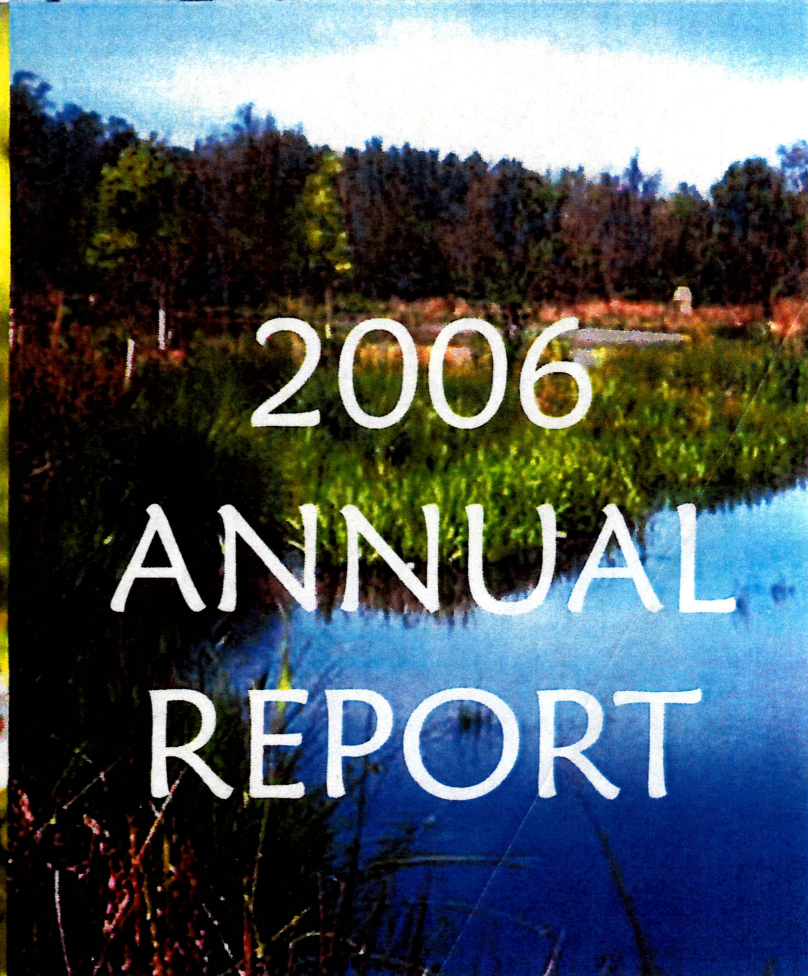
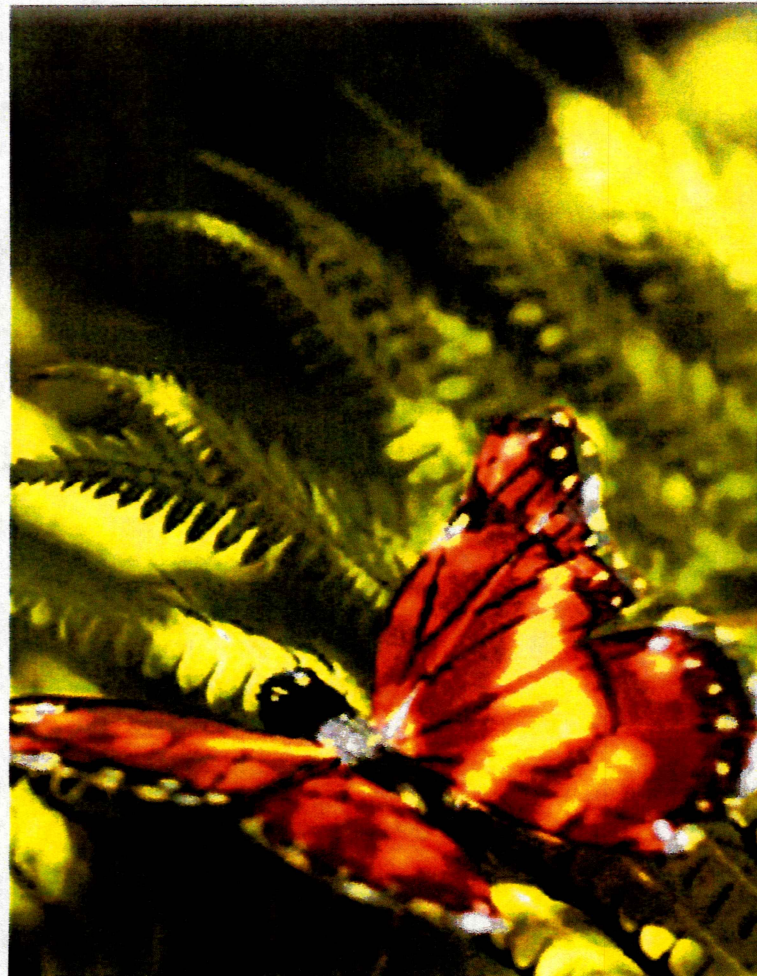




Mississippi
Department of
Environmental
Quality



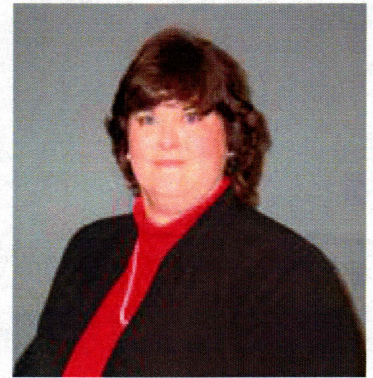
2006
ANNUAL
REPORT

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January 31, 2007

The Honorable Haley Barbour
Governor, State of Mississippi
Post Office Box 139
Jackson, Mississippi 39205



Trudy Fisher
Executive Director

Dear Governor Barbour:

I am pleased to enclose the Mississippi Department of Environmental Quality's report for the state fiscal year ending June 30, 2006, together with additional information for calendar year 2006. We continue to strive to safeguard the health, safety and welfare of all Mississippians by conserving and improving our environment and fostering wise economic growth, through focused research and responsible regulation.

In 2006, Executive Director Charles Chisolm announced his retirement. He has been rightly praised for his years of dedicated, effective service to this agency and the State of Mississippi. I am excited about the opportunity to serve as Executive Director and look forward to working with you, the members of the Legislature, and other officials.

I hope you find this report useful and informative. We appreciate your support and welcome your suggestions and comments.

Sincerely,

A handwritten signature in black ink that reads "Trudy D. Fisher". The signature is fluid and cursive, with the first name "Trudy" being the most prominent.

Trudy D. Fisher
Executive Director
Mississippi Department of Environmental Quality

Cc: Members of the Mississippi Legislature

Mississippi Commission on Environmental Quality

Chairman: W. J. (Billy) Van Devender - At Large

Vice Chairman: R. B. (Dick) Flowers - 1st District

Martha Dalrymple - 2nd District

Charles Dunagin - 4th District

Howard McKissack - 5th District

Chat Phillips - At Large

Jack Winstead - 3rd District



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.

Mississippi Gulf Region Water and Wastewater Plan

The *Mississippi Gulf Region Water and Wastewater Plan* represents a collaborative effort between Mississippi's public and private sectors to respond in an extraordinary way to the devastation of Hurricane Katrina.



Local municipal and county leadership, state agencies, and the executive and legislative branches of Mississippi government responded to Katrina's immediate effects both on the local and national level. Two important elements of that response on the home front were the formation of the Governor's Commission on Recovery, Rebuilding and Renewal and the passage in the Mississippi Legislature of Senate Bill (SB) 2943 (dated April 8, 2006, Miss. Code Ann. Sections 49-17-70, et seq.). This bill, as a direct outcome of the Commission's recommendations, provided the necessary means for creation of county-wide utility authorities in the six lower counties, with the intention that these authorities would oversee and manage the development of water, wastewater, and stormwater infrastructure within their jurisdictions. On the national front, Mississippi's leaders worked with the State's Congressional delegation to obtain appropriations of over \$5.0 billion in long-term recovery assistance, through the U.S. Department of Housing and Urban Development.

Combining these efforts that came forth on the local and national levels, Governor Barbour directed that \$630 million in disaster recovery funds be designated for funding water, wastewater, and stormwater infrastructure improvements in the Mississippi Gulf Region, which includes Pearl River, Stone, Jackson, Harrison and Hancock Counties. In order to provide a deliberative and systematic means of allocating the funding, which was designated in the form of Community Development Block Grant (CDBG) Disaster Recovery grants, the Governor directed that a plan be prepared to identify and prioritize the most critical water, wastewater, and stormwater infrastructure needs within the Gulf Region. The *Mississippi Gulf Region Water and Wastewater Plan* is the outcome of that directive.

The objective of the Plan is to identify the most critical water, wastewater, and stormwater infrastructure needs within the Gulf Region and to prioritize those needs within the framework of an implementation plan for allocation of the funds designated by Governor Barbour. The improvements are intended to support existing and future growth patterns, particularly as realized through new housing construction, and to promote economic development.

The *Mississippi Gulf Region Water and Wastewater Plan* is comprehensive and ambitious; yet, it is responsive to both near-term and long-term needs of a historic magnitude. The program of infrastructure improvements recommended in the Plan will provide the framework for the critical but certain rebuilding of residential, commercial, and industrial complexes throughout the Gulf Region and will support long-term growth and economic development.

More information and copies of the plan in its entirety can be viewed at: <http://www.msgulfregionplan.org>.

Hurricane Katrina One Year Report

MDEQ Response

In addition to the work of MDEQ's Emergency Services Division which was on site immediately after the storm, MDEQ reassigned engineers and geologists from its Jackson office and maintained their presence (in RV's) until July 2006 to assist local governments with debris removal, hazardous materials issues/removal and oversee/regulate disposal site operations.

MDEQ's Emergency Services Branch expended, from its emergency fund approximately \$180,000 on Katrina response. This included response to spills of hazardous chemicals, fuels and oils as well as pumps to support waste water treatment in the coastal counties.

In addition, MDEQ manned a call-in center at the Mississippi Emergency Management Agency offices for several weeks after the storm and set up a centralized "ready room" at the MDEQ offices that operated through mid-December of 2005. The "ready room" was primarily developed to deal with the ongoing debris clean up effort that Mississippi faced.

MDEQ, in coordination with the Governor Barbour's office also issued an Emergency order on September 13th, 2005 that addressed how the agency would manage a variety of environmental issues caused by Katrina.

Permitting

MDEQ's Environmental Permit Division (EPD) is working closely with housing developers in the lower six counties to insure that their plans are being coordinated with newly formed utility authorities. We want to insure that their plans consider all the wastewater treatment and disposal options that are available. EPD is also striving to insure that developers consider options that would allow the possibility of connecting wastewater to either existing regional wastewater infrastructure or connecting at a later date to future regionalized wastewater infrastructure. EPD is providing immediate attention to any such project. MDEQ also expedited and permitted wet yards for downed timber.

Wastewater

Immediately after Hurricane Katrina, all 20 municipal wastewater treatment facilities were inoperable in the six coastal counties. Facility management and personnel with the assistance of MDEQ, EPA, and the Corps. of Engineers had all but 2 facilities operational by September 12, 2005. All of the treatment facilities were operational by October 31, 2005.

Today, a few of the wastewater treatment facilities that took the brunt of the storm still have some of their systems operating using temporary measures. However, permanent repairs are underway.

The collection systems are, for the most part, operational. Some areas of the collection systems along the immediate coastline in Long Beach, Pass Christian, Bay St. Louis and Waveland will have to be reconstructed. It should be noted that few residents have returned to these areas and temporary facilities are in place to serve them.

