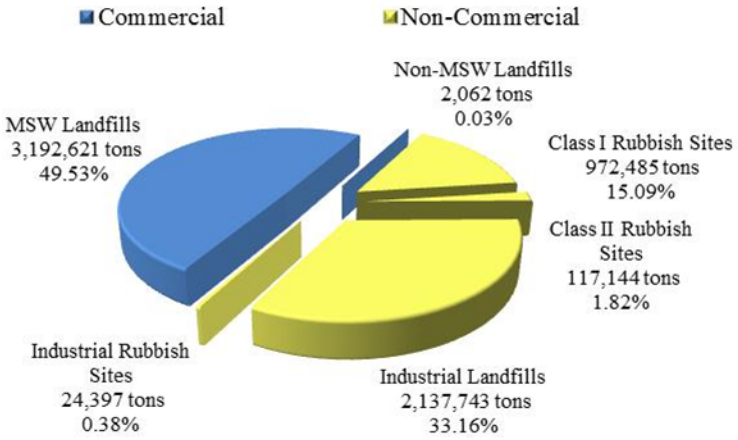
Throughout 2013, the MDEQ Solid Waste Management and Recycling Programs worked on issues, projects and programs to ensure the proper management of solid wastes, to promote the reduction and recycling of solid wastes, and to plan for the future solid wastes management needs of the state.

Solid Waste Annual Report

Each year, MDEQ collects an annual report from the owners of permitted solid waste management facilities on solid waste management activities for the preceding calendar year. Solid waste management facilities that report to MDEQ include commercial and non-commercial landfills, commercial and non-commercial rubbish disposal sites, land application sites, composting facilities and for the first time in 2012, solid waste processing facilities and solid waste transfer stations.

In 2013, MDEQ developed a report on solid waste disposal activities conducted during Calendar Year 2012. This report indicated that 6.4 million tons of wastes were disposed at permitted landfills and rubbish sites in Mississippi. Approximately 3.2 million tons (49.56%) of the total waste was disposed at commercial landfills, 2.1 million tons (33.16%) at non-commercial landfills, 1 million tons (16.90%) at commercial rubbish sites, and 24,000 tons (0.38%) at non-commercial rubbish sites.

FIGURE 1



About 4.3 million tons of solid wastes were disposed at commercial disposal facilities and the remaining 2.2 million tons of wastes were disposed at noncommercial disposal facilities. Mississippi received more than 700,000 tons of solid waste from out-of-state sources representing approximately 11 percent of the total solid waste that was disposed during 2012.

In addition, a total of approximately 68,000 dry tons of wastes were applied at the permitted land application sites, about 13,000 tons of material was received for management at solid waste composting facilities. In addition, MDEQ also began for the first time in 2012, collecting annual report information on the management of wastes at solid waste processing facilities and solid waste transfer stations. These annual reports indicated that approximately 114,000 tons of material was received for management at solid waste processing facilities and just over 700,000 tons of wastes was received for management at solid waste transfer stations in the state.

Recycling and Waste Reduction

MDEQ also works to promote and grow recycling in the State of Mississippi. State law indicates that it is the policy of the State of Mississippi to reduce waste at its source, to re-use material rather than discard them and to recycle wastes whenever possible. MDEQ's analysis of recycling access in the state indicates that approximately 51.7 percent of the state's population has access to local government sponsored recycling programs for residential recyclables. Approximately 29 percent of the State's population has access to curbside recycling services and 23 percent of the population has access to drop-off recycling services. The remaining 48.3 percent do not currently have access to local government sponsored programs but may have access to commercial recycling businesses or non-profit recycling programs. The access to recycling for the state's population is continuing to grow as more communities add recycling programs and as communities upgrade and grow existing programs in the state.

In order to grow recycling access in the state, MDEQ has continued its emphasis on cooperative efforts between smaller rural local governments to collect, process and market recyclables. MDEQ is focusing efforts to promote regional recycling with rural and underserved communities in various areas of the state. These cooperative efforts give communities greater opportunity to build sustainable recycling programs. In 2013, the agency met with cities and counties from various areas of Mississippi to discuss how communities could work together to cooperate in collecting and marketing their recyclables. In addition, the agency worked and finalized its regional cooperative recycling grants program to help support these cooperative efforts.

In addition, the agency conducted a number of activities to promote recycling in the State. In January, MDEQ participated in the Mississippi Recycling Coalition's annual State Legislative Awareness Day for the Recycling Industry. The MRC provided a breakfast for State Legislators and staff along with information on the economic benefits of recycling. The Southeast Recycling Development Council sent representatives to the event to assist in helping provide support and information on the jobs and income benefits offered by the recycling industry. MRC, MDEQ and SERDC were able to engage State Legislators on the continued importance of building this important industry in Mississippi.

In April, MDEQ sponsored an exhibit and booth at the agency's Earth Day celebration to tout the benefits of recycling to attendees.

In June, MDEQ also released its Funding Opportunity Announcement for these Recycling Cooperative grant funds to assist local governments in building these cooperative efforts in underserved and rural areas of the state. MDEQ has provided technical assistance to those communities seeking to develop proposals and received a number of proposals for regional projects on the grants deadline of December 6, 2013.

In July, MDEQ joined with the Mississippi Recycling Coalition to sponsor the state's first Recycling Summit for Universities and Colleges. The summit was held at Holmes Community College in Ridgeland and was attended by over 25 public and private colleges and universities. MDEQ helped to sponsor the summit to provide assistance to recycling coordinators on these college campuses seeking to implement the provisions of state law that require institutions of higher learning and community colleges to develop and implement recycling programs.

In October 2013, MDEQ assisted in hosting the State of Mississippi Recycling Conference held in Bay St. Louis. This statewide recycling meeting was attended by over 130 participants and exhibitors. The conference included sessions on improving public education and outreach efforts, commodity updates, regional and state reports on recycling from MDEQ and EPA, promotion of the economic benefits of recycling, rural recycling initiatives, organics recycling, special materials recycling, a Pay-As- You-Throw collection workshop and a compliance assistance workshop for recycling businesses and facilities.

On November 15th, America Recycles Day, MDEQ conducted a Twitter campaign to promote the benefits of recycling. Throughout the day, MDEQ's public information staff tweeted facts and figures on the benefits of recycling and on improving recycling in the State of Mississippi.

Recycling Education

In addition to those efforts, MDEQ has attempted to provide education and outreach on the importance of growing recycling in the state. Throughout 2013, MDEQ spoke to numerous groups and at various events. The agency also continued its strong support of the Mississippi Recycling Coalition and continued to assist that organization with membership, web site development and maintenance and conferences and workshops.

Additionally, the Recycling and Solid Waste Reduction Program at MDEQ works with local and state governments, school districts, private sector organizations, non-profit organizations, and the general public to increase recycling and solid waste reduction activities across the state. The program provides both educational and technical assistance to all groups in the state to increase the awareness and the importance of recycling and solid waste reduction measures.

The program partners with numerous organizations in the state including the Mississippi Recycling Coalition, Keep Mississippi Beautiful and its local affiliates, and the Mississippi Beverage Association.

In FY 2013 the Recycling and Solid Waste Reduction Program conducted site assistance visits, gave presentations to organizations and schools across the state, and provided recycling and solid waste information via exhibits at various events.

- Four K-12 schools were visited.
- Three college and university programs were visited.
- Five state agency programs were visited.
- Five presentations or exhibits were conducted for government organizations.
- Five presentations or exhibits were conducted for community groups.
- Four presentations were conducted for industry group and associations.
- Seven commercial recyclers were inspected.
- Four recycling programs for businesses other than recycling were inspected.

The program utilizes a standard recycling education display that may be made available to libraries and other organizations across the state for exhibition to the general public. In addition, MDEQ staff can and does attend events and workshops on recycling upon request.

Solid Waste and Waste Tire Grants Programs

The Solid Waste Programs also continued the management and dispersal of various grant program funds. Through the Solid Waste Policy, Planning and Grants Branch, MDEQ awarded over $3.6 million in Fiscal Year 2013 for solid waste management and recycling projects, solid waste planning projects and waste tire projects across the state. Of that total, over $2.3 million was awarded in Solid Waste Assistance Grants to local governments. These grants are used by local governments to clean up illegal dumps, establish collection programs for bulky wastes and recyclables, fund the hiring of a local solid waste enforcement officer, for household hazardous collection days/programs, for public information efforts on solid waste and recycling programs, and for other waste management activities at the local level. These funds were awarded through two different categories of grants: Non-competitive (or allocated) grants to counties and competitive grants available to municipalities, counties, solid waste authorities, solid waste districts and other local government organizations. In addition to these grants, supplemental solid waste enforcement officer grant funds were awarded in the amount of $84,000 to communities that have maintained successful local illegal dumping prevention and enforcement programs.

Solid Waste Assistance Grants – Fiscal Year 2013

$1,184,066 - Total Non-Competitive Grants
72 Counties Received Non Competitive Grants
$1,165,152 - Total Competitive Grants
38 Municipalities and Counties Received Competitive Grants

The MDEQ Solid Waste Programs also provide planning grants to local governments to assist in the development of long-range plans and goals for solid waste management and recycling in the state. Two planning grants totaling $55,224 were awarded to Holmes and Adams Counties in Fiscal Year 2013 to develop and update comprehensive solid waste management plans for their jurisdictions.

In addition, 26 new waste tire grants totaling $974,514 were awarded to local governments to fund local waste tire collection and clean-up programs during FY 2013. These new waste tire program grants along those tire grants previously awarded assisted local governments across the state in the proper collection and disposal of over 860,000 passenger tire equivalents in calendar year 2012. Counties receiving waste tire grants during FY13 included: Alcorn, Chickasaw, Clarke, Copiah, Desoto, Humphreys, Jackson, Jefferson, Jefferson Davis, Kemper, Leflore, Montgomery, Newton, Pearl River, Quitman, Rankin, Sharkey, Stone, Tunica, Warren, Washington, Wilkinson, Yazoo, the Northeast, Pine Belt, South Central and Three Rivers Solid Waste Management Authorities.

Waste Tire Assistance Grants – Fiscal Year 2012

$974,514 – Total Local Government Waste Tire Assistance Grants
860,000 Waste Tires Collected through local government programs

$265,000 – Total Waste Tire Incentive Grants

In addition, MDEQ was able to release its Funding Opportunity Announcement in June of 2013 for the Regional Recycling Cooperative Grants. These grants will be awarded to local governments that work together to establish cooperative efforts to collect and market recyclables. The deadline for project submittal was December 6, 2013 and MDEQ is in the process of evaluating a number of cooperative recycling projects proposed under the grants program.

Solid Waste Planning

The MDEQ Solid Waste and Recycling Programs work with local governments around the state to develop and implement long range solid waste planning efforts. Each local government in Mississippi is required by state law to develop and implement a comprehensive local, solid waste management plan for a 20 year period. In 2013, MDEQ worked with numerous communities to complete the development of updated and amended local solid waste plans.

MDEQ worked with Harrison County Utility Authority to finalize an updated comprehensive 20 year solid waste management plan for the County and five municipalities in the county. In addition to the completion of that plan, the development of comprehensive, updated solid waste management plans continued for the City of Jackson, City of Canton, Adams County, Hancock County, Holmes County, Jefferson County, Kemper County, Lauderdale County, Scott County, Simpson County, Tallahatchie County, Warren County and Golden Triangle Solid Waste Authority.

In addition to the development of comprehensive updated plans, MDEQ also worked on the review and finalization of certain amendments to existing plans to assure adequate disposal services and capacity for various jurisdictions throughout the state. These amendments were often conducted to add new disposal or recycling facilities locally or to make other changes to local solid waste plans in the manner that solid wastes were being managed. Communities that completed modifications to their local solid waste plans in 2013 include: Solid Waste Authority of Marshall County (addition of Quad County Class I Rubbish Site), Copiah County (addition of Krystal Gravel Class I Rubbish Site), Hinds County (addition of TRS Land Application Sites) Harrison County Utility Authority (addition of Recyclable Resources Class I Rubbish Site), Lauderdale County (addition of G&G Class I Rubbish Site), Forrest County (expansion of the service area for Clean Earth Medical Waste Processing Facility), Sunflower County (addition of RES Class I Rubbish Site and Three Rivers Solid Waste Authority (expansion of New Albany Class I Rubbish site and addition of City of Tupelo Class II Rubbish Site – Lee Co). These planning amendments were important to assist local governments with providing needed disposal capacity and services for management of solid wastes.

MDEQ also continues to work on updating and enhancing solid waste planning guidance. The agency is currently developing guidance on the demonstration of need process for evaluating and adding landfill capacity. In addition, the agency has modified the comprehensive planning guidance to add planning guidance on household medical sharps collection. In addition, the agency is working on additions to the guidance for organics recycling and electronic waste management and recycling.

Waste Tire Management Program

The Waste Tire Management Program continued its efforts in 2013 to develop and implement the state's strategy to achieve statewide recycling of waste tires. The Program has experienced continued success in achieving significant recycling of waste tires in the state. This success is reflected in the most recent annual program information collected from Calendar Year 2012 indicating that the overall waste tire recycling rate was 94 percent and the recycling rate for tires generated in Mississippi was 87 percent. It is anticipated that the state's waste tire recycling and reuse rates for waste tires will continue to approach or exceed the current national average of approximately 90%. Overall, waste tire processors in the state managed approximately 5.5 million waste tire equivalents in 2012 with approximately 51 percent of the tires being imported from out-of-state.

MDEQ conducted compliance assurance activities at approximately 150 local government waste tire collection sites, 10 commercial waste tire processing and collection facilities, and numerous tire retail businesses. Additionally, MDEQ managed the permitting and reporting activities of approximately 130 registered waste tire haulers in 2012. Also about 100 complaints involving the mismanagement or unauthorized dumping of waste tires were reported to and investigated by the MDEQ. MDEQ also manages a Waste Tire Abatement Program which provides assistance for the clean-up of unauthorized tire dumps. Through the abatement program, MDEQ has cleaned up approximately 2.5 million waste tires that had been illegally dumped around the state over the past several years since the program was started. In 2013, MDEQ identified four unauthorized dump sites containing an estimated 80,000-90,000 passenger tire equivalents. The agency has worked to secure the necessary access rights to the properties where the unauthorized dumps are located. It is anticipated that the tires will be removed and recycled through the MDEQ waste tire abatement program early next year.

MDEQ worked to award a waste tire incentive recycling grant to PolyVulc USA, Inc of Vicksburg Mississippi to assist the company in the purchase of specialized tire shredding equipment. PolyVulc has reported increases in material yield of more than 25 percent bringing the overall yield at the Vicksburg facility to more than 95 percent. This increased recycling capacity is the equivalent of recycling more than 250,000 additional waste tires each year and allows the facility to divert approximately 6 million pounds of materials from landfills annually.

In addition, the Waste Tire Management Program reviewed or otherwise handled the processing of various applications for waste tire management permits and authorizations for waste tire processing facilities, collection sites and disposal facilities. Finally, MDEQ continued work on other waste tire program improvement efforts which include continued work to attract new waste tire recycling businesses to south Mississippi.

Electronic Waste Management

Electronic waste or “e-waste” is one of the fastest growing waste streams nationally and continues to present management and disposal problems for Mississippians. In 2013, MDEQ continued its work to help communities, businesses and private citizens understand and know proper methods for recycling and disposing of electronic wastes. MDEQ has developed and maintains comprehensive web resources for all interested parties seeking to recycle used electronics at http://www.deq.state.ms.us/electronics. These resources include a directory of electronic recycling companies as well as other options for managing and recycling electronics wastes.

MDEQ continues to promote the use of certified recycling companies for the management of electronics wastes. In particular, MDEQ promotes certification programs managed by two organizations, R2 Solutions and the Basel Action Network. These two organizations continued to provide certification of those recycling businesses that collect and recycling electronics materials in a safe and responsible manner. MDEQ encourages the state’s recycling businesses and the state’s communities, businesses and local and state government agencies to consider these certification programs when advertising for electronics recycling services and/or selecting an electronics recycling vendor.

E-Waste collection event in Jackson.

On March 18, 2013, Senate Bill 2754 was signed into law by Governor Phil Bryant that requires all state agencies to use a certified electronics recycler for the disposal of agency electronics such as personal computers, computer components, audio players, videocassette players, facsimile machines, cellular telephones, wireless paging devices, or any electronic items containing an intact or broken cathode-ray tube (these include televisions, computer monitors, or other display devices). The law also requires that MDEQ develop a program to promote the certification of electronics recyclers and that MDEQ maintain a list of certified electronics recyclers. State agencies will be required to use a recycler from that listing. MDEQ and all state agencies are to be in compliance with the law no later than July 1, 2014. Currently, MDEQ is working with the Department of Finance and Administration and other state agencies on implementation of the provisions of the law.

MDEQ also continued providing assistance in 2013 to sponsor various e-waste collection and recycling events and programs around the state for residents and small businesses. In addition, the agency continued its support for a computer refurbishment program at Jackson State University (through a grant arrangement with Hinds County). MDEQ also joined with the Jackson Metro Chamber Partnership and various other partners to host e-waste collection and recycling events for small businesses and residents in the Jackson Metropolitan area in April and October of 2013. These two events collected more than 48,600 pounds of electronics for recycling, the most collected annually since the Chamber and MDEQ began sponsoring the event in 2009. Electronics collected at these events included used computers, televisions, cell phones, printers, fax machines and various other e-wastes. These events were serviced by Magnolia Data Solutions of Jackson.

Other outreach efforts to advance the proper management of electronics have included promoting MDEQ's resources to the regulated community. In July, 2013, MDEQ staff presented information to the State's Colleges and Universities at the recycling summit and October 2013, MDEQ staff presented on the regulatory requirements of electronics recyclers during the Annual Mississippi State Recycling Conference held by the Mississippi Recycling Coalition. MDEQ is continuing efforts into 2014 to assist local and state government and the state's business and industry sectors on the proper management of discarded electronics.

Medical Waste Management

MDEQ's solid waste management programs are responsible for regulating the commercial management of medical wastes in the state. This responsibility includes medical wastes collected and transported from health care facilities, veterinary care facilities, medical wastes generated in home health care, medical wastes generated by emergency and trauma response, medical wastes generated by business and institutional clinics and medical wastes generated in private residences.

In 2013, MDEQ has maintained web-based resources to better communicate proper management conditions for various types of medical wastes, particularly those from health care facilities. MDEQ has seen an increase in the number of medical waste service providers collecting wastes from health care facilities and other generators in 2013. A listing of these active service providers is maintained on the agency's website for reference by the health care industry.

In addition, MDEQ continued the implementation of the state's household medical sharps collection program in 2013. MDEQ has developed and implemented a statewide educational program to inform the public on the safe disposal of home-generated medical sharps to promote proper management and disposal of such household medical devices as syringes, needles, lancets and other similar items. During this past year, MDEQ has focused its public outreach efforts on placing educational material in medical offices throughout the state and speaking with professional nurses about the program, and approximately 140 medical offices were visited in 2013. MDEQ also conducted a number of educational and outreach activities to promote the program including speaking and exhibiting at numerous stakeholder meetings.

MDEQ has worked to create and expand its collection network in the state. This network includes community drop-off locations at pharmacies, fire stations, and other facilities for household sharps from the public. During 2013, MDEQ has experienced a 20 percent increase in the number of collection locations participating in the program, bringing the total number of locations to 196. MDEQ has continued to use services of three of the state's medical waste service providers for collection of the sharps.