Debris Cleanup

According to the Federal Emergency Management Agency, Katrina generated an unprecedented 44,354,314 cubic yards of storm debris across the state of Mississippi. As of July 6th, only 1,021,737 cubic yards of debris remained to be collected. In the six coastal counties, some 26,479,998 cubic yards of debris had been collected as of July 6th with an estimated 829,493 cubic yards of wastes remaining. In response to the

tremendous amount of solid wastes MDEQ issued emergency debris management policies for building and structural debris and for vegetative debris within a few days of the storm. Through these emergency debris policies, MDEQ issued emergency authorization for more than 300 debris management sites. These debris management sites included emergency disposal sites, mulching sites, staging and separation sites, and controlled burning sites for vegetative debris. MDEQ has been visiting and inspecting these sites on an ongoing basis. Emergency disposal sites in the coastal counties in particular have been visited almost daily by MDEQ staff over the past months to ensure that the sites are maintained and managed in a manner that is environmentally safe.

In addition, MDEQ has issued emergency debris policies on metals staging and recycling, mulch management, ash management, asbestos management and disposal, concrete crushing operations and a closure policy for emergency landfill sites. In addition, MDEQ worked with EPA and the State Forestry Commission in early December of 2005 to host a forum on the management of the tremendous amounts of timber and other vegetative debris down throughout the state. Where possible MDEQ has encouraged the recycling or reuse of wastes collected from the storm clean up. We have seen some successes in white goods and automobile metals recycling, mulched vegetative debris recycling, concrete recycling, vegetative debris ash re-use, waste tire recycling, and some limited amounts of building debris recycling and electronics wastes recycling. In the coming months, MDEQ will continue to work with local governments impacted by the storm to address ongoing storm debris needs. One such effort includes the development of a "Solid Waste Master Plan" to address the waste disposal capacity needs and long term waste management needs on the Gulf Coast. In addition, MDEQ will continue to work with the local governments on vegetative disposal needs, white goods, household hazardous wastes, electronics wastes and other waste problems that have been created or magnified by Katrina.

Environmental Monitoring

MDEQ Field Services Division, with tremendous support from its state and federal partners, coordinated an aggressive monitoring effort to evaluate the storm's impacts on human health and the environment.

Bacterial Monitoring

Following Hurricane Katrina, there was concern about the bacteria concentrations in coastal waters since many wastewater plants were damaged or without power. The MDEQ partnered with the United States Geological Survey (USGS) and the Gulf Coast Research Laboratory (GCRL) to conduct bacterial sampling in the bays, bayous and beaches along the Gulf Coast. Beginning September 19, 2005 these agencies collected and analyzed weekly samples for microorganisms of public health significance (*Enterococcus*) at approximately 45 sites in coastal tributaries and 15 municipal water treatment facilities. Sampling of these waters was concluded in June 2006 as the water quality conditions stabilized. The results indicated localized, episodic spikes in bacteria concentrations. Fortunately, widespread severe contamination was not found. The results were used to help identify problems with wastewater infrastructure as part of the ongoing effort to improve water quality on the coast.

Bay and Estuary Monitoring

The USEPA Region 4 Science and Ecosystem Support Division (SESD) in Athens, GA, with sampling and logistical support from MDEQ, sampled water and sediment at 30 sites in the Mississippi Bays and Estuaries. These samples were analyzed for a broad range of chemical contaminants, including dioxin. They also analyzed samples for *Enterococcus* bacteria. The results indicated generally good water quality, with few violations of state Water Quality Standards. Two sites, the Escatawpa River near Moss Point and Bay St. Louis near Bayou LaCroix had depressed oxygen concentrations. Two sites, Back Bay Biloxi and Bayou Casotte, had elevated nutrient concentrations. The bacteria concentrations in the open waters of the bays and rivers were very low. The full report is available at <http://www.epa.gov/region4/sesd/>.

Mississippi Sound Monitoring

The MDEQ assisted the USEPA Office of Research and Development (ORD) out of their Gulf Breeze, Florida Laboratory in sampling 30 randomly selected sites in Mississippi Sound from Lake Borgne to Dauphin Island (Figure). These sites were sampled for an array of environmental indicators including water and sediment for toxics and benthic community analysis. This data will be compared to existing data from the National Coastal Assessment Program to evaluate the long term ecological impacts of the storm.

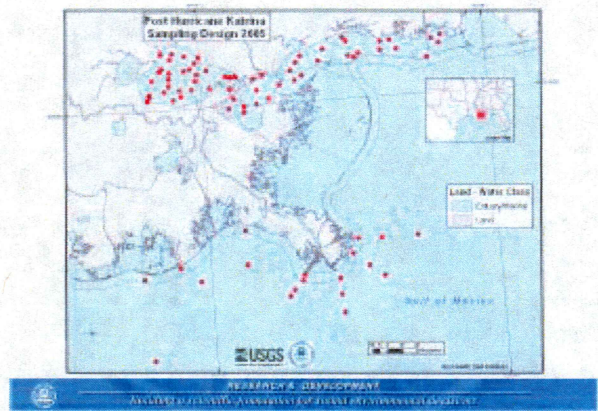


Figure USEPA Office of Research and Development Sampling Sites in Mississippi and Louisiana Waters

Soil and Sediment Sampling

The USEPA Region 4 SEDS, in conjunction with MDEQ staff, selected eight facilities along the coast for sampling soils and sediments. The purpose of the sampling was to monitor for contaminants that may have been released as a result of the storm. The eight sites selected were:

- DuPont at Delisle
- MS Phosphates at Pascagoula
- First Chemical at Pascagoula
- Chevron at Pascagoula
- Omega Protein at Moss Point
- Polychemie at Port Bienville
- Ershigs Fiberglass at Biloxi
- Naval Construction Battalion Center in Gulfport

The results of this sampling showed no contamination around these facilities attributable to Hurricane Katrina. The full report is available at <http://www.epa.gov/region4/sesd/>.

National Priority List Sites

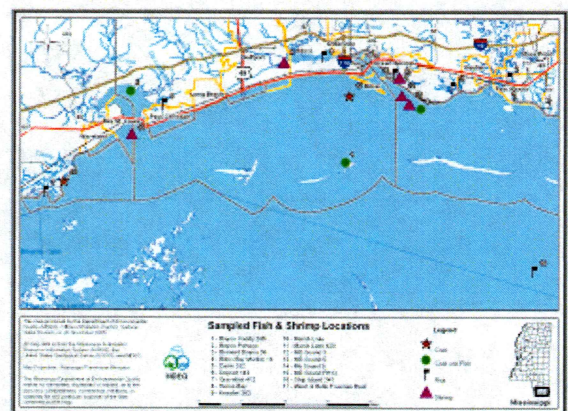
The USEPA Region 4 SEDS selected five facilities in Mississippi from the National Priority List that were in the hurricane's path. These sites were monitored to determine if there were any releases from these sites that would increase contamination in the vicinity of the sites. The facilities selected were:

- Chemfax at Gulfport
- Picayune Wood Treating at Picayune
- Davis Timber at Hattiesburg
- American Wood at Louisville
- Sonford Products at Flowood

This monitoring was conducted during the week of October 17, 2005 and included soil, sediment and groundwater. The results indicated that there had been no significant increase in contaminants at these sites as a result of the storm. The full report is available at <http://www.epa.gov/region4/sesd/>.

Tissue Monitoring for Fish, Shrimp and Crabs

One of the often asked questions following the storm was "Are the fish and seafood safe to eat?" Several agencies began to quickly gather data to address this issue. The National Oceanic Atmospheric Administration (NOAA), National Marine Fisheries Service vessels sampled fish



Fish Shrimp and Crab Sampling locations.

and shrimp off the coast of Louisiana and Mississippi during the week of September 12, 2005. FDA and EPA, along with agencies from Louisiana, Mississippi and Alabama cooperated to conduct a joint monitoring effort in the inshore coastal waters targeting important sport and food fish along with shrimp and blue crabs.

MDEQ, the Mississippi Department of Marine Resources and the Gulf Coast Research Laboratory collaborated to collect fish, shrimp and crabs at 18 sites along the Mississippi Coast (Figure X). FDA is analyzing these samples at their laboratories for pesticides, metals and PCBs. At the time of this writing, FDA has completed approximately 95% of the analyses, and they have analyzed several hundred tissue samples from Louisiana and Mississippi.

The results of the fish and seafood analyses conducted to date are very encouraging. NOAA's sampling shows no contamination from petrochemicals, flame retardants or metals in the shrimp and fish collected off the Louisiana and Mississippi coasts. FDA's data shows no levels of any contaminants in fish, shrimp or crabs that would warrant a consumption advisory.

Fish Kill Investigations

Following the landfall of Hurricane Katrina, the Pascagoula and Pearl River basins experienced massive fish kills involving millions of fish, as well as crayfish, freshwater mussels and blue crabs. As these mortalities were reported, MDEQ and The Mississippi Department of Wildlife, Fisheries and Parks (MDWFP), conducted investigations to determine the cause. In all cases, the water color had turned a dark black color, and measurements of dissolved oxygen concentrations showed that extremely low levels of oxygen were present. A limited amount of chemical sampling and analysis was conducted, and no toxins were noted in the water samples.



Based on these data and information gained during the investigation, the cause of the fish kill was determined to be low oxygen. The wind and rainfall from Hurricane Katrina had introduced a large amount of organic matter (mostly leaves, twigs and other plant material) into the water, and the decomposition of this material caused the oxygen depletion. Similar kills have been documented in Florida, South Carolina and Louisiana after other hurricanes.

Working with the MDWFP, MDEQ Field Services Division biologists have estimated the monetary value of the fish and other aquatic life affected by Hurricane Katrina to be \$20.3 million. The MDWFP has conducted population surveys of fishes in some of the rivers affected by Hurricane Katrina, comparing this information with past population surveys. The results confirmed a reduction in both the numbers of fish and in the number of species in these affected areas.

Similar to the events that unfolded after the landfall of Hurricane Katrina, Hurricane Rita caused extensive fish kills in the Mississippi Delta. Among the water bodies affected were the Sunflower River, Steele Bayou, Deer Creek and Black Bayou. All kinds of fish species were affected. As these mortalities were reported, MDEQ and the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) conducted investigations to determine the cause. Again, the water had turned a dark black color, and measurements of dissolved oxygen concentrations showed that extremely low levels of oxygen were present. Chemical

sampling and analysis was conducted on a sub-set of these incidents, and no toxins were noted in the water samples.

Similar to the response and follow-up investigations conducted for Hurricane Katrina, the MDEQ and the MDWFP investigated these incidents as they were reported, and the MDWFP has conducted additional population surveys of fishes in the affected streams and rivers. These results confirm that significant reductions in the fish population have occurred in the affected areas. MDEQ estimated the value of the fish killed in the Delta following Hurricane Rita at \$3.4 million.

Summary

Following Hurricane Katrina, state and federal agencies collaborated to conduct needed monitoring in the affected area. The result was an unprecedented amount of environmental monitoring in the Northern Gulf area. Data is still coming in, but the results to date indicate that despite the devastation, there seems to be very limited, chemical contamination. The primary impacts so far appear to be episodic bacterial contamination, physical damage to habitat such as oyster reefs, and fish kills in the rivers and lakes due to low oxygen. The oxygen depletion was caused by the decaying vegetation and other storm debris that was washed into the streams. The estimated value of the fish killed following Hurricane's Katrina and Rita is \$23.7 million.