The number of people participating in the program and the number of sharps collected monthly continued to increase in 2013. A total of 3,345 pounds of medical sharps was collected during this fiscal year, representing a 21 percent increase from the previous year. In October, a milestone was reached with the surpassing of one million used syringes collected since the inception of the program just three years earlier.

MDEQ is working to address one of the growing areas of environmental concern in the country and that is the management of pharmaceutical wastes and household personal care products. MDEQ is developing resources to encourage the proper management of pharmaceutical wastes and is discouraging flushing or washing of medications and other similar products down the toilet or sink.

MDEQ also helped promote events sponsored by the U.S. Federal Drug Enforcement Agency to collect obsolete pharmaceutical wastes in April and October of 2013. The DEA worked with numerous local law enforcement agencies throughout the State of Mississippi and the country to sponsor these collection events for prescription drugs and other pharmaceuticals. The primary goal of these programs is to prevent the illegal distribution and/or improper use of prescription and over the counter drugs. However, these collection efforts also help to avoid discharge of these materials into the environment through wastewater systems around the state. Another state initiative that MDEQ has been promoting are the current efforts of the Mississippi Department of Public Safety (DPS) to provide drop-off collection sites for prescription drugs and expired pharmaceutical wastes throughout the state on an ongoing basis. These drop-off boxes have been located by DPS at that agency's Driver's License offices around the state.

Organic Wastes

In 2013, MDEQ continued efforts to promote organics waste reduction and recycling. MDEQ has continued its Pilot Composting Program, started in 2011, in which the agency provides approval to small start-up composting operations helping these businesses and community composting operations to begin under a less formal and less rigid form of authorization. This pilot composting program has allowed new composting facilities to develop and build sustainable operations. The program has continued to grow in 2013 as MDEQ authorized a new community program in the Town of Decatur increasing the number of pilot composting facilities in the state to seven (five business operations, two community programs). According to the 2012 Status Report on Solid Waste Management Facilities and Activities, the most recent data, an estimated 13,414 tons of material was diverted to Mississippi composting facilities in 2012. This figure is up from the estimated 5,197 tons of material diverted to composting facilities in 2011, the first year of the pilot program.

In addition, MDEQ staff attended the ribbon cutting ceremony for Heaven's Best Organic Compost, a composting business authorized as a pilot project in 2012. This celebration was also attended by county and city officials, business partners, neighbors, and friends. Thus far, the feedback from pilot composting program participants including Heavn's Best Organic Compost has been overwhelmingly positive, and MDEQ frequently receives inquiries about the pilot program and new requests for authorization from interested parties. In addition to these efforts, MDEQ has initiated plans to simplify state composting regulations. Currently, composting facilities follow the same permitting process that municipal landfills follow. The agency believes that this permitting process can be improved and streamlined for composting operations and businesses serving to increase and expand composting in the state. In 2013, the agency has also conducted similar efforts for mulching operations. Many of communities in the state do not conduct traditional composting operations, but they do manage chipping and mulching operations. MDEQ has developed a similar guidance document to operations in the state both public and private that seek to mulch vegetative wastes. In 2013, MDEQ staff is continuing work towards completing regulatory that will propose changes in the manner that organic wastes are managed at composting facilities, processing facilities and land application sites in the state.

Furthermore, MDEQ has maintained its leadership of the Mississippi Gulf Coast Food Waste Task Force. This organization continues to strive towards the goal of increasing food waste reduction and recycling in the coastal counties of the state. In 2013 several activities were conducted by the Task Force with this goal in mind. One of these goals was the development of a new food waste educational curriculum. Together with the Gulf Regional Planning Commission, Ohio State University, and the Ohio EPA, the task force helped to develop a curriculum designed to educate middle school students on the importance of food waste reduction and recycling. The task force promoted this curriculum to teachers across the state through articles in the MDEQ and the Mississippi Department of Education

newsletters and by establishing the curriculum as a part of MDEQ's Composting Program web resources. Also this year, the Task Force and MDEQ participated in SeaBee Day held in March at the Naval Construction and Battalion Center in Gulfport. This great family event funded primarily by the base's recycling program, gave task force members the opportunity to provide information on food donation and home composting to event patrons. Additionally, the Task Force has continued in its efforts to encourage the collection of food waste at public events, to urge educators to incorporate the food waste educational curriculum into their lesson plans, and to stress the importance of food donation and food waste collection to local food businesses. These efforts have helped to minimize the cost of managing food waste, helped to maximize usable food donations and use, and helped to provide valuable organic feedstock for Mississippi composting businesses.

MDEQ also conducted several activities as part of the agency's efforts to promote organics waste reduction and recycling in 2013. MDEQ has updated online resources to include newly authorized or permitted composting facilities, the latest in composting news, and current composting related events. In addition, these web resources provide important information to the public concerning home composting, MDEQ's Pilot Composting Program for business and government operations, composting activities for kids, and much more. MDEQ's composting web resources also provide information on the benefits of composting and why this form of recycling organic materials is important for our state.

MDEQ's public outreach efforts have included participation in various public events such as MDEQ's Earth Day event held in Jackson, "Let's Get Outside Mississippi Delta" held in Yazoo County in June, "Waterfest" held at the Ross Barnett Reservoir in July, and "Eagle Fest" held at Arkabutla Lake in September, and the Mississippi Recycling Coalition's Annual Conference in Bay St. Louis. Additionally, MDEQ conducted a Twitter campaign during International Compost Awareness Week (ICAW). ICAW is sponsored by the U.S. Composting Council and is held annually during the first full week of May. The purpose of ICAW is to educate the public on home composting and encourage the support of larger scale composting operations through participation in community programs and the purchase of compost from locally-owned businesses. MDEQ's Twitter campaign consisted of numerous tweets being sent through the agency's twitter handle (@MDEQ) during each day of ICAW week which was May 6-12 of this year. These tweets included tips on home composting, links to important websites, MDEQ Composting Program notes, and information on composting businesses in the state. MDEQ's involvement in all of the above described events was well received and the agency plans to promote and participate in similar efforts in the upcoming year.

Landfill Methane Outreach Program (LMOP)

MDEQ continued its participation in the partnership with the EPA to promote the use of landfill gas as an alternative energy source through the Landfill Methane Outreach Program (LMOP). Through the LMOP program, MDEQ has also identified numerous other landfills that appear to be candidates for future energy project development. In 2013, the agency has continued to maintain an updated inventory listing of Landfill Methane Outreach Program (LMOP) Candidate Landfills on the MDEQ LMOP web page for greater public access. This updated list is now available to potential landfill gas to energy developers and end users. MDEQ will continue to maintain and update this list and conduct similar activities to connect landfill operators with project developers and end users as the agency works to promote projects at these landfills which can provide both economic and environmental benefits to landfill host communities. In addition, this past year MDEQ amended the agency's Solid Waste Management Facility Annual Reporting Form to request additional information from commercial landfill owners and operators of Municipal Solid Waste Landfills. The purpose in requesting this new information was to supplement the information on the inventory of Landfill Methane Outreach Program (LMOP) Candidate Landfills on the MDEQ LMOP web site to provide additional valuable information for prospective landfill gas energy projects.

Also, in 2013 a new landfill gas energy project was brought on line at Waste Management's Pecan Grove Landfill and Recycling Center. Waste Management has added a new landfill gas-powered leachate evaporator at the Pecan Grove Landfill.

This project is in addition to the existing project at the site which pipes treated landfill gas to the nearby E.I. DuPont de Nemours and Company facility for supplement energy use at the plant. This new project increases the number of landfill gas energy projects in the state to six, including these two projects at Pecan Grove Landfill and the landfill gas to electricity projects at Golden Triangle Regional Landfill, Three Rivers Regional Landfill, and Prairie Bluff Landfill; and the landfill gas powered leachate evaporator also at Prairie Bluff Landfill. MDEQ plans continue to its work with landfill owners and operators, project developers, and end users through the LMOP program to maintain these current projects, encourage new projects, and explore new technologies in the landfill gas to energy field.

Byproduct Beneficial Use Program

The Solid Waste Programs at MDEQ continued efforts in 2013 to promote the beneficial use of non-hazardous byproduct materials that would otherwise be disposed in landfills. The state's beneficial use regulations allow for industries to request that their nonhazardous industrial byproduct materials be evaluated for use in the place of products or raw materials. If the MDEQ evaluation confirms that the material has suitable physical and chemical properties for the proposed use, then MDEQ issues a Beneficial Use Determination (BUD) for the material which means that the use of the material can be conducted in the state and will not be regulated as a solid waste. In early 2013, MDEQ collected information on the volume of materials distributed for use in the State of Mississippi in 2012. These reports indicated that BUD holders distributed over 890,000 tons of byproduct materials in the State of Mississippi. Approximately 94 percent of the by-products distributed were used for construction purposes while the remaining percentage was used in soil amendment applications.

In addition, during 2013 the MDEQ approved two new BUDs for new materials and uses and reviewed and recognized one standing use. MDEQ continues to work with the suppliers throughout the region who provide by-products and other material for construction uses and land application uses in the state of Mississippi. One way that MDEQ does this is through demonstration projects, which is a key part of the beneficial use program that allows an industry or company to conduct a short term pilot project with the material to demonstrate the suitability of the material for a proposed use. MDEQ is in the process of working with several suppliers on demonstration projects involving the use of certain digested poultry processing sludge, foundry sands and also land spreading uses of horizontal directional drilling mud materials. Through these demonstration projects, these materials and associated uses are being evaluated for both environmental and physical performance. The results of each demonstration project will be submitted to MDEQ in the near future for further review and consideration to assist MDEQ in making determinations about the impacts of the long term use of the by-product material.

Solid Waste Training and Certification Programs

The MDEQ Solid Waste Programs administers training and certification programs for solid waste professionals. MDEQ partners with the state and national chapters of the Solid Waste Association of North America (SWANA) to provide training and certification to municipal solid waste landfill operators. MDEQ worked with SWANA to help sponsor training opportunities at state conferences in May and October. In 2013, there were 35 certified commercial landfill operators in the state. In 2013, MDEQ issued two new certifications and 13 renewal certifications for operators and provided continuing education training in partnership with the state SWANA Chapter's Spring and Fall Conferences.

In addition, MDEQ hosted the agency's training class and examination session for Class I rubbish site operators in September 2013 at the Cabot Lodge in Jackson with approximately 65 attendees. In 2013, there were 157 certified Class I rubbish site operators in the state. This past year, MDEQ issued certificates from the training and testing events for 26 new class I rubbish site operators in the state and issued four renewals for existing Class I rubbish site operators. MDEQ also worked with the state SWANA chapter to provide CEU training opportunities through the SWANA organization's 2013 spring and fall conferences in Tunica and Natchez.

Finally, in May 2013, MDEQ hosted the agency's periodic training class for Local Solid Waste Enforcement Officers. This class offered training to 65 local law enforcement, code enforcement, solid waste personnel, public works coordinators, and others dealing with local illegal dumping prevention and enforcement matters. The training included sessions on basic solid waste laws and regulations, components of a successful illegal dumping program, best management practices for site inspections, sampling protocols, management of household hazardous wastes, grants management, asbestos disposal, metals theft laws and a variety of other sessions.

Disaster Debris Management

In 2013, MDEQ's solid waste programs worked with federal, state, and local agencies and organizations regarding the management of disaster related debris. The state did experience damage in the Pine Belt region, primarily in the Hattiesburg area, with a tornado system that moved through in February. MDEQ worked with local governments in Forrest and Lamar Counties to address disaster related debris from that storm event. MDEQ approved six disaster debris management sites primarily for the management of downed trees and other vegetative debris. MDEQ also provided assistance in the three Coastal counties and in Pearl River County with Household Hazardous Waste collection in the flooded areas of those counties and also assisted with the clean-up and collection of thousands of nutria carcasses. In addition, MDEQ assisted local governments and state agencies with disaster related debris Noxubee and Kemper Counties after a tornado system went through that area in April of 2013.

MDEQ conducted a disaster debris workshop in August of 2013 through the Hinds County Emergency Management Office for communities in the Jackson area. The workshop described the agency's process for considering and reviewing disaster debris management sites and helped to inform the attendees of the allowable practices for managing disaster debris.

Another effort that MDEQ started in 2013 is an effort to develop resources for disaster debris recovery. MDEQ has worked to phase out the open burning of disaster debris across the state as a primary means of handling and managing such wastes. MDEQ is working to develop best management practices for the recycling and reuse of the debris. In addition, the agency is seeking to develop resources that can assist with chipping and recycling woody debris in the wake of a disaster and end users of the processed materials. These disaster debris recovery efforts are inline with the state's policy to recycle and reuse solid wastes.

MISSISSIPPI GULF REGION WATER AND WASTEWATER PLAN

"After Camille in 1969, another opportunity was lost. Nothing changed. If we rebuild a Gulf Coast that is simply a newer version of today, we will have failed our children and grandchildren."

Governor Haley Barbour, September 2005

The Mississippi Department of Environmental Quality took seriously Governor Barbour's plea to rebuild the Gulf Coast "better than ever" and his directive to learn the lessons of Hurricane Camille. Of the $5 billion Mississippi's Congressional Delegation and Governor Barbour obtained from the federal government for long-term recovery assistance, about $650 million was devoted to building and upgrading water and wastewater systems in Pearl River, Stone, Jackson, Harrison and Hancock Counties. These projects will (1) support existing and future growth patterns, particularly as realized through new housing construction; (2) promote economic development; and (3) emphasize the regional concept for infrastructure management. The funding is provided by the U.S. Department of Housing and Urban Development (HUD) through the Disaster Recovery Community Development Block Grants (CDBG-DR).

Final engineering designs and all clearances for the Environmental Review Records have been completed for all original projects. More than 91% of the nearly 4,200 individual parcels, easements, and right of entries required for the projects have been acquired.

Environmental permits necessary for construction have been issued, including: National Pollutant Discharge Elimination System (NPDES), State of Mississippi Water Pollution Control Operating, MDEQ stormwater, the Corps of Engineers' Section 404 wetlands, Section 401 water quality certifications and MDEQ groundwater withdrawal permits. All original projects have been advertised, received construction bids and commenced construction. To date, the subrecipients (county utility authorities) have submitted closeout packages for 25 projects. An additional 32 projects have reached or are expected to reach substantial completion by 2013 year's end. The remaining projects are expected to finish during calendar year 2014.

The projects being constructed include 17 wastewater treatment facilities, 32 water wells, 32 elevated storage tanks, 68 sewage pumping stations and more than 600 miles of water and sewer mains (roughly the distance of a round-trip between Biloxi and Memphis).

MDEQ has paid out in excess of $610 million in program-related expenses through the end of 2013. The County Utility Authorities (CUAs) averaged incurring approximately $3 million per month on construction related expenditures during 2013.

The CUAs are hard at work on start-up activities, as well as continuing to ensure the viability of their facilities, including the construction of ancillary projects that will connect to the CDBG-DR funded facilities. MDEQ anticipates that this program will have a very positive and lasting impact on the lives of coastal residents.

Stone County Ten Mile Road water project

GRANTS AND LOANS PROGRAMS

Section 319 Nonpoint Source (NPS) Pollution Control Grants

MDEQ, in cooperation with numerous federal, state, and local stakeholders has been successful in developing a comprehensive statewide NPS pollution-control program to help protect and restore valuable water resources.

The MDEQ currently has five active grants, one of which (Grant Year 2009) will be closed out in 2013. During 2013, 23 projects/activities totaling $4,827,641 (combined federal funds and state match) were completed with about 28 projects still ongoing. Those that are ongoing may take from one to four years to complete: educational projects; water-quality monitoring projects; Best Management Practices (BMPs) demonstration projects; agricultural and chemical waste disposal; watershed protection and restoration projects.

In FY2013, MDEQ received approximately $2.8 million in Section 319 Grant funds. Of this amount, 1.7 percent is allocated for administrative work, 9.6 percent for assessment and monitoring, 35.7 percent for program operation and statewide education and public outreach projects, and 53.0 percent for priority watershed restoration and protection projects. The latter projects focus primarily on nutrient reduction.

Water Pollution Control Revolving Fund

The Water Pollution Control Revolving Loan Fund (WPCRLF) program provides low interest loans to public entities in the state for construction, repair, or replacement of wastewater, stormwater, and nonpoint source pollution projects. Funding for these projects comes from federal grants, state match, repayments, and interest on deposits. Since 2010, additional subsidy funding, provided through annual Congressional appropriations, has also been made available to "Green" and "Small/Low Income Community" WPCRLF projects. During 2013, MDEQ funded 16 new WPCRLF projects totaling $76.1 million, which included approximately $2.4 million of Green or Small/Low Income Community subsidies.

City of West Point Wastewater Treatment Plant Project

City of Corinth Wastewater Treatment Plant Project

Water Pollution Control Emergency Loan Fund

The Water Pollution Control Emergency Loan Fund (WPCELF) program provides loans to communities for the emergency construction, repair, or replacement of wastewater collection and treatment facilities. The WPCELF has approximately $3.1 million available for such emergency projects. MDEQ encourages communities throughout the state to utilize this program whenever funds for emergency wastewater projects are needed.

OUTREACH

Community Engagement

The Mississippi Department of Environmental Quality continues to be committed to being transparent in its business process and providing opportunities for communities to be engaged. MDEQ has made community engagement a high priority for the agency, focusing on communities which include environmental justice areas near Superfund sites.

Protecting our environment requires public involvement and communication among all of our stakeholders – businesses, concerned citizens, councils of governments, environmental organizations, federal agencies, grass-roots organizations, industries, local governments, and other state agencies. We believe that conducting meaningful public participation builds understanding, trust, and credibility. We strive to do this through meetings, public comments, listening sessions, advisory committees, feedback surveys, outreach activities, and education opportunities. These combinations are essential to providing a clean and safe environment now and for future generations.

In addition to hosting and assisting in over 80 face-to-face meetings, conference calls and public availability meetings, in 2013, the Office of Community Engagement participated in multiple national and state conferences and on various federal workgroups including:

- National Environmental Justice Advisory Council (NEJAC) Work Group on Community Resiliency in Environmental Justice Industrial Waterfront Communities.
- National Brownfields Conference 2013- Continuing and Creating a New Community "Story" of Collaboration, Atlanta, Georgia.
- Mississippi Public Health Association Annual Conference, Jackson.
- Green Week- Mississippi Alumni & Students for Sustainability, University of Mississippi, Oxford.
- Mississippi Delta Health Collaborative, Greenwood.
- Empowering Communities for a Healthy Mississippi Conference, Jackson.
- Environmental Protection Agency- All States Environmental Justice Workgroup.
- Gulf of Mexico Environmental Justice Conference, Biloxi.

Basin Management Approach

The mission of the Basin Management Approach (BMA) is to foster stewardship of Mississippi's water resources through collaborative watershed planning, education, protection and restoration initiatives. To accomplish this, ten of Mississippi's major river basins have been organized into four basin groups (see map insert). Each basin group has a basin team comprised of the representatives from federal, state and local government agencies, non-governmental organizations, and other stakeholders. Listed below are the key activities conducted during 2013 to promote Mississippi's BMA:

1. Nutrient Reduction Strategies

Mississippi's collaborative, leveraged approach to reduce excessive nutrients and their impacts continues to focus on the implementation of appropriate nutrient reduction strategies. The strategies were developed to reduce excessive nutrient loadings to the waters in the Delta (2009), Coastal (2011) and Upland (2011) areas of the state. Work continued in 2013 to effectively implement these regional strategies in the state.