Air Quality

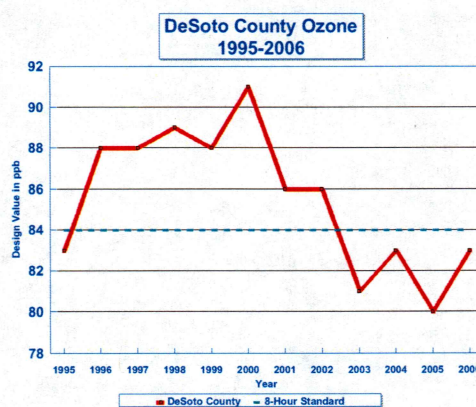
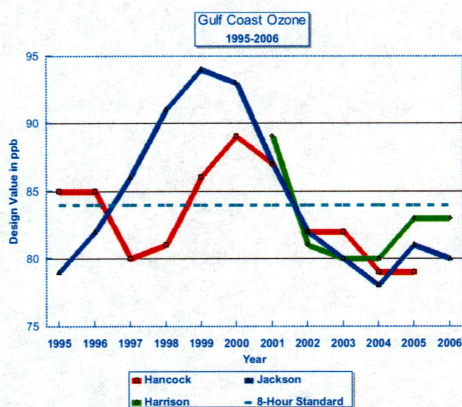
Ozone Attainment/Non-Attainment and Air Quality Planning

Mississippi, blessed with an abundant supply of clean air, has historically attained all federal ambient air quality standards. However, new, more stringent federal standards for ground-level ozone, fine particulate matter, 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.

Five years ago ambient air quality for ground-level ozone exceeded the new standards in as many as six counties statewide (Hancock, Harrison, Jackson, Adams, Lee, and DeSoto). However, emissions reductions in Mississippi and adjoining states, as well as favorable meteorological conditions, have resulted in a recent downward trend culminating with all Mississippi counties being designated by the EPA as in attainment with the ozone standards in 2004.

Although the coast counties were designated attainment for ground-level ozone by the EPA in 2004, the coast counties are showing data very close to the ozone standard. MDEQ continued a voluntary ozone precursor air pollution control

Ozone is Usually Formed Downwind of Emission Sources

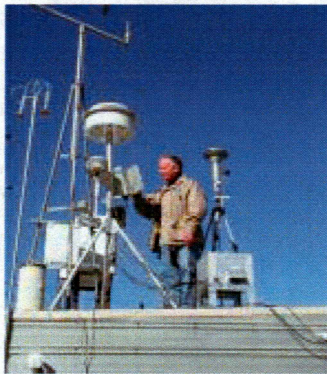


program in partnership with governmental and business leaders on the Coast in efforts to prevent future non-attainment.

DeSoto County is also showing data close to the ozone standard. Therefore, MDEQ initiated a voluntary ozone precursor air pollution control program in partnership with governmental and business leaders in DeSoto County in an effort to prevent future non-attainment.

All Mississippi counties were designated attainment for fine particulate matter by the EPA in 2005. Mississippi is one of only three states (Florida and Vermont) east of the Mississippi River that is in attainment with all of the EPA ambient air quality standards.

Air Monitoring



Ambient Air Quality Monitoring Site

During FY2006, MDEQ operated a network of sophisticated continuous air analyzers and 24-hour samplers for the purpose of measuring ambient air levels of ozone, particulate matter, sulfur dioxide, nitrogen oxides, and hazardous air pollutants.

This monitoring network serves many purposes including:

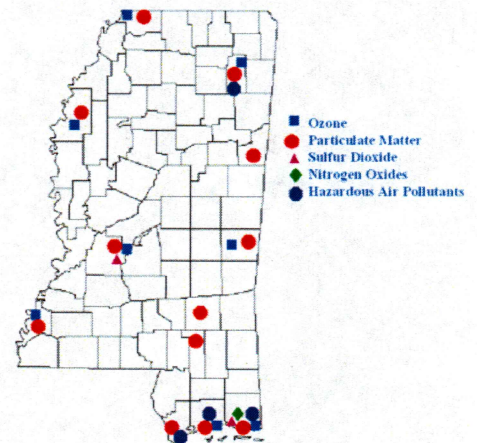
- Determines attainment and non-attainment areas for ground-level ozone and particulate matter.
- Generates data to assist in determining methods to reduce visibility obscuration.
- Supports ozone reduction programs and hazardous air pollutant programs.
- Determines general air quality trends.

Asbestos and Hazardous Air Pollutants

Asbestos is present in many building products and materials and becomes a health risk when activities disturbing it create dust or air emissions. MDEQ is therefore vigilant in its implementation of regulations that apply to building demolition and renovation operations.

Prior to the commencement of regulated building demolition or renovation operations the presence of asbestos must be determined and there are requirements for notifications to MDEQ. When asbestos materials are present, the regulations require setting procedures and work practice standards for asbestos emission control, including removal. There are also specific requirements applicable to waste disposal of debris containing asbestos. Additionally, to help assure appropriate actions for safe and regulation compliant activities, individuals who perform asbestos abatement must have specialized training and MDEQ certification.

2006 Mississippi Ambient Air Quality Monitoring Sites



MDEQ Regulates Asbestos

- Abatement
- Removal
- Disposal

During FY 2006, MDEQ inspected 221 of 632 regulated demolition and renovation operations. MDEQ also received and investigated 38 complaints questioning whether or not building demolition and renovation activities were safe and compliant with regulations. MDEQ reviewed the training credentials and other qualifications, and issued 1884 certificates to asbestos abatement certification applicants.

Hazardous Air Pollutants (HAPs) include a number of chemicals and compounds that may cause acute and chronic health from inhalation as well as increased risk of cancer, as with asbestos. MDEQ works to reduce the emission of HAPs by the implementation of regulations that require the use of the highest degree of proven technology for emission control. These regulations are known as maximum available control technology (MACT) standards. The standards affect very large industrial facilities with boilers and chemical processes as well as smaller facilities and single pieces of equipment such as clothes dryers at dry-cleaning stores. MDEQ's activities include informing facilities of the regulations affecting them, providing technical assistance and tools for compliance with the requirements of the regulations, and the performance of compliance monitoring inspections and evaluations.

MDEQ also implements regulations pursuant to the Chemical Accident Prevention Provisions of 40 CFR Part 68. The regulations affect substances that the rule lists that may pose a significant public risk should there be a chemical accident or release. Any stationary source that has a regulated substance in a process in excess of a threshold quantity or amount is subject to requirements for a risk management program and must prepare and submit a Risk Management Plan (RMP). The RMPs are reviewed by MDEQ and facility inspections are performed to verify that prevention measures are in place and to evaluate the facility's preparedness to address a chemical accident should one occur.

The regulated population of facilities affected by HAP regulations in 2006 was 341 facilities. Also, there were 169 RMP facilities regulated for chemical accident prevention and 24 facility inspections were performed.

Lead-Based Paint Program

Lead-Based Paint Program's scope establishes procedures and requirements for the accreditation of lead-based paint activities training programs, procedures and requirements for certification of inspectors, risk assessors, project designers, supervisors, workers and firms engaged in lead-based paint activities and work practice standards for performing such activities. These regulations are applicable to all persons engaged in lead-based paint activities in target housing and child-occupied facilities.

The problem with Lead-Based Paint:

Lead is a heavy metal which is believed to have been a serious public health problem for centuries. This problem is especially serious for the children that are six years of age and under. This problem is also serious for the developing fetus.

- Lead from paint, dust and soil can be dangerous if not managed properly.
- Even children that seem healthy can have high levels of lead in their bodies.
- People can get lead in their bodies by breathing or swallowing lead dust, or by eating soil or paint chips with lead in them.



Lead-based paint inspection and removal.

General Requirements:

Lead-Based Paint Regulations **do not:**

- Require the performance of lead-based paint activities.
- Require mandatory abatement of lead-based paint.

Lead-Based Paint Regulations **do:**

Establish requirements and procedures to follow when lead-based activities are performed. Persons who perform lead-based paint activities within target housing where they reside may be exempt from the regulations.

Certification:

- No person may engage in lead-base activities unless they hold a valid certificate from the Commission on Environmental Quality. No firm shall employ any person on lead-based paint activity who does not possess a current certificate issued by the Commission.

During FY 2006 MDEQ Lead-Based Paint Section performed 22 inspections and certified 138 individuals and firms involved in lead-based paint activities.

Water Quality

Water Quality Standards

During 2006, MDEQ provided public notice on proposed changes to the state's water quality standards as part of the triennial review. It is expected that a decision on the proposed changes will be made in the first quarter of 2007. Some of the proposed changes include the change in classification of several streams, the removal of the dissolved oxygen variance in the Tallahala Creek in Laurel, and a site-specific dissolved oxygen criterion for the Escatawpa River.

During 2006, MDEQ continued monitoring efforts to gather information to be used in the development of nutrient criteria. Monitoring has been completed in selected lakes and reservoirs, rivers and wadeable streams, and coastal and estuarine water bodies. This data is now being evaluated. Further monitoring efforts will continue in the Yazoo River Basin in 2007 to gather additional data for nutrient criteria development. In addition to these efforts, MDEQ will continue to perform data analysis to evaluate levels of nutrient enrichment in Mississippi waters and work to determine causes, effects, and extent of water quality impairment from levels of nutrient enrichment.

Total Maximum Daily Loads

Total Maximum Daily Loads (TMDLs) are a requirement of the Federal Clean Water Act passed in the early 1970's to provide direction for restoring the nation's waters. TMDL reports provide an analysis of the ability of a water body to assimilate pollutants from point sources, such as industry and communities, and nonpoint sources, such as storm water runoff from urban areas or agriculture.

The Clean Water Act requires TMDLs for every impaired water body in the state. Every two years MDEQ creates a list of these impaired waters called the Section 303(d) List of Impaired Waters. EPA approved MDEQ's 2004 Section 303(d) List in May, 2005. The 2006 list was submitted to EPA for approval in July, 2006.

A federal consent decree requires EPA to complete the 2,700 TMDLs shown on the 1996 Section 303(d) Impaired Waters List by 2009. MDEQ is taking the lead in addressing these TMDL requirements. MDEQ

has sampled the biological community in over 1,000 streams since 2001 to provide an indicator of long term water body health. By utilizing the biological sampling effort and completion of TMDL reports (151 in FY 2006, 703 in total), MDEQ has addressed approximately 2,200 of the TMDLs on the 1996 list. Less than 500 TMDLs are remaining from the consent decree.

MDEQ continues identifying the stressors associated with the biological monitoring effort prior to completing the TMDLs. MDEQ completed 54 stressor identification reports in the Big Black and Tombigbee River Basins in 2006.

MDEQ has completed the consent decree requirements in the Pascagoula River Basin, the North Independent Streams Basin, and the Tennessee River Basin. Work was interrupted on the development of TMDLs in the Coastal Streams Basin last year as a result of Hurricane Katrina. However, the plaintiff agreed to allow the remaining coastal TMDLs an extra year for development to ensure adequate public involvement in the TMDL process. In addition, MDEQ worked on TMDLs in the Big Black and Tombigbee River Basins in 2006.

Wetlands

The goal at MDEQ is to prevent a new loss of wetlands in Mississippi. To meet this goal, MDEQ reviews projects that would impact wetlands or streams to insure that efforts have been made to avoid or minimize impacts. Mitigation of unavoidable impacts may be required in this process.