2. Implementing Nutrient Reduction Strategy in the Mississippi Delta in Basin Group II

Seven watersheds have been identified for implementation of the Mississippi Delta Nutrient Reduction Strategy. These include three new projects in the Harris Bayou, Porters Bayou, and Coldwater River watersheds, and the expansion of four existing sediment reduction projects in the Bee Lake, Wolf/Broad Lake, Lake Washington, and Steele Bayou watersheds.

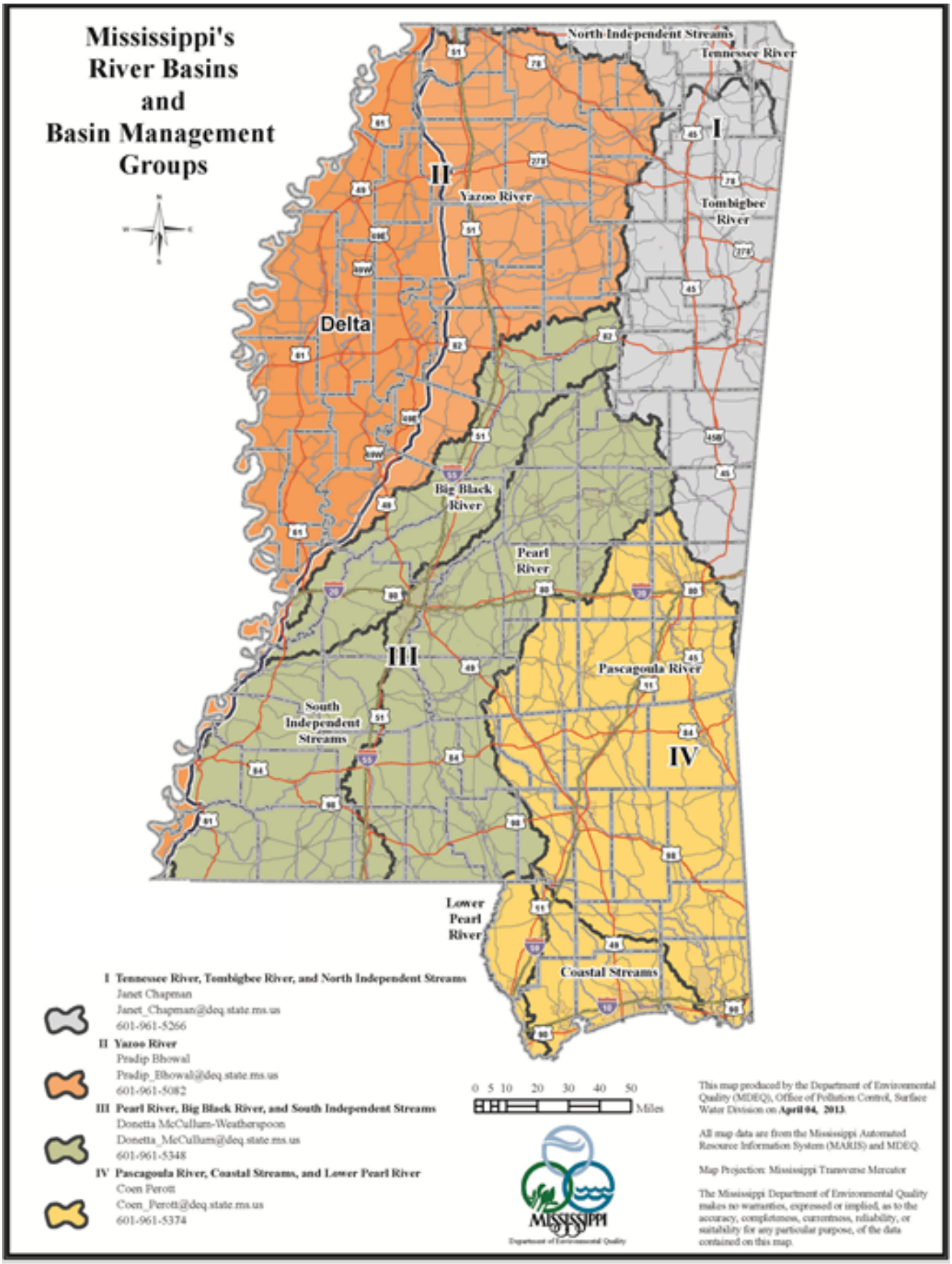
Harris Bayou: watershed project: Implementation of the Delta strategies is currently ongoing to improve both water quality and water quantity. Harris Bayou, also a tributary of the Big Sunflower River, flows through portions of Bolivar and Coahoma counties. The Harris Bayou 319 project is comprised of two project areas: Treatment Area (1,700 acres) and Control Area (1,300 acres). Installation of nutrient reduction BMPs in the treatment area was completed during 2012. Installed Best Management Practices include five acre tail-water recovery system, 16.75 acre on-farm storage reservoir; 210 acres land formed; six low grade weirs; 14 water control structures; 10,000 feet two-stage ditch; and 600 feet grass waterway. Control area received no BMPs in order to maintain this as an area for comparison. Also, collection of nutrient data for this project is currently ongoing.

Porter Bayou: watershed project: This project is currently ongoing to improve both water quality and quantity. Porter Bayou, a tributary of the Big Sunflower River, flows through portions of Bolivar and Sunflower counties. The Porter Bayou 319 project is comprised of: North Project Area (1,000 acres) and South Project Area (2,500 acres). Installation of BMPs in both north and south project areas are complete. Installed BMPs include two acre tail-water recovery system, eight acre on-farm storage reservoir; 100 acres land formed; five low grade weirs; 88 water control structures; and 24,156 feet two-stage ditch. Collection of nutrient data for this project is currently ongoing.

Coldwater River watershed project: Implementation of the Delta strategies is currently ongoing to improve water quality by reducing nutrient and also to measure conservation benefits by evaluating water use data and associated agricultural production information. Coldwater River, a tributary of the Tallahatchie River, flows for about 220 miles through portions of Coahoma, Desoto, Marshall, Quitman, Tate and Tunica counties in northwestern Mississippi. The Coldwater River 319 project is comprised of three sites: Shannon Site (250 acres), Buddy Allen Site (180 acres), and Boyd Site (500 acres). Installed BMPs include two on-farm storage reservoirs/ tail-water recovery systems; 240 acres land formed; three low grade weirs; 11 water control structures; and 3,000 feet two-stage ditch. Collection of nutrient data for this project will begin soon.

Bee Lake watershed phase II project: Implementation of the Delta strategies is currently ongoing to improve water quality by reducing nutrient loading to downstream aquatic ecosystems. Bee Lake is a 1,400-acre oxbow lake located in Holmes County. Primary inflow to Bee Lake is through Tchula Lake (a nearby oxbow lake) during high water periods in the spring, and outflow is back through Tchula Lake to the Yazoo River. The Bee Lake phase II project is comprised of one project area (740 acres). Installed BMPs include low grade weirs; water control structures; and two-stage ditch. Also, collection of nutrient data for this project is currently ongoing.

Lake Washington watershed project: Lake Washington is another existing project retrofitted for implementation of the Delta nutrient reduction strategies. Several BMPs were installed by using EPA 319, NRCS (through EQIP, CSP and other programs), and other funds. 319 BMPs included 168 grade stabilization structures, five outlet protections, 22.7 miles of pads, and several grassed waterways. NRCS BMPs included nutrient management, grade stabilization structures, land leveling, pads, pipes, and other irrigation systems/management. Collection of pre-BMP storm data was completed by USGS. Post-BMP water quality monitoring began in June 2013.


Mississippi's River Basins and Basin Management Groups
North Independent Streams
Tennessee River
I
II
Yazoo River
Tombigbee River
Delta
Big Black River
Pearl River
III
Pascagoula River
IV
South Independent Streams
Lower Pearl River
Coastal Streams
I Tennessee River, Tombigbee River, and North Independent Streams
Janet Chapman
Janet_Chapman@deq.state.ms.us
601-961-5266
II Yazoo River
Pradip Bhowal
Pradip_Bhowal@deq.state.ms.us
601-961-5082
III Pearl River, Big Black River, and South Independent Streams
Donetta McCullum-Weatherspoon
Donetta_McCullum@deq.state.ms.us
601-961-5348
IV Pascagoula River, Coastal Streams, and Lower Pearl River
Coen Perott
Coen_Perott@deq.state.ms.us
601-961-5374
0 5 10 20 30 40 50
Miles
MISSISSIPPI
Department of Environmental Quality
This map produced by the Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division on April 04, 2013.
All map data are from the Mississippi Automated Resource Information System (MARIS) and MDEQ.
Map Projection: Mississippi Transverse Mercator
The Mississippi Department of Environmental Quality makes no warranties, expressed or implied, as to the accuracy, completeness, currentness, reliability, or suitability for any particular purpose, of the data contained on this map.

3. Implementing Nutrient Reduction Strategic Plan in the Mississippi Uplands in Basin Group I

Currently two projects in the upland North Independent Streams Basin are implementing the Upland Nutrient Reduction Strategic Plan. Muddy Creek in Tippah County failed to meet minimum water quality standards for aquatic life support, most likely due to organic enrichment/low dissolved oxygen and nutrients (nitrogen and phosphorus).

MDEQ is partnering with MSWCC, USDA NRCS, USEPA and the Tippah County Soil & Water Conservation District to install appropriate BMPs on farmland area in the Bell Creek-West Prong Muddy subwatershed of the larger Muddy Creek watershed. Of primary concern are animal waste runoff and animal access to streams from cattle operations in the watershed. To date the BMPs that have been installed are 3896 feet of stream bank and shoreline protection, 1,132 feet fencing, 14.5 acres of critical planting, 40 acres of nutrient management, three tank/troughs, three water and sediment control basins, 16 grade stabilization structures, and 27 acres of pasture and hay land planting. Pollutant load reductions for the stated BMPs have already begun to show reductions of over 523 lbs/yr of Phosphorous, 1,041 lbs/yr of Nitrogen and 571 tons/yr of sediment in Mississippi waters. USGS is tasked with water quality monitoring for the project.

MDEQ is conducting a similar project with the Alcorn County Soil & Water Conservation District, MSWCC, USDA NRCS, USEPA and USGS in the Tarebreeches Creek-Tuscumbia River Canal subwatershed. Tarebreeches Creek-Tuscumbia River Canal Watershed is biologically impaired due to pollutant loads and is not meeting the watershed's designated use. Practices installed so far include 382 acres in pasture and hayland planting, two heavy use area protection, 1 tank/trough, 170 acres of nutrient management, 40 feet of streambank and shoreline protection, and 10 grade stabilization structures. Nutrient- load reductions for these BMPs have already begun to show reductions of over 309 pounds/year of Phosphorous, 582 pounds/year of Nitrogen and 177 tons/year of sediment in Mississippi waters.

4. Implementing Nutrient Reduction Strategy on the Mississippi Coast in Basin Group IV

The Rotten Bayou watershed project was developed to implement the Mississippi Coastal Nutrient Reduction Strategy. This strategy used the Gulf of Mexico Alliance (GOMA) Coastal Template and leveraged on work done in the Delta with the Delta Nutrient Reduction Strategy. The Coastal Nutrient Reduction Strategy was developed through local workshops with coastal stakeholder input. Various issues related to livestock, forestry, urban stormwater, and atmospheric deposition were included in the strategy. As part of the Federal Government's efforts to recover from the Deepwater Horizon oil spill, NRCS introduced the Gulf of Mexico Initiative (GoMI), an innovative water- and wildlife-conservation effort along the Gulf Coast. GoMI was developed in close collaboration with local, state, and federal partners. It is a new approach to better target conservation activities in the Gulf Coast region to improve the health of the Coast's rivers, wetlands, and estuaries that are integral to jobs and the economy in the Gulf. Because MDEQ had already developed and begun implementation of the Coastal Nutrient Reduction Strategy in Rotten Bayou watershed, NRCS targeted it for their GoMI Project.

5. Ross Barnett Reservoir in Basin Group III

The Ross Barnett Reservoir is a vital resource to Central Mississippi. It is the largest source of drinking water in the state, supplying over 15 million gallons of water to local residents, businesses, and industries. The EPA has designated this area as a Priority Watershed. The Reservoir welcomes in excess of 2.5 million visitors annually, and many consider it the premier recreational water body in Mississippi. Since its development almost 50 years ago, it has provided immeasurable benefits to the local economy. Local communities are continuing to benefit from increased residential and commercial growth, largely attributable to the reservoir.

The Mississippi Soil and Water Conservation Commission, the Soil and Water Conservation District, and NRCS, have been working with local landowners in the Rotten Bayou watershed to install agricultural BMPs. Implemented BMPs in the watershed include: 1) pasture and hay planting; 2) nutrient management; 3) Pond (alternative water source); 4) critical area planting; 5) water and sediment control structures; and 6) fencing. To develop a watershed implementation plan for this project, the Land Trust for the Mississippi Coastal Plain is working with local residents to form three teams: a watershed team, a technical team, and an education team. These teams will provide input to the plan. Also as part of this project, the Department of Landscape Architecture at Mississippi State University is working with the City of Diamondhead to develop Low Impact Development Urban BMPs for reducing NPS pollution.

The Rotten Bayou watershed team has continued to meet to make progress on the project. Meetings conducted in 2013 include: Rotten Bayou watershed steering committee meeting; Technical Advisory team meeting; Rotten Bayou watershed partnership meeting; and a Field Day event for farmers and landowners to showcase some of the BMPs installed in the Rotten Bayou watershed through the 319 Project. The desired outcome of this project is to improve water quality in the Rotten Bayou watershed.

The MDEQ and the Pearl River Valley Water Supply District (PRVWSD) along with other partners has finalized plans to *restore and protect* water quality within the Ross Barnett Reservoir. This initiative, called Rezonate, focuses on six priority issues in the watershed: 1) Reduce and control watershed erosion and sedimentation; 2) Reduce and control pathogens; 3) Reduce litter/trash in the reservoir and around the shoreline 4) Reduce and control nutrients/ organic enrichment; 5) Manage invasive species; and 6) Reduce and control pesticides.

MDEQ staff at WaterFest.

As part of this initiative, a comprehensive watershed protection and restoration plan, a water quality monitoring plan, a source water protection plan (SWPP), a comprehensive education and outreach plan, and a pathogen source assessment and wastewater management plan for the reservoir have already been developed. The watershed protection and restoration plan uses EPA's Nine Key Elements of Watershed Protection to identify potential pollutant sources in the watershed. The plan also recommends a set of conservation measures to address the priority pollutant issues and ensure that these measures are implemented. MDEQ and PRVWSD have developed these plans through workgroups that utilized technical expertise from various state agencies, local agencies, and local stakeholders.

The PRVWSD and the Barnett Reservoir Foundation, a newly formed non-profit organization established to promote the Reservoir and surrounding businesses, hosted its second Annual Independence Day Celebration in conjunction with the seventh Annual WaterFest event hosted by the Mississippi Department of Environmental Quality on the Reservoir simultaneously at Old Trace and Lakeshore Parks in Madison and Rankin Counties. The dual event was held on June 29, 2013. WaterFest, the signature event for Rezonate, is an annual event that spotlights the importance of protecting, restoring and improving the water quality of the Ross Barnett Reservoir. Event activities included educational exhibits, kid zones, water slides, interactive displays, live music, food vendors, a classic car cruise-in and static military displays.

Through the efforts of the Barnett Reservoir Foundation, patrons of both parks viewed the second annual lighted boat parade and a grand fireworks display that climaxed the evening's activities. An estimated 10,000 people attended the dual event.

An Education Outreach Implementation Plan has been developed to meet the educational needs of six specific target audiences that live, work, and recreate in the Ross Barnett Reservoir Watershed. Identification of target audiences will allow MDEQ and co-lead PRVWSD to tailor messages and education materials. Specific goals and objectives for each targeted audience have been designed to reflect each group's interests, and provide opportunities for each audience to take actions to improve water quality.

The targeted audiences included in the Education Outreach Plan are:

1. General Public
2. Educators/Students in Area Schools
3. Homeowners Associations
4. Area Civic and Recreational Organizations
5. Decision Makers – (Municipalities and Municipal Staff, Inspectors, Local Leaders, Elected Officials, Public Department Heads, Planners, and Economic Development Officials, and Business Owners)
6. Land Development Professionals (Developers and Contractors)

The goal of implementation of awareness activities through the end of this campaign is to move a percentage of the target audiences through awareness and retention to acceptance. The implementation of behavior change plans, which targets a smaller audience and requires outreach on a more personal level, will focus on attitude change (desire) and behavior change (action). Another goal of the awareness campaign is to maximize limited resources. Activities will be selected as funding allows to implement a three year consecutive campaign to reach the target audiences on a consistent basis to increase awareness and ultimately promote behavior change.

Throughout 2013, the education and outreach plan has been implemented through the general public, students, educators and area civic and recreational organizations with the assistance of partners such as Keep the Reservoir Beautiful, Adopt-A-Stream, Gator Bait, Barnett Reservoir Foundation, the PRVWSD and City of Ridgeland. Rezoante has sponsored and helped facilitate several events in and around the Ross Barnett Reservoir.

Rezonate was a major sponsor for the Project Rezway recycle fashion show that took place on April 25, 2013, at the Mississippi Craft Center in Ridgeland. The show featured apparel and accessories composed of at least 75 percent recycled materials. Keep the Rez Beautiful, a nonprofit in the Ross Barnett Reservoir area, host this event annually with the aim of raising awareness of the importance of recycling and shows how commonly discarded items can be put to use again. Other major sponsors included the, MDEQ, Kathryn's Steakhouse, The Naked Grape, Barnett Reservoir Foundation, Keep Mississippi Beautiful, and PRVWSD.

Through partnerships with the City of Ridgeland, the Rezonate Initiative, the MDEQ and PRVWSD were promoted at various events such as the Kids Fest (April 21-22, 2013) Heatwave Classic Triathlon (June 1. 2013), Celebrate America/Balloon Glow (July 4, 2013), Mayor's Fun Walk (Oct 23, 2013) just to name a few.

The 3rd Annual Gator Bait Race Kayak Race, another event sponsored through the Rezonate Initiative, was held at Pelahatchie Shore Park on the Ross Barnett Reservoir. This successful event raised awareness about the water quality of the Reservoir and its need to protect it through conservation education and letter control. Eighty-five race participants from Mississippi, South Carolina, Louisiana, Tennessee and Alabama attended the event.

Rezonate also partnered with the Summer Library Program in Hinds, Madison and Rankin counties to teach students about the importance of protecting our drinking water sources in particularly the Ross Barnett Reservoir. Over 500 students and parents were reached through this effort.

In 2012 MDEQ entered into a three year Memorandum of Agreement (MOA) with the PRVWSD. To demonstrate techniques to stabilize eroding stream banks, reduce sedimentation and non-point source (NPS) pollution that drains into the Ross Barnett Reservoir Watershed. Due to NPS pollution from sediment and nutrients, primarily as a result of urbanization and recreation, various BMPs that can reduce sediment and peak storm water flow loadings need to be implemented. Throughout 2013, site selection for the three demonstration areas has continued and is currently ongoing.

This project is funded partly through an EPA Nonpoint Source Grant which supplies 60 percent of total program funds with the remaining 40 percent of expenditures to be supplied as a State/local match. The funding for this contract shall support BMPs and other work activities agreed upon by the PRVWSD and the MDEQ.