During FY 2006, MDEQ reviewed 128 applications for Water Quality Certification. This is up from approximately 100 applications reviewed in FY 2005. The number of projects would likely have been larger had it not been for Hurricane Katrina. It is important to note that each year a large number of projects are covered under Nationwide or General Permits and do not require an individual certification. Also, certifications were waived for certain emergency activities immediately following the hurricane.

In order to facilitate the permitting process, MDEQ strongly recommends pre-application meetings, particularly for large or complex projects.

Storm Water Regulations

Implementation of Mississippi's Storm Water General Permits and regulations continues in FY 2006.

The Environmental Permits Division issued coverage for 528 large construction projects (5 acres or greater) and 118 regulated industrial facilities. Small construction projects (1 acre to less than 5 acres) continued in FY 2006.

The basic Small Construction General Permit requirements are:

- Complete the Small Construction Notice of Intent (SCNOI) application form and keep the form on the project site or locally available.
- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP).
- Inspect the site weekly and after rainfall events of a half-inch or more to make sure the sediment and erosion controls are still working. This information must be recorded and kept with the SCNOI.

The Storm Water Management Plan for Mississippi's 37 MS4s (consisting of 24 cities, nine counties, two military bases, one university and the MDOT) continues into the fourth year of a five year implementation schedule.

The Hydrostatic Test General Permit which has a storm water construction component was reissued for a second 5 year period and approximately 20 facilities were recovered under the reissued permit.

MDEQ announced that it will follow the federal storm water regulations as they apply to oil and gas-related construction activities. Construction activities associated with oil and gas exploration, production, processing and treatment, and transmission facilities that are defined in the following North American Industrial Classification System (NAICS) codes and titles: 211-Oil and Gas Extraction, 213111-Drilling Oil and Gas Wells, 213112-Support Activities for Oil and Gas Operations, 48611-Pipeline Transportation of Crude Oil and 48621-Pipeline Transportation of Natural Gas, are generally exempt from State NPDES construction requirements. However, MDEQ strongly encourages voluntary application of construction best management practices in order to minimize the discharge of pollutants in storm water runoff.

The Wet Deck Log Spray with Recirculation General Permit was issued on January 3, 2006 with a storm water component. Approximately 19 facilities were issued coverage in 2006.

The Mining Storm Water General Permit began the reissuance process in 2006.

Approximately 125 letters were sent to industrial facilities in Mississippi as a reminder to submit a new certification of “no exposure” of industrial activities to storm water as required by regulations.

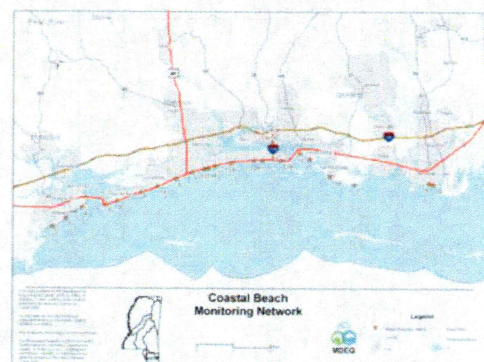
Coastal Beach Monitoring Network

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 just one partner within a multi-agency Beach Monitoring Task Force composed of the USEPA Gulf of Mexico Program, Mississippi Department of Marine Resources, GCRL, and the Mississippi Department of Health. This Beach Monitoring Task Force oversees the program and issues beach advisories when needed.

Table 1: MDEQ Beach Monitoring Parameters

Water Quality Indicators	
Water Profiles	Water Samples
Temperature	<i>Enterococcus</i> sp. counts (MF)
Salinity	Stage of river nearest station
Dissolved Oxygen	Rainfall and /or cloud cover
pH	Tidal Stage
Turbidity	Conventional WQ Parameters

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* sp. 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 (<http://www.deq.state.ms.us>). This website contains beach advisory status, location of monitored sites, data associated with those monitored locations, and a history of beach advisories.



There are sixteen core stations that are sampled approximately ten times a month during the recreational season. Non-core stations are sampled weekly during the recreational season (May – October). Any station is re-sampled if *Enterococcus* sp. bacteria levels exceed 104 colonies/100ml. For a complete list of parameters monitored as part of this program.

Development of Mississippi's Benthic Index of Stream Quality (M-BISQ)

In 2000, MDEQ began to develop a biological assessment tool for wadeable streams and rivers in Mississippi. A statewide biological monitoring project was implemented with two main objectives: to obtain monitoring data from §303(d) listed wadeable streams and rivers and to assess these data using an Index of Biological Integrity (IBI).

With input from state and federal biological experts, MDEQ redesigned its biological monitoring program, incorporating the IBI to produce high quality, scientifically defensible data. This new monitoring program included the adoption of new biological field and laboratory methods, and a new index period (December - February) was selected for benthic sampling. Rigorous QA/QC protocols were also employed including development of a comprehensive Quality Assurance Project Plan (QAPP) with detailed standard operating procedures, revisions to data entry and biological database management procedures, and documentation of data quality characteristics throughout the entire data collection and assessment process.



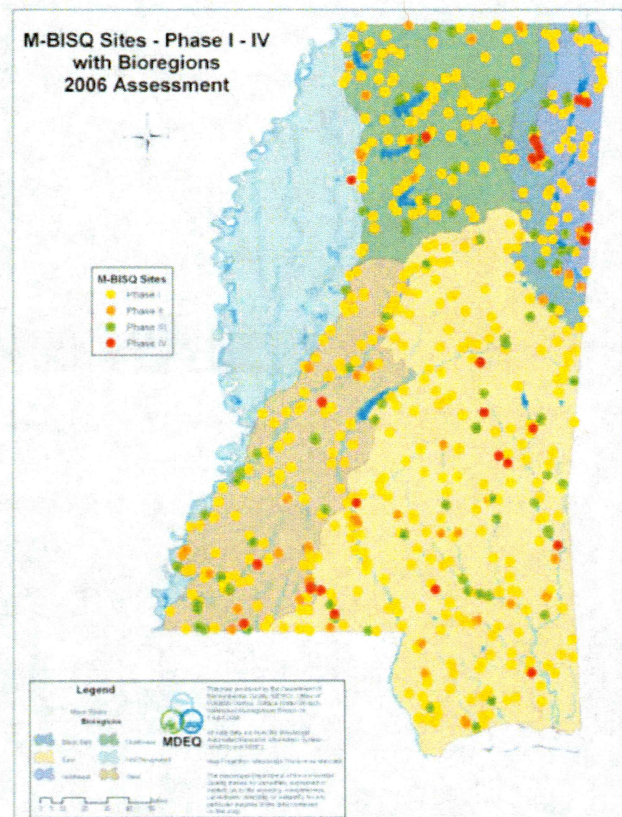
Phase I of the monitoring project, initiated in the winter of 2001, involved a one-time sampling by MDEQ with contractor support of over 475 streams statewide, with the exception of streams in the Mississippi Alluvial Plains Ecoregion (Mississippi Delta region). Analysis of Phase I data was completed in 2002.



As a result of this sampling effort, biological reference conditions were defined for five "bioregions" in the state and summarized in the form of an IBI using a suite of metrics found to discriminate between sites of different ecological integrity. The resulting regionally-calibrated IBI is known as the Mississippi Benthic Index of Stream Quality (M-BISQ). The design of the M-BISQ provides the state with a sound scientific methodology for accurately assessing the overall ecological condition of wadeable

streams. A detailed discussion of the M-BISQ development effort is provided in the publication *Development and Application of the Mississippi Benthic Index of Stream Quality (M-BISQ)*, (MDEQ 2003a) which is available on the MDEQ web site (<http://www.deq.state.ms.us>).

Sampling has continued for this project to pick up a number of targeted §303(d) listed wadeable streams and rivers that were not sampled during Phase I of the §303d/IBI. In addition, new sites continue to be added for WLA investigations which have incorporated use of M-BISQ data. Phase II was initiated in January–February 2002 and data were collected at 70 sites. In Phase III, conducted in December 2002 - February 2003, data were collected at 116 sites. Phase IV, was conducted January–February 2004, and included 70 sites. Phase V was conducted January–February 2005



data were collected at 63 sites. Phase VI was conducted January-February 2006 and included 27 sites. Similar to the first year's collection effort, these sites are located statewide with the exception of the Mississippi Alluvial Plain, which is the focus of a separate monitoring effort. The locations of the 821 sites sampled in Phases I-VI are presented in M-BISQ Site Map. Data collections were conducted by MDEQ FSD for Phases II through VI, and the sub-sampling and taxonomic efforts were conducted by the laboratory, with the help of outside contractors. Data analyses for the 2002 data set were completed in 2003 using the newly developed M-BISQ. Phase III and IV data analysis was completed in January 2006. Phase V and VI data are still being analyzed.

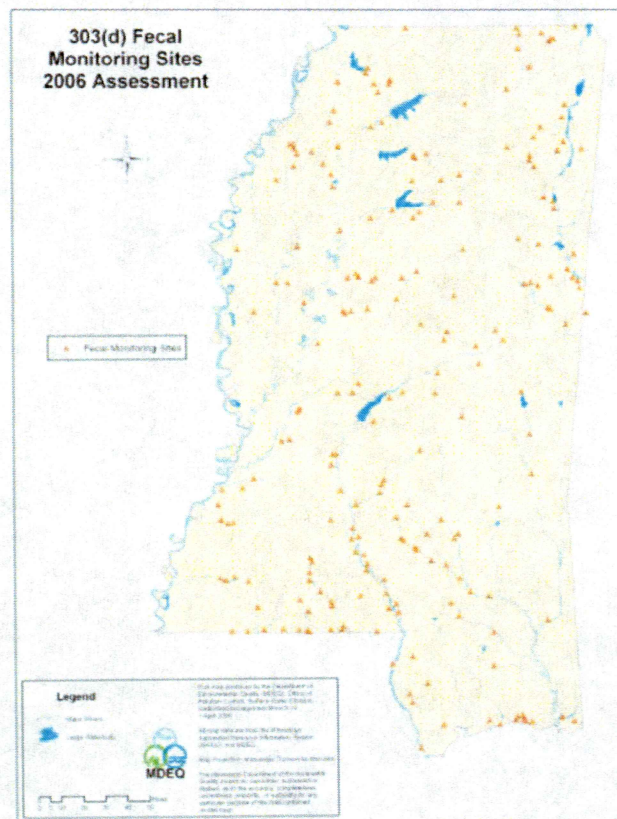
Results from the M-BISQ effort are being used to assess the status of §303(d) listed water bodies and to steer future biological monitoring and assessment activities for Wadeable Streams and Rivers. Much of the basis for the Mississippi 2006 §305(b) water quality assessment is from data collected and analyzed from Phases I through IV of the M-BISQ monitoring project.

Fecal Coliform §303(d) Monitoring and Assessment Project

Mississippi's 1998 §303(d) list identified numerous water bodies as being potentially impaired by pathogens based on evaluated assessments for which no actual monitoring data were collected. For each water body on the §303(d) list, evaluated or monitored, the state is required to develop a TMDL for those pollutants impairing any use of the water body. For the evaluated §303(d) water bodies, MDEQ is committed to determining whether these waters are actually impaired before resources are allocated to develop TMDLs. In addition, more data are needed for the monitored §303(d) water bodies to identify potential bacteria sources. Three projects were initiated in 2003, and continued through 2006, to collect the data needed to verify §303(d) pathogen listings and develop pathogen TMDLs in Mississippi.