MDEQ Executive Director Trudy Fisher, Commissioner and Mrs. Jack Winstead with First Lady Deborah Bryant at Project Rezway

6. National Water Quality Initiative Projects in Mississippi

Recently, through the National Water Quality Initiative (NWQI), Natural Resource Conservation Service (NRCS) along with MDEQ, identified mutually agreed upon watersheds, which were high priority for the installation of targeted BMPs. Three watersheds were selected in Mississippi, one of which was Pelahatchie Creek-Ashlog Creek, a tributary located in the Pearl River/Reservoir Watershed, and one of the four targeted priority watersheds selected for restoration through the Rezonate comprehensive plans developed for the Reservoir. The other two locations were Porter Bayou (Big Sunflower Watershed) and North Tippah Creek (Tippah River Watershed). These watersheds are considered impaired, and funding through this initiative will reduce the runoff of nutrients and sediments into them. NRCS continues to coordinate with local and state agencies, conservation districts, non-governmental organizations and others to implement this initiative. This strategic approach helps leverage funds and provide streamlined assistance to help individual agricultural producers take needed actions to reduce the flow of sediment, nutrients and other runoff into impaired waterways.

Implementation of the North Tippah Creek watershed project is currently ongoing (i) to inform/educate the public about the watershed and the things they can do to improve water quality; and (ii) to monitor water quality to determine if there is a need for BMPs implementation to reduce nutrients and sediment. North Tippah Creek, a tributary of the Tippah River, flows 220 miles through portions of Coahoma, Desoto, Marshall, Quitman, Tate and Tunica counties in the northwestern Mississippi. Collection of nutrient data for this project will begin in 2014.

enHance Recognition Program

In its fourth year, enHance currently has 32 members, representing top environmental performers throughout the state. The objective of this program is to recognize those that go beyond compliance and to promote energy efficiency efforts, provide networking and training resources for pollution prevention (P2), and encourage the use of environmental management systems and continuous improvement.

Members have implemented projects resulting in reductions of over 17,500 tons of solid waste, 1,077 tons of air emissions, 144,300 MMBtu of energy use, and 12 million gallons of wastewater. This has been done through changes in operating procedures, redesign of products/packaging, beneficial reuse of materials, installation of more efficient equipment, recycling, and other similar alternatives.

Brett Rasmussen of Nissan received the 2013 enHance Leadership Award for his efforts as an enHance mentor assisting schools to certify their energy reduction.

Toyota Motor Engineering's Kevin Butt addressing the attendees on the topic of *Toyota's Approach to Sustainable Manufacturing*.

The annual training workshop and luncheon was held in April to recognize new members and provide environmental training and networking opportunities. This year's workshop was "Environmental Leadership: A Smart Business Choice." Presentations included information on sustainable manufacturing, innovative applications for reducing industrial energy use, savings opportunities with the E3 (Economy, Energy and the Environment) program, and a panel on energy efficiency assistance opportunities for industrial and commercial facilities.

Nonpoint Source (NPS) Pollution Education Programs

Nonpoint Source Pollution (NPS) is rainwater runoff that picks up and carries away a variety of pollutants as it flows over streets, parking lots, construction sites, or farm lands. The pollutants may then flow into rivers, oceans, and underground sources of drinking water. These pollutants include excess fertilizer, sediment, nutrients, pesticides, oil, grease, and bacteria from faulty septic systems. The primary objective of the NPS Educational Program is to increase public awareness of NPS pollution and to induce behavior changes that will reduce NPS pollution impacts. The following is a list of NPS educational and outreach activities.

1. Watershed Harmony Musical Puppet Theater

MDEQ and Bayou Town Productions completed the first performance of the *Watershed Harmony Musical Puppet Theater* in October 2003. Since that time, performances have reached more than 120,000 students, teachers, and others. Since mid-September of 2010, ninety-one performances were given with about 22,000 people enjoying the show. Pre-test/post-test scores revealed a significant increase in knowledge and awareness of water-pollution problems, solutions, and stewardship. The play focuses on the prevention of polluted runoff by promoting the use of Best Management Practices and individual stewardship to improve water quality.

2. Storm Drain Marking

The Storm Drain Marking Program is another cooperative program between MDEQ and the Mississippi Wildlife Federation. MDEQ provides MWF funding through a Section 319 subgrant agreements. The program promotes awareness of the water-quality impacts of polluted runoff in urbanized communities. Small plastic disks are placed by local volunteers on storm drains with the message "No Dumping, Drains to River." Volunteers glue the markers to storm drains and distribute door hangers to homes. Students and scouts also talk with residents about storm- water runoff and the need to prevent pollutants from entering storm drains.

3. Adopt-A-Stream

The Mississippi Adopt-A-Stream Program received a "First Place Civic Award" from Keep Mississippi Beautiful in the Spring of 2013. Mississippi's Adopt-A-Stream (AAS) Program is sponsored and funded by MDEQ's 319 Program and implemented by the Mississippi Wildlife Federation, in cooperation with MDEQ. This program promotes environmental stewardship by training volunteer citizens about stream ecology, aquatic life, and water chemistry. Volunteers attend a one- or two-day, water education workshop to learn how to monitor a stream, conduct a stream cleanup, or mark storm drains. In 2013, fourteen people attended the traditional two day workshop; and, 138 people attended seven, one day workshops. Over 7,950 people were reached with the AAS Program statewide through 12 large-venue environmental events. Nineteen student Envirothon teams were trained, as well as, 207 students and teachers in 24 aquatic ecology classroom and field-trip settings.

4. Enviroscape and Groundwater Models

MDEQ staff reached over 4,500 students, teachers, and the general public in 2013 using water quality presentations. Over 110 water models have been distributed throughout Mississippi to Mississippi State University Extension Service Offices, Department of Health offices, Soil and Water Conservation Districts, Environmental Learning Centers, the Choctaw Indian Reservation, and other organizations.

5. Environmental Teacher Workshops and Student Environmental Camps

Teacher workshops are a major environmental education component of MDEQ's NPS education grant program each year. The workshops include classroom interactive instruction and field trips with some of the best environmental/natural resource speakers in Mississippi instructing the classroom teachers and informal environmental educators. Topics include instruction in aquatic ecology, stream monitoring, watershed mapping, forestry, wildlife, soils, cultural resources; and, lesson plan curricula. During 2013, a total of 522 educators were trained in 22 teacher workshop venues that were held in various regions of the state where teachers could obtain Continuing Education Units.

6. Envirothon Competition for High School Students

This competition tests student knowledge about water, soils, forestry, wildlife, and current environmental issues each year. In 2013, there were 294 high school students (49 teams) and their advisors from 22 Mississippi counties who participated in four area competitions. A total of about 100 students (20 teams) participated at the state level competition. Oxford High School, being the winning team in Mississippi, traveled to Montana State University in Bozeman to compete in the North American Canon Envirothon Competition held in August 2013.

The 2013 Oxford High School team members are Yujing Zhang, Mark Zhao, Julie Shaw, Joshua Michael Redding, and Joelle Young. The team advisor (not pictured) is Renee Dayan.

7. Water Events/Festivals/Exhibits/Other

- A project sponsored by a NPS grant introduced the concept of recreational paddling trails called Blueways to Mississippi citizens. This project was first introduced at Old Fort Bayou in Ocean Springs in which 13 miles were designated as a Blueway. Since that project, Blueways have become a well-known part of Mississippi's outdoor activities. Continuing the effort of providing recreational paddling trails in Mississippi, other Blueways have been added. The Lower Pascagoula River Blueway took place at Lighthouse Park in Pascagoula, and the Jourdan River Blueway took place at McLeod State Park in Kiln. The Red Creek Watershed Project created a Blueway in Stone County which has included nearly 30 miles of beautiful scenic paddling trails, thanks to a partnership with the local watershed group. The Wolf River Watershed Project also added a Blueway component in order to engage local stakeholders and to improve the recreational use of the Wolf River and potentially in other southern Mississippi streams. Blueway designations provide for additional opportunities for eco-tourism while fostering stream stewardship.

- The ***Make-A-Splash,*** A Water Education Event, is held each September at the Mississippi Museum of Natural Science in Jackson where students visit 20 different water-related interactive booths to learn about polluted runoff, wildlife, water use, groundwater, surface water, and macroinvertebrates, etc.
- **Student Environmental Day Camps**- Each year campers are exposed to lectures, hands-on activities and field trips in Aquatic biology, nonpoint source pollution, entomology, soils, wildlife, forestry, research projects, geography, journalism and other topics. The University of Mississippi Field Station held its twelfth annual Ecology Day Camp sessions from June 3 to July 8, 2013 with support from the MDEQ's NPS Program. Field trips this year included a tour of the Oxford, Mississippi wastewater treatment plant and Sardis Dam and reservoir.
- **Let's get Outside, Mississippi Delta 2013 -** MDEQ joined the U.S. Fish and Wildlife Service, the Lower Mississippi River Conservation Committee, the U.S. Forest Service, the Mississippi Department of Wildlife, Fisheries, and Parks, and the Museum of Natural Science and a number of other organizations for a summer conservation event on June 15 at the Panther Swamp National Wildlife Refuge Headquarters Complex near Yazoo City. The event provided opportunities for kids to learn more about the environment and wildlife.

  MDEQ exhibits featured educational presentations and information to the kids and their families on the importance of preserving the environment and protecting air, water, and land. Over 130 children, 75 adults, and 40 volunteers participated at the event. Also, 44 sponsors provided prizes and lunch to help participants enjoy this outdoor event.

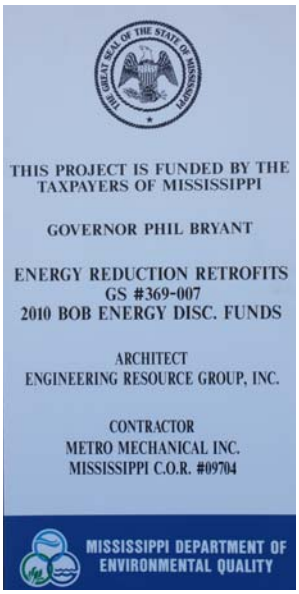
Energy Efficiency and Energy Star

Energy Star Recognition Presentation

Front row: Shane Sanders, Pelahatchie Attendance Center, Cindy Ponder, Brandon Elementary, Cathy Martin, Flowood Elementary. Back row: Rusty Ponder, EMC Rankin County School System, Dallas Baker, MDEQ, Khairy Abu-Salah, MDEQ. Not pictured Ms. Beverly Weathersby, Florence Middle School.