Bacteria (fecal coliform) samples were collected at approximately 106 sites statewide. Specific water quality sampling methods, field data collection activities and laboratory analyses are described in the *Quality Assurance Project Plan (QAPP) for Water Quality Sampling and Analysis For Fecal Coliform at Targeted Pathogen TMDL Locations in the Coastal, Pascagoula, Pearl, Tombigbee, Big Black, Tennessee and Northern Independent Stream Basins* (MDEQ 2002a) and addendums. This QAPP was used to ensure that the data collected, compiled and/or generated for these projects were complete, accurate, and of the type, quantity, and quality required for its use.

Upon completion of each project, the data were assessed according to the MDEQ Consolidated Assessment and Listing Methodology (CALM). Water bodies assessed as impaired are reflected in the state's 2006 §303(d) list, and water bodies that were assessed as non-impaired will be submitted for de-listing. Additionally, development of TMDLs for impaired water bodies is ongoing.



Development of Index of Biological Integrity (IBI) for Large Rivers and Non-Wadeable Streams - Intensive Surveys and Special Project Monitoring

A pilot project was initiated to develop an assessment tool for monitoring the non-wadable streams and rivers of Mississippi. In 2005, three large river systems, the Big Black, Pascagoula and Tombigbee, were selected to be sampled. Forty sites, 10 in the Big Black, 20 in the Pascagoula, and 10 in the Tombigbee were scheduled to be sampled during the summer low flow index period of August and September. Teams documented stream characteristics during the field sampling effort and performed reach delineations, multi-probe deployments (dissolved oxygen, pH, temperature, specific conductance, total dissolved solids (calculated from specific conductance), turbidity, and total dissolved solids measurements), and visually conducted physical habitat assessments. They also determined substrate particle size distribution (sounding pole method), obtained global positioning system (GPS) coordinates, and acquired water surface elevation measurements for future use in calculation of flows; and site photographs. Additionally, biological and chemical samples were collected at each site.

Sample collection was completed for the Tombigbee and most of the Big Black River Basins before being interrupted by Hurricane Katrina. The study was repeated in 2006 and analyses are pending.

Nutrient Criteria Development – Rivers and Streams

The Streams and Rivers Subcommittee of the Nutrient Criteria Task Force (NCTF) was established in 2001. A major focus of nutrient criteria development for streams and rivers is placed on obtaining an understanding of the cause and effect relationship between nutrient and biological indicators, primarily benthic macroinvertebrates. The project is intended to benefit not only Mississippi, but also the National Nutrient Strategy by providing additional water quality data from Mississippi Level 3 Ecoregions. The subcommittee has identified and recommended correlating existing biological information from the MDEQ M-BISQ project with additional chemical and biological data collection efforts at sites throughout the state representing stressed and reference water quality conditions. Data gaps have been identified (i.e., limited nutrient data at most M-BISQ sites was based on only 1 sample collected during that project) and a monitoring strategy is being developed.



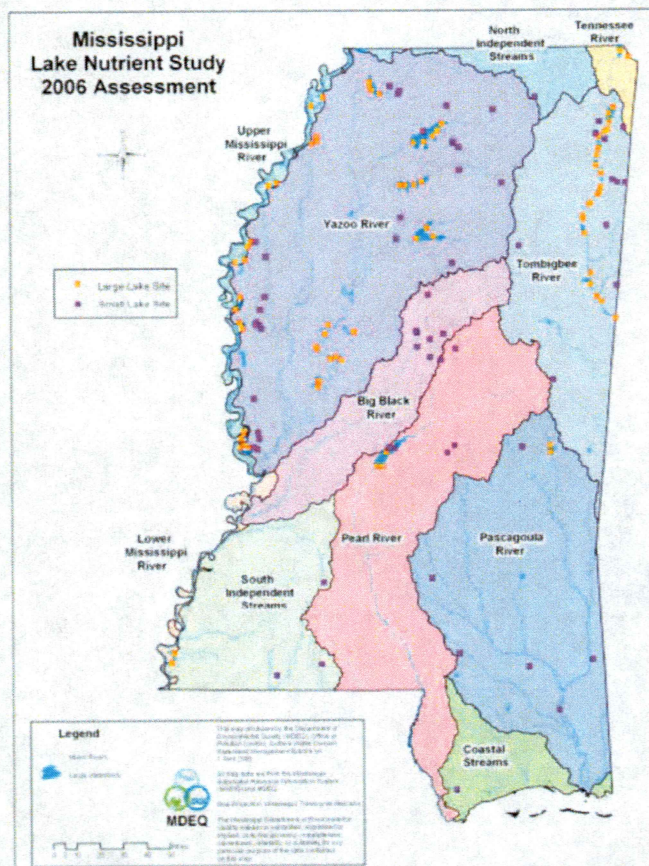
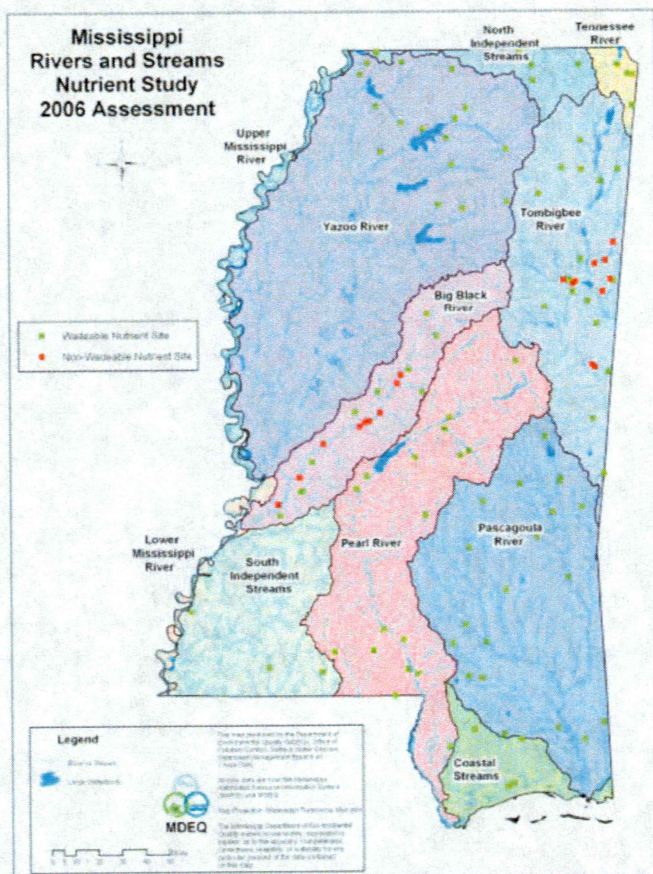
With a new deadline of 2008 for wadable streams and rivers nutrient criteria development, more time is available to allow further existing data review and planning for the formal monitoring strategy which will ultimately result in defensible nutrient criteria development. In the interim, with the limited nutrient data available for the many streams and rivers in the state, MDEQ and the subcommittee are moving ahead with an initial pilot monitoring effort to provide additional nutrient data and information for this project. A QAPP has been developed for this pilot project. Approximately 100 M-BISQ sites (50 stressed and 50 reference) were sampled statewide in the spring of 2004. Another round occurred in August and September (100 sites) of the same year that additionally included qualitative periphyton assessment (20 sites) and diel DO monitoring (10 sites). This sampling was repeated in its entirety in 2005. Analysis of nutrients and other water quality parameters such as DO, temperature, pH, specific conductance, turbidity, COD, TOC, suspended solids, chlorides, alkalinity, and hardness data is underway.

Nutrient Criteria Development – Lakes

The Lakes Subcommittee of the Nutrient Criteria Task Force, established in 2001, developed a monitoring plan for nutrient data collection in 2002. The purpose of monitoring Mississippi's lakes is to provide nutrient data adequate for developing nutrient water quality criteria by 2008. The subcommittee reviewed existing nutrient data to identify data gaps, and determined that gaps existed particularly during the growing seasons. The subcommittee recommended additional data collection and MDEQ took the lead in developing a data collection plan for subcommittee approval in order for the agency to proceed with lake nutrient criteria development. Following plan approval, a QAPP was developed and MDEQ began sampling in October 2002.

Sampling consisted of seasonal monitoring over two years at 50 lakes and reservoirs. In the first phase of this project, all publicly owned lakes of at least 500 acres in size were sampled, along with 10 managed lakes fertilized for fish production. These lakes were sampled six times per year: once in the fall (October-November) once in the spring (March-April) and four times during the summer growing season (June-September). Parameters monitored included chemical oxygen demand (COD), total organic carbon (TOC), total phosphorus, total nitrogen, suspended solids, alkalinity, chlorides, hardness, chlorophyll *a*, Secchi depth, turbidity, and typical water quality in-situ parameters such as dissolved oxygen (DO), temperature, pH, and specific conductance. In addition to seasonal sampling, more intensive inflow and outflow monitoring also occurred for selected lakes/reservoirs. Sampling for this project was completed for the >500 acre site class in fall of 2004.

The same monitoring of smaller lakes (100-500 acres) began in November 2004, and ran through the summer of 2005. Monitoring was suspended after one year due to resource constraints.



USEPA National Coastal Assessment Program

In 2000, MDEQ began participation in USEPA's National Coastal Assessment Program (NCA). The purpose of NCA, a component of the National USEPA Environmental Monitoring and Assessment Program (EMAP), is to provide a quantitative assessment of ecological condition on a regional scale for the nation's estuarine ecosystems. All 24 coastal states and Puerto Rico are partnering with USEPA in this effort. This program is a five-year study to monitor and assess the status and trends of estuarine and coastal resources in the United States. This monitoring took place over a five-year period (2000–2004) using an USEPA EMAP probability-based sampling approach. Annual sampling was conducted during a late summer index period (July–September) with all participants collecting a common suite of indicators using comparable methods. The NCA program is intended to develop and demonstrate the advantage of ecosystem level monitoring using multi-tier designs and multi-scale data that can be aggregated across tiers and resources. Assessments will be made at state, regional, bio-geographical and national levels to summarize the ecological health of coastal waters. This program provides an unbiased estimate of the condition of estuarine and coastal resources, a ranking of the relative importance of various stressors on these resources, and an opportunity to build partnerships among agencies for more effective monitoring and assessment in the future. Specific environmental problems targeted by NCA are: low dissolved oxygen concentrations, eutrophication, chemical and biological contamination, habitat modification, and cumulative impacts of stressors.



This 5-year effort for Mississippi's coastal waters is being coordinated by MDEQ. Field and lab assistance is being provided to MDEQ by the University of Southern Mississippi's Gulf Coast Research Laboratory (GCRL). A total of 30-50 randomly selected sites throughout Mississippi coastal waters were sampled each year during the summer index period. Sampling involves a full spectrum of physico-chemical parameters, water, sediment, fish, and benthic organisms for a full range of analyses (in-situ and laboratory) as well as for the structure of the biological community. Sample analyses through year 5 have been completed. After entry into the MDEQ database, data generated for this project are sent to USEPA's Gulf Ecology Division, in Gulf Breeze, Florida for data analysis.

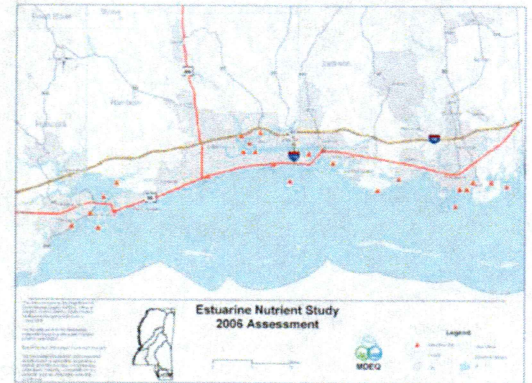
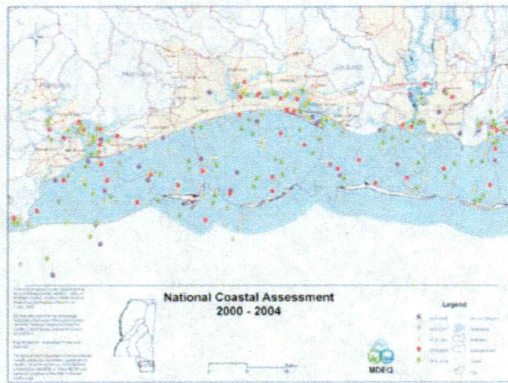
Nutrient Criteria Development – Estuaries and Coastal Waters

The Estuary and Coastal Waters Subcommittee of the Mississippi Nutrient Criteria Task Force began meeting in 2002, and like the other subcommittees, reviewed existing data and developed a data collection plan to fill data gaps. A major emphasis and recommendation from this subcommittee was to use comparable methods and data sharing with USEPA's NCA Program and the Coastal Beach Monitoring Program. MDEQ, in conjunction with USM GCRL, developed a QAPP that was approved by the subcommittee. The data collection plan identifies 28 sites (Figure 23) for quarterly monitoring in coastal bays, tidal rivers, and estuaries of Mississippi Sound. Monitoring, conducted by GCRL, began in the spring of 2003. Sampling and analysis was conducted for algal taxonomy, total nitrogen, total phosphorus, chlorophyll *a*, suspended solids, turbidity, and traditional water chemistry parameters such as DO, temperature, pH, specific

Table 2: List of Core Ecological Indicators Measured by NCA.

Water Quality Indicators		Sediment Quality	Biota		Habitat
Water Profile	Water Sample	Composited Surficial Sediments	Fish/Shellfish	Benthos	
Dissolved Oxygen (DO)	Total Nutrients	Sediment Contaminants	Community Structure	Community Structure	Submerged Aquatic Vegetation
pH	Dissolved Nutrients	Sediment Toxicity	Toxic Contaminants		Type (tidal, open water, harbor, etc.)
Salinity	Chlorophyll <i>a</i>	Percent Silt/Clay	Presence of External Pathology		Presence of Marine Debris
Temperature	TSS				
Depth					
Light Attenuation					
Tecchi Depth					

conductance, and salinity. A 24-hour diel study was conducted in the spring of 2004 under high flow conditions. A second 24 hour study was conducted under low flow conditions in November of 2005. Monitoring was completed in 2005.



Assessment and Study of Water Resources

While Mississippi is blessed with an abundant supply of surface water and groundwater resources, certain areas of the state have experienced changes in water-use trends that are often reflected by notable groundwater level declines. Such conditions are indications that the long-term viability of our valuable water supplies demands wise stewardship of the resources and development and implementation of long-range management strategies.

After completing a detailed investigation of the available water resources in Northeast Mississippi, MDEQ's Office of Land and Water Resources (OLWR) has focused its recent attention on four regions of the state recognized as areas of significant population growth, centers of notable groundwater pumpage, or areas without clearly defined hydrogeology. These designated study areas include the following: (1) the Memphis (Sparta) aquifer area including DeSoto and Marshall Counties as well as the counties southward along the Bluff Hills; (2) the Delta region; (3) the Jackson Metro area including the counties of Hinds, Madison, Rankin and Yazoo; and (4) the counties comprising roughly the southern one-third of the state that are underlain by the Miocene aquifer system.

Efforts continued this year as MDEQ's Office of Geology and OLWR coordinated activities to map the surficial geology of the state and construct corresponding geologic cross-sections of designated study areas. The objectives of this effort are to refine the delineation and mapping of available aquifers in the state and to identify and protect their corresponding recharge areas from contamination events. Providing safe reliable sources of groundwater is paramount to the maintenance of acceptable public health and to the pursuit of economic development.

Water Resource Issues in the Mississippi Delta

The economy of the Delta is dependent to a large extent on the availability of suitable water supplies for an estimated 16,000 large-capacity irrigation and aquaculture wells used throughout the region. Most of the water used for these beneficial purposes in the Delta is obtained from the shallow Mississippi River Valley alluvial aquifer (MRVA). With an average withdrawal of approximately 1.5 billion gallons of groundwater pumped per day, the pumpage demand has exceeded the recharge capabilities of the MRVA resulting in notable water-level declines in the aquifer. The impacts are more pronounced in the central portion of the Delta, but the trends indicate that a Delta-wide initiative to conserve water and to balance water use between surface water and groundwater is needed to reverse the trend. Progress continued to be made on the implementation of widespread water conservation efforts throughout the region, and the Yazoo-Mississippi Delta Joint Water Management District maintained a low-flow augmentation project on the Sunflower River.

Source Water Assessment/Protection Program

MDEQ sustained efforts to work with the public water systems operating in the state and the Mississippi State Department of Health to provide safe sources of drinking water. The first phase of this effort involves performing assessments of the relative susceptibility of public water systems to contamination and assisting in the proper siting of new wells. The final phase includes the development and implementation of Source Water Protection plans that are designed to enhance the protection of drinking water supplies by addressing potential contaminant sources in designated areas around public water supply wells and surface water intakes.

Agricultural Chemical Groundwater Monitoring Program

The Mississippi "AgChem" Monitoring Program is an on-going program initiated in March 1989, for the purpose of determining if the use of agricultural chemicals is adversely impacting groundwater quality in Mississippi. Sampling initially was conducted on shallow drinking water wells located in the areas of highest pesticide usage before expanding into other regions of the state. Later, program sampling was increased to include other types of wells such as high-capacity irrigation and fish culture wells in the Mississippi Delta.

Through December 31, 2006, a total of 1285 wells have been sampled in this program with all 82 counties of the state being represented. Of this total, 647 have been drinking water wells and 638 are high-capacity irrigation & fish culture wells located in the Delta. Based on results to date of these sampling activities, there is no evidence that agricultural chemicals are significantly impacting the quality of groundwater in Mississippi.

LAND PRESERVATION

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: (1) issuing surface mining permits and notices of exempt operations, (2) inspecting permitted areas and inspecting complaints, (3) overseeing the reclamation done by operators, and (4) 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.



During FY2006, some 924 inspections were performed, 41 permits were issued, and 78 Notices of Exempt Operations (operations less than 4 acres in size) were issued. A total of 1,325 exempts are on file, covering approximately 5,200 acres, and 864 acres were completely reclaimed as a result of the Mining and Reclamation Division's efforts to oversee reclamation. The state currently has 823 permits covering almost 29,000 acres.

The amendments to the Surface Mining and Reclamation Law passed by the Mississippi Legislature in 2002 have greatly improved mine regulation in the state. The requirement that mining cannot be started until a permit has been issued is an important tool for dealing with operations that are mining without a permit.

The Mississippi Lignite Mining Company is mining lignite at their Choctaw County mine to supply fuel for the mine-mouth power plant. The mine will produce approximately 3.5 million tons of lignite per year and will eventually cover some 16,000 acres. The power plant generates 440 mW of power. Mining and Reclamation Division staff are preparing for the possibility of an application for a second lignite mine; there has been some activity this year in the lignite belt in the east-central part of the state. Mississippi joined the ranks of the coal-producing states in 2002.

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 8-hour refresher training course be taught to all mine workers. In FY2006, division staff provided training to 408 miners and 112 contractors working in the mining industry.

Geological Data Collection Activities

The Department's geologic mapping program for FY2006 was funded in part by a federal STATEMAP (2005) grant of \$116,385 and an NCRDS grant of \$13,000. Deliverables for the STATEMAP grant included the McAdams, Kosciusko, Ethel South, Ethel SE, and Louisville SW quadrangles in parts of Winston, Choctaw, and Attala counties in north-central Mississippi, and the Cohay, Center Ridge, Mize, and Taylorsville quadrangles in parts of Smith, Covington, and Jones counties in south-central Mississippi. Work on the FY2006 mapping program was hampered by Hurricane Katrina and the departure of veteran field geologist David Thompson. Hurricane Katrina shut down the office, shut down electrical power, produced gas shortages, and filled available hotel rooms with people displaced by the storm, leaving no rooms available for geologists and drilling crew. Also, field geologist James Starnes joined others of the MDEQ staff in assisting the recovery effort immediately after the storm. Proposed work for the STATEMAP 2006 grant was scaled back from ten to six quadrangles to match the level of federal funding and available staff. The 2005 STATEMAP deliverables were published as 1:24,000-scale maps designated as Open-File Reports OF 204-212. Geologic units mapped in north-central Mississippi included the Tuscaloosa, Hatchetigbee, Tallahatta, Winona, and Kosciusko formations of Eocene age and Holocene alluvium. Geologic units mapped in south-central Mississippi included the Vicksburg Group of Early Oligocene age, the Catahoula and Hattiesburg formations of Miocene age, and Holocene alluvium.

Three test holes were drilled in FY2006, including the #1 Oil Field Road to a total depth of 450 feet, the #2 Smith County to a total depth of 370 feet, and the #3 Smith County to a total depth of 590 feet. Seven papers were published, including five articles in the *Mississippi Geological Society Bulletin*, one abstract in the *Journal of the Mississippi Academy of Sciences*, and one article on Mississippi opal in *The Opal Express*, a publication of the American Opal Society. Work is nearly finished on the "Geology of Mississippi," a volume of about half a million words and hundreds of illustrations. Publication plans for this volume include an unabridged version on DVD and an abridged version in print.

Geologic quadrangles to be mapped in FY2007 include the Murdock Lake and Peachahala Creek 7.5-minute quadrangles in Carroll and Holmes counties in north-central Mississippi and the Grand Gulf, Yokena, Big Black, and Cayuga 7.5-minute quadrangles in Warren, Claiborne, and Hinds counties in southwestern Mississippi. This work is funded in part by a \$113,904 STATEMAP (2006) grant and a \$13,000 NCRDS grant.

The Environmental Geology Division gathers, studies, and archives geological and geophysical data pertinent to its ongoing projects and other projects within the Department. Ongoing, focused research is being done with regard to environmental and ground-water geology. During the report period, the division answered scores of requests for geological and ground-water data. These requests were primarily from water-

well contractors, but numerous requests were made by engineering firms, educational institutions, and citizens. Typically, these requests are for the depth to water, yield, and chemical quality. The division's environmental scientists continued outreach activities at schools and science fairs.

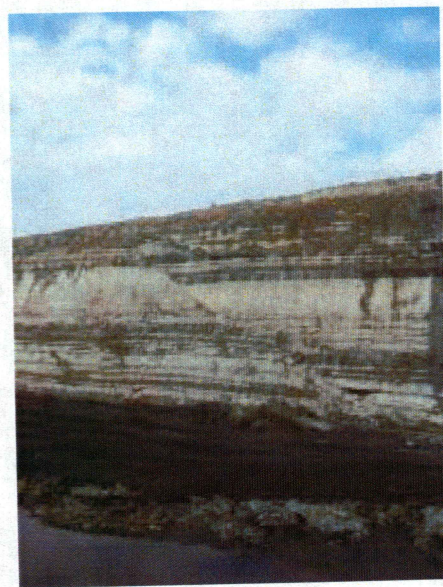
The Environmental Geology Division's geologists and technicians worked on numerous geological projects throughout the state. Drilling, sampling, and well construction activities were performed for the Surface Geology Division's STATEMAP program and for the Office of Land and Water Resources. Three test holes were drilled in support of the STATEMAP program, all in Smith County. Cumulative footage drilled and/or cored and wireline logged totaled 1400 feet. Samples were saved and archived in the Office's core and sample library. Five test holes and one monitor well were completed for the Office of Land and Water Resources; this drilling activity was centered in Coahoma and Holmes counties. Average depth of the test holes was 220 feet. The monitor well was completed at approximately 150 feet.