Energy Star outlines a seven step continuous improvement process to improve the energy performance of buildings. MDEQ's Pollution Prevention program has worked with state office buildings, schools, and hospitals to benchmark energy usage and develop a plan to reduce energy consumption.

Energy use in the MDEQ main office buildings has been reduced by 37 percent in less than four years, saving thousands of dollars. Additional state office buildings are evaluating opportunities with the Energy Star Portfolio Manager benchmarking tool. Technical assistance tools, geared toward these target groups, are being developed to assist with energy efficiency project implementation. MDEQ's efforts were recognized by the Mississippi Development Authority.



The agency expanded its efforts of energy reduction efforts to greening efforts of all office operations with expansion to a Green Team that extends its scope to address solid waste, fleet management, water usage, and procurement, in addition to energy conservation initiatives underway. The Green Team's vision is to make meaningful changes happen, then generate periodic reports and share success stories and lessons learned intended to be shared inside and outside state government.

Pollution Prevention

The purpose of MDEQ's Pollution Prevention Program within the Environmental Permits Division is to:

- Provide pollution prevention information and technical assistance to local government officials, federal officials, industrial officials, consulting engineers, and system operators on hazardous and non-hazardous waste management and pollution prevention practices.
- Review, manage, and monitor the waste minimization plans, annual waste minimization certified reports, and the EPA/ Mississippi Pollution Prevention Grant (P2G).
- Coordinate/partner with both states and the federal government and non-governmental entities to promote effective pollution prevention practices.
- During FY 2012 to 2013, the MDEQ Pollution Prevention Program accomplished the following program elements:
- Twelve P2 enHance site visits.
- Reviewed and monitored 198 annual waste minimization certified reports; eight P2 plans were approved.
- Met all conditions of the 2012-2013 EPA/Mississippi Pollution Prevention (P2G) Grant.
- One recycling site visit, three workshops and eight presentations were conducted on environmental issues.
- Permitting/reporting compliance assistance activities were provided to two facilities.
- Processing applicants for the new class of members in the enHance Program.

Key Pollution Prevention Activities

The Pollution Prevention Program (P3) coordinates multiple activities focusing on the reduction of waste streams that can impact the environment. Efforts include leading P3/E3 programs for the furniture industry, and energy and water efficiency in state government buildings. Efforts were designed to support E3 - an initiative designed to focus on sustainability and the triple bottom line of energy, environment and the economy. Central to the program is the concept of continuous improvement. Another core area of the P2 program promotes energy efficiency utilizing the EPA's Energy Star tools.

Toxic Release Inventory

The Toxic Release Inventory is required under Section 313 of the federal Emergency Planning and Community Right-To-Know Act of 1986. This report is required to be submitted every year by facilities that utilize toxic substances in their manufacturing processes if the facility has in excess of ten full-time employees and falls into certain Standard Industrial Classification codes as designated by the EPA. These facilities report how toxic substances are utilized in their manufacturing processes and how and to what media they are emitted to the environment. Every year, over 250 facilities from across the state submit over 1,000 reports to MDEQ, as required by federal law.

Environmental Resource Center

The Mississippi Department of Environmental Quality (MDEQ) assistance vision and ethic incorporates and implements the theme "Environmental Assistance – A Priority." MDEQ's Environmental Resource Center (ERC) provides non-regulatory assistance in the form of telecommunication, workshops, seminars, training sessions, on-site technical assistance and taking citizen environmental complaints.

The Environmental Resource Center serves as the central point for receiving citizen's complaints and providing assistance. It is ERC's mission to provide exceptional customer service and respond promptly, courteously, and completely as possible to every call, question, complaint or request for assistance as possible.

The Mississippi Small Business Environmental Assistance Program (SBEAP). Small business owners can receive free technical, non-regulatory, confidential assistance on meeting air quality and other environmental compliance issues. The Small Business Environmental Assistance Program provides assistance for on current regulatory requirements, recent regulatory changes and compliance issues that impact small businesses. SBEAP develops and makes available materials, and conducts workshops, and training. On-site Technical Assistance is available for small business environmental compliance assistance at business owners' request.

- The Small Business Environmental Assistance Program provides assistance on current regulatory requirements, recent regulatory changes and the impact requirements can have on small business. SBEAP develops and makes available materials, and conducts workshops, and training. On-site Technical Assistance is available for small business environmental compliance assistance at business owners' request.
- The Small Business Ombudsman (SBO) serves as a liaison for small businesses, investigate and resolves complaints, conducts independent evaluations and helps solve environmental problems with the recommendation of the Compliance Advisory Panel and technical assistance staff. The Compliance Advisory Panel, comprised of seven members of the small business community, meets quarterly to discuss issues related to small business environmental compliance. They keep a watchful eye on the SBEAP and review all materials developed for small businesses.
- During the month of October, the Environmental Resource Center recognized and promoted Children's Health Month. The ERC partnered with the Mississippi Children's Museum and Mississippi Public Broadcasting to disseminate information to assist parents and other children's organizations in providing a healthier environment for the children of the state.

Solid Waste and Recycling Education and Outreach Programs

An important part of work of the Solid Waste and Recycling programs are the outreach efforts provided to the public and to stakeholders on proper solid waste management and recycling and waste reduction. These outreach efforts are conducted by MDEQ through partnerships with various organizations in the state and region on a variety of solid waste management and recycling issues.

Throughout the year, MDEQ's solid waste programs helped to organize and host conferences, workshops and meetings for the various counties and cities, the Mississippi Recycling Coalition, the Mississippi Chapter of the Solid Waste Association of North America. In addition, the Solid Waste programs participated in conferences, conventions and training sessions of various organizations including the Mississippi Municipal League, the Southeast Recycling Development Council, the Mississippi Manufacturers' Association, Keep Mississippi Beautiful, and various other state and local organizations and agencies.

Geology Outreach and Education

- **The Fossil Road Show, Mississippi Museum of Natural Science**

The Fossil Road Show was held on March 2, 2013, at the Mississippi Museum of Natural Science.

- **The Mississippi Gem and Mineral Society Annual Rock Show**

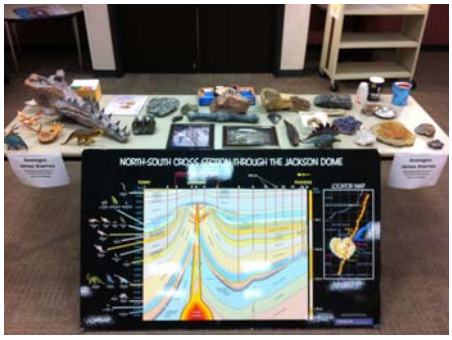
The Mississippi Gem and Mineral Society Annual Rock Show was held on February 23-24, 2013, at the Jackson Trade Mart. MDEQ's Office of Geology operated a booth showing the office's geologic work. Staff answered questions from the public.

- **The Jackson Public Library Summer Reading Program**

James Starnes gave a rock and fossil program for the Jackson Public Library Summer Reading Program at the Eudora Welty Library.

- **French Elementary School Career Day**

James Starnes presented geology as a career at the French Elementary School Career Day.



- **Dinosaurs and Fossils at Philadelphia Elementary School**

James Starnes gave a talk about dinosaurs and Mississippi fossils at Philadelphia Elementary School.

Interstate Technology and Regulatory Council
Willie McKercher of the Groundwater Assessment and Remediation Division (GARD) was selected by the Interstate Technology and Regulatory Council (ITRC) to receive their 2012 Outstanding Performance Award for his contributions to the organization while acting in his role as Mississippi Point of Contact in the ITRC State Engagement Program. McKercher was selected and recognized from the representatives of 48 of the 50 states and the District of Columbia for his contributions to the organization in 2012.

Can Exchange
Rodney Cuevas with MDEQ's Air Division participated in a gas can exchange on the Coast in May. About 100 residents brought old gas cans and exchanged them for new, less vapor emitting ones.

Mississippi Coastal Cleanup Day
MDEQ staff participated in the annual Mississippi Coastal Cleanup on October 19. This year 1,266 volunteers collected 934 bags of trash, including 119 bags of recyclables, and 75 tires along nearly 95 miles of waterways in Hancock, Harrison and Jackson counties. The cleanup is organized by the Mississippi Department of Marine Resources and the Mississippi Marine Debris Task Force.

EPA Designates Center of Excellence for Watershed Management at Mississippi State University

Mississippi State University was designated a Center of Excellence for Watershed Management, becoming the tenth such institution in the Southeast. Representatives from the U.S. Environmental Protection Agency Region 4, the Mississippi Department of Environmental Quality (MDEQ) and Mississippi State University signed a Memorandum of Understanding on April 9 to help communities identify watershed based problems and develop and implement locally sustainable solutions.

Trudy Fisher, MDEQ, Gwen Keyes Fleming, EPA, and David Shaw, MSU at the MOU ceremony in Atlanta.

Practical Energy Savings Workshop for Manufacturers

The MDEQ Pollution Prevention Program sponsored an energy workshop for manufacturers in northeast Mississippi during the month of October. MDEQ partnered with the Franklin Furniture Institute at Mississippi State, Itawamba Community College, and Innovate Mississippi Manufacturing Extension Partnership to present energy and environmental improvement opportunities to area manufacturers.

Baker Elected to International Post

MDEQ's Dallas Baker has been elected President of the Air & Waste Management Association, which has thousands of members in over 65 countries and recently marked its 106th year as a premier international environmental organization. He will serve as President-Elect in 2014, President in 2015, and Immediate Past President in 2016.