Environmental Geology's technicians and geologists wireline logged a total of 111 test holes in 31 counties throughout the state. Total footage logged was 58,830 feet or 11.14 miles of subsurface data. Clients included 16 water well contractors, one engineering firm, and two state agencies. The shallowest water well logged during the report period was 125 feet deep in Smith County, drilled by Johnny Ray Parker from Summerville, Mississippi. The deepest test hole logged was for the Double Springs Water Association in Oktibbeha County, drilled by Parks and Parks Water Well Service from Houston, Mississippi; total depth was 2,317 feet. Work has been completed on a new sample database for all of our archived water well samples. The construction of this database replaces the old "card catalog" method of data searches.

The staff pulled samples and cores for numerous oil and gas exploration companies and consultants. Cores and samples were made available for research and observation in our in-house laboratory facilities on a total of 54 exploratory wells. These wells were located in almost all of Mississippi's oil and gas producing areas. In addition to those visitors to our facility, staff shipped sample splits on numerous wells to out of state labs for further testing and evaluation. Interest in our archived cores and samples remains strong and is a direct result of higher petroleum prices, new oil and gas plays being extended into the state, and re-evaluation of older areas of interest.

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 is creating new county-wide digital flood insurance rate maps (DFIRMs) for 80 of Mississippi's 82 counties, pending continued funding by the Federal Emergency Management Agency (FEMA). These resulting DFIRMs and supporting digital data will be available on the Web. The new digital format, using modern technology including RS and GIS, promises to make a new map that will convey more information in an easy-to-use format. As of September 2006, current FEMA funding of MFMMI county-wide DFIRM flood mapping projects is \$10.69 million.

Another assignment for this division is to act 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 it is the Geospatial Resources Division that handles the assignment. MDEM consists of developing digital geographic information that will serve as the state base map. MDEM consists of seven 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, and (7) cadastral.

The division maintains three Web sites. We have an information-rich site for oil and gas related information: library.geology.deq.state.ms.us. Another Web site has a wealth of coastal data as a result of our twelve years of active research: geology.deq.state.ms.us/coastal. The division has added a Web site for the Mississippi Flood Map Modernization Initiative (MFMMI): geology.deq.ms.gov/floodmaps. By visiting this site the public and local government officials will be 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.

In FY2006 the Geospatial Resources Division dealt with MDEM, the GIS Council, the Mississippi Flood Map Modernization Initiative, and acquisition of over 3,300 square miles of new LIDAR elevation data covering all or parts of seven counties with grants/funding from FEMA, the USGS and the City of Hattiesburg, in association with the flood mapping program. The division continues to work closely with the GIS Council in development of statewide orthoimagery. During the 2005-2006 leaf-off season 85% of the state's land area was flown and collected. The remaining 15% will be collected during the early part of the 2006-2007 leaf-off flying season and the finished product is due to be delivered in the spring of 2007. Working with FEMA, the division updated the state's flood mapping business plan and work continued on 19 county-wide flood mapping projects. As of September 2006, new preliminary DFIRM flood maps for three county-wide DFIRM projects have been delivered. Additionally, the FY2006 Mapping Activity State-ments No. 4 and No. 5 were submitted to FEMA; they summarize the work to be started this FY2006 on 20 new DFIRM projects. The division also hosted four GIS Council meetings. During the past year the division worked with the Mississippi Department of Information Technology Services (ITS), supporting that agency in the design and development of the Mississippi GIS Clearinghouse/Portal Project. The Clearing-house/Portal will house and distribute all digital MDEM data for the state. The division will continue this work activity into the foreseeable future.

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 applicant, reviewing permit renewal applications, and making recommendations to the Permit Board. Currently there are over 15,000 sites in the permitting realm. Many of these sites have permits that by state and federal regulation expire every 5 years and have to be reissued. As new companies come into the state and existing companies have changes or modifications these activities also require permitting actions. The Environmental Permits Divisions (EPD) works closely with Mississippi Development Authority (MDA) in helping site these new industries to

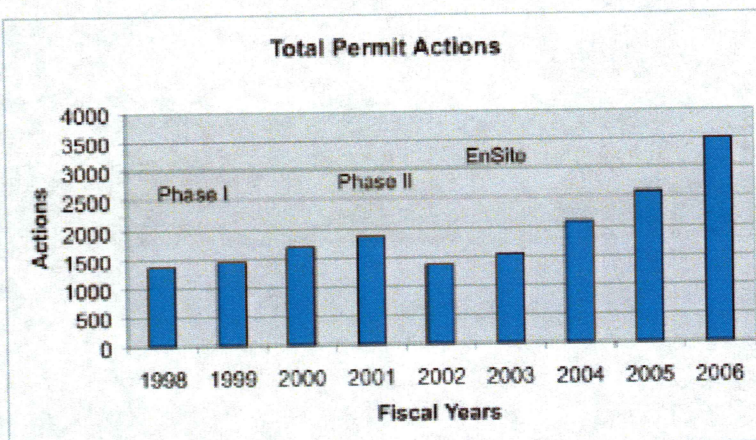
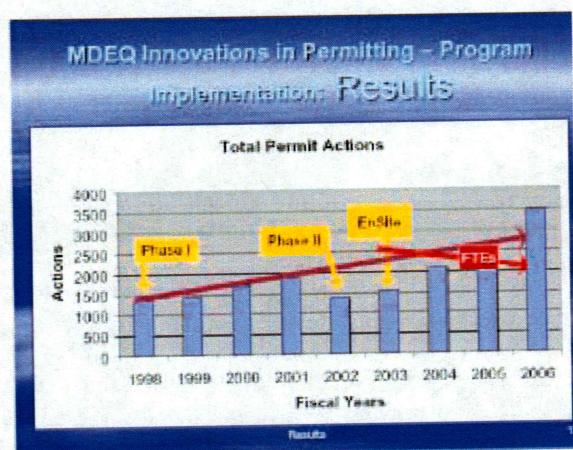
Mississippi. EPD believes that a key element in effectively addressing environmental issues surrounding greenfield projects is early interaction between the company and the Mississippi Department of Environmental Quality (MDEQ). EPD offers and encourages preapplication meetings. We have found that time spent in refining the information needed for applications at the front end of a project typically reduces the overall time to bring a project to a decision point.

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
- Air Title V
- Wastewater-State No Discharge
- Wastewater-Federal National Pollutant Discharge Elimination System
- Wastewater Pretreatment
- Storm Water
- Solid Waste
- Hazardous Waste
- Tire Programs
- Wetland 401 Water Quality Certifications

Performance Improvements

In 2006 EPD further reduced the permit backlog for NPDES major permits to 2%. This percentage remains well below the national EPA milestone of less than a ten percent Major NPDES permit backlog. Over 99 percent of the original Title V universe has been issued air operating permits.



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 – *enSite*. *enSite* 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. *enSite* also allows supervisors and upper management to be more knowledgeable about sites and more easily track and retrieve information.

Permitting productivity continued to increase in State Fiscal Year 2006(see graph). This is due primarily to effective training and e-business improvements. In 2006, EPD continued to devote a large amount of its

resources to Katrina related projects, especially new housing developments in the coastal counties. EPD is committed to continue to focus our resources to help the citizens, the industries and the environment with their reconstruction efforts.

Environmental Assistance

EPD has also continued to provide environmental assistance to less than large businesses throughout Mississippi. Assistance: An MDEQ Priority, the EPD newsletter, is issued routinely and provides discussion on various topics of interest to the small business community. In 2007, staff will develop brochures that discuss the assistance programs and opportunities available through MDEQ. Other brochures to be developed will address compliance issues when working within the environmental arena. Furthermore, staff will work with area community colleges and other educational centers to provide Continuing Education training. EPD staff continues to update the EPD Small and Medium Business Environmental Assistance webpage.

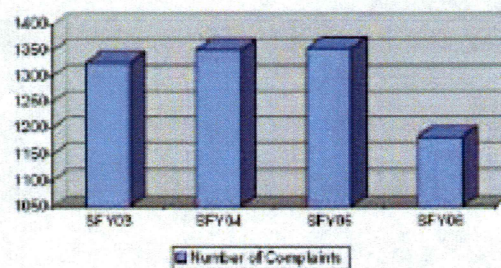
COMPLIANCE

Compliance & Enforcement

The Environmental Compliance & Enforcement Division (ECED) implements and oversees the majority of the compliance and enforcement programs for MDEQ. ECED is responsible for the regulation of over 15,000 sites for compliance with applicable air, water, hazardous waste, and non-hazardous waste permits and regulations. The goal is for everyone to be in continuous compliance with all the appropriate environmental laws, regulations and standards. Staff spends hundreds of hours every year assisting Mississippi businesses, industries and farms with this activity. When a site fails to comply with the permit(s) or regulations, appropriate enforcement action is taken to promptly return the site to compliance. ECED, in conjunction with the Field Services Division, is also responsible for responding to citizen complaints regarding air pollution, water pollution, solid waste issues, and hazardous waste issues.

MDEQ launched its Electronic Discharge Monitoring Reports (eDMR) program in 2006. This secure, web-based program was created to make it possible for facilities with permits requiring the reporting of wastewater sampling data to submit their reports electronically instead of by mail. The eDMR program, as compared with paper-based report submittals, will significantly reduce the resources required for processing submittals, improve the accuracy of data by reducing the number of times data is physically transcribed, and provide data quicker to EPA and the public. Participants need not purchase new software, and facilities will be able to enter, certify, and submit their DMRs from any computer. DMRs require a large amount of data submitted regularly and are one of the most intensive reporting requirements for industry. MDEQ is introducing facilities into the program in phases. The first phase was offered to facilities covered by the Ready Mix, Underground Storage Tanks, and Swine Concentrated Animal Feeding Operation General Permits. Subsequent phases will include additional types of facilities.

During State FY06 (July 1, 2005 – June 30, 2006), the Office of Pollution Control received 1182 complaints related to air pollution, water pollution, solid waste issues, and/or hazardous waste issues. 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. OPC staff endeavor to investigate every complaint. (See Chart)



During State FY06, the following number of on-site inspections were performed by ECED and the Field Services Division:

- 263 for compliance with air pollution regulations/permits
- 1032 for compliance with water pollution regulations/permits
- 164 for compliance with hazardous waste regulations/permits
- 557 for compliance with solid waste regulations/permits

During State FY06, ECED actions resulted in 44 Orders being issued for non-compliance with air, water, solid waste, and/or hazardous waste regulations/permits. When appropriate, DEQ allows the use of Supplemental Environmental Projects (SEP), which are projects that go beyond what is required to comply, to offset a portion of the cash penalty. Of the 44 Orders issued during SFY06, 23 contained provisions for a penalty with a total assessed penalty amount of \$217,125. Three (3) of the Orders allowed the use of a SEP.

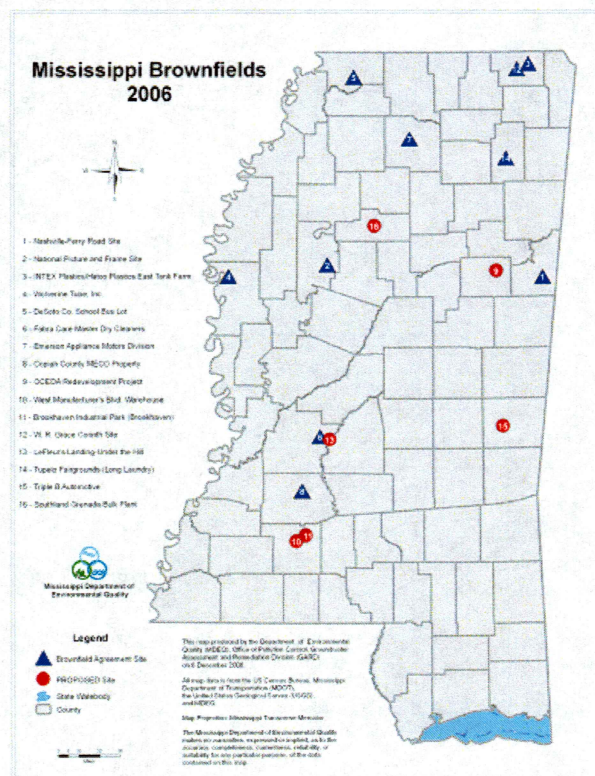
Clean Up Of Contamination

Brownfields

During 2006, MDEQ experienced continued interest in the Brownfields Program. This interest is attributed to the efforts to educate interested parties about risk-based remediation and liability protection, as well as effective outreach efforts. In 2006, MDEQ reached a Brownfield Agreement for the Tupelo Fairgrounds/Long's Laundry Site. The total number of Brownfield Agreements obtained to date is ten. MDEQ continues work on three Brownfield sites that have applied prior to 2006. Two new sites entered the Brownfield Program in 2006. They are the Triple B Automotive Site in Meridian and the Southland Grenada Bulk Plant. Thus, the total number of sites participating in the Brownfield Program since inception is sixteen. As required by the Brownfield Law, the Brownfield Agreements reached in 2006 and the newest applicants will be highlighted in this annual report.

MDEQ's Targeted Brownfields Assessment (TBA)

Program is designed to help cities, counties, and eligible non-profits minimize the uncertainties of contamination often associated with brownfields. TBAs supplement and work with other efforts under MDEQ's Brownfields Program to promote cleanup and redevelopment of contaminated sites in Mississippi.



Featured Site – Tupelo Fairgrounds/Long's Laundry Brownfield Site



BEFORE

From the mid 1930's to the early 1970's, Long's Laundry operated as a commercial laundry for industrial and domestic consumers. It also served as a cold storage for furs and a drying cleaning facility. Surrounding properties included a commercial printing operation, a warehouse for a hardware retailer, the



AFTER

former Mississippi/Alabama Fairgrounds, former Commerce Street and former Mulberry Alley. The Long's Laundry property remained underused for approximately 30 years. In 1999, Phase I & II environmental site assessments were performed to determine if contamination existed on the property. In 2000, the property was acquired by the City of Tupelo, and at that time further environmental investigations were performed that revealed the presence of chlorinated solvents in shallow groundwater on the property.

In 2003, the Downtown Tupelo Main Street Association applied for Targeted Brownfields Assessment (TBA) assistance from the Groundwater Assessment and Remediation Division (GARD) of the Mississippi Department of Environmental Quality (MDEQ). Under the TBA, an environmental assessment was performed to identify possible contaminants in the soil. The soil samples tested did not identify soils containing Volatile Organic Compounds (VOC) that exceeded MDEQ Target Remediation Goals.

In 2004, demolition activities were conducted by the City of Tupelo to remove the remnants of the former Long Laundry building foundation and from the adjacent portions, formerly Commerce Street in order to begin the transformation of the properties into a "Fair Park", and a green space that would house a small amphitheater and interactive water park. After all the landscaping activities at the redeveloped site were completed, MDEQ's contractor completed the groundwater investigation. Liability protection was secured for the current property owner, the Tupelo Redevelopment Agency, through a Brownfield Agreement with the Mississippi Commission on Environmental Quality (MCEQ) on August 24, 2006. At completion, the TBA Program saved the community close to \$87,000 in planning and assessment costs.

Underground Storage Tanks

Hurricane Katrina impacted many of the UST facilities located in southern counties and a number of those in close proximity to the Gulf Coast were completely destroyed. The UST Branch inspected many of the Katrina impacted facilities following the storm in order to determine if a significant release of motor fuel occurred as a result of the storm devastation and to evaluate any other hazard potentials that may exist. Many of the tanks that were examined were found to have had the fuel displaced by the floodwaters of the storm surge. Other potential hazards included fuel leaked from ruptured tanks and/or piping and tank vent lines broken off or near ground level potentially allowing the release of fuel vapors at or near ground level. A number of UST system components were found open to the environment and in need of proper closing or capping in order to mitigate any potential fuel related hazards.

In 1988, the Mississippi Legislature enacted the laws necessary for Mississippi to establish and underground storage tank program and sought delegation from EPA to administer the program. Pursuant to this legislation, the Mississippi Commission on Environmental Quality promulgated underground storage tank regulations on March 22, 1989.

Since 1989, a total of 876 sites have been found contaminated by leaking tanks and eligible for cleanup using the Groundwater Protection Trust Fund (Trust Fund), a fund established to clean up sites contaminated by leaking underground storage tanks. During FY2006, 49 counties in the state had remediation systems designed to remove contamination from the ground as a result of leaking underground storage tank, and 21 counties had ongoing remediation that included vacuuming and excavation.

Uncontrolled Sites

The Groundwater Assessment and Remediation Division's (GARD) is responsible for the protection of human health and the environment by overseeing, evaluating, and assessing and remediation activities at sites contaminated with hazardous substances. The site list maintained by MDEQ continues to grow each year. The number of sites increased from approximately 1515 sites to 1572 sites for FY2006. Most of the increase is due to the addition of sites located in the coastal counties damaged by Hurricane Katrina. For FY2006, staff provided oversight for the assessment and remediation of 95 sites. MDEQ issued "State No Further Action" (SNFA) letters for 9 of these sites that were evaluated and remediated to levels protective of human health and the environment. The staff continues to respond expeditiously to requests from other governmental agencies for the review of environmental assessments and remediation of contaminated sites and those sites with economic development potential. MDEQ has also responded to inquiries from both State and Federal Legislators and Congressman for information pertaining to the clean up of sites within their respective districts.

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. 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. For FY2006, the Assessment Remediation Branch staff provided oversight for the assessment and remediation of 371 VEP sites (283 mercury meter station sites). MDEQ issued "State No Further Action" (SNFA) letters for 292 of these VEP sites that were evaluated and remediated to levels protective of human health and the environment; of which 283 of these VEP sites were mercury meter station sites located across the rural areas of Mississippi. The program is seeing a slight increase in the number of sites entering into the VEP since Hurricane Katrina from the coastal counties.

Comprehensive Environmental Response, Compensation, and Liability Act

Oversight of the site assessment restoration of hazardous waste sites as federal facilities continue to be a large portion of the CERCLA Program. Oversight is conducted at seven Department of Defense 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 site assessments, site investigations, and site inspections at potential National Priority List (NPL) Sites, coordinated with EPA on emergency/removal projects and were responsible for the oversight and assessment of three NPL (Superfund) sites in the state – Davis Timber, Hattiesburg, American Creosote, Louisville, and Wood Treating, Picayune. The estimated cost at this time for remediation of these three sites is between \$45,000,000 and \$60,000,000. The State will ultimately have to pay for 10% of these costs or \$4,500,000 to \$6,000,000. Additionally, a new NPL site is expected to be added in 2007, the Sonford Products site in Flowood. The staff continues to respond to complaints and questions concerning contaminated sites, remediation levels, and environmental assessment criteria.

Emergency Response

During FY06 the Emergency Services Branch continued to respond to emergencies all across the state. Expenditures for cleanups exceeded \$800,000.00, while the response staff dealt with approximately 1,200 calls for assistance or to report emergency releases. In dealing with Household Hazardous Waste, following Hurricane Katrina, the Emergency Services Staff continued collecting and disposing of HHW through December of '07.

Homeland security remains a top priority for training and planning. The Emergency Services staff continues to work with numerous agencies including fire and police at the local level, our sister state agencies and U.S. EPA, U.S. Coast Guard, F.B.I. and others at the federal to conduct well coordinated responses, to protect Mississippi's citizens and environment.

MDEQ's four-man 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 for Mississippi. Normally MEMA is notified by calling 1800-222-6362. They in turn contact MDEQ personnel who provide on-site response and technical assistance.

Changes in Regulation

The Commission adopted promulgated final federal hazardous waste regulations through April 1, 2006 by reference as State regulations. This amendment provided for corrections to previously adopted regulations and adoption of new federal hazardous waste regulations between 1998 and April 1, 2006. The Mississippi Hazardous Waste Management Regulations were amended effective July 10, 2006. These amendments make the state hazardous waste regulations consistent with the federal regulations thus maintaining the Department's delegation by EPA to administer the hazardous waste program.

WASTE MANAGEMENT

Hurricane Katrina Debris Management and Disposal

MDEQ's solid waste programs continued their efforts for much of 2006 to assist the state's communities in dealing with the massive amount of debris generated by Hurricane Katrina. According to the Federal Emergency Management Agency, Hurricane Katrina generated almost 45 million cubic yards of storm debris across the state of Mississippi. This figure likely does not include all of the amounts of debris as some structures along the coast remain to be demolished and a numerous dying trees are also continuing to be taken down along the coast. In the three coastal counties, over 27 million cubic yards of debris was collected. In response to the tremendous amount of debris to be cleaned up in the aftermath of Katrina, MDEQ issued emergency debris management policies for building and structural debris and for vegetative debris within a few days after the storm. Through these emergency debris policies, MDEQ issued emergency authorization for more than 300 temporary emergency debris management sites. These debris management sites included emergency disposal sites, mulching sites, staging and separation sites, and controlled burning sites for clean, vegetative debris. During the year after Katrina, MDEQ visited and inspected these sites on an ongoing basis. Emergency disposal sites in the coastal counties in particular were visited almost daily by MDEQ staff over the past months to ensure that the sites were maintained and managed in an environmentally safe manner.

In addition, MDEQ issued emergency debris policies on metals staging and recycling, mulch management, residual ash management and use, asbestos management and disposal, wet yards for recovery of downed timber, concrete crushing operations and a closure policy for emergency landfill sites. In addition, MDEQ worked with EPA and the State Forestry Commission to host a forum on the management of the tremendous amounts of timber and other vegetative debris down throughout the state. Where possible MDEQ worked to

encourage the recycling or reuse of wastes collected from the storm clean up. During 2006, The state did see some recycling successes in white goods and automobile metals recycling, mulched vegetative debris recycling, concrete recycling, vegetative debris ash re-use, waste tire recycling and some limited amounts of building debris recycling and electronics wastes recycling.

In addition, as the primary debris clean up activities draw to a close, MDEQ has continued to work with local governments impacted by the storm to address ongoing storm debris needs. The Department has been working with state engineering firms on the development of a "Gulf Coast Solid Waste Initiative" to address the waste disposal capacity needs and long term waste management needs on the Gulf Coast. This initiative will address the needs and future plans of local governments on vegetative disposal needs, white goods, household hazardous wastes, electronics wastes and other waste problems that have been created or magnified by Katrina.

Solid Waste and Waste Tire Assistance 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 \$1,900,000 in FY 2006 for solid waste projects, solid waste planning projects and waste tire projects across the state. Of that total, \$755,735 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 and for other waste management activities at the local level.

Solid Waste Assistance Grants - FY2006

\$435,007 - Total Non Competitive Grants
76 Counties Received Non Competitive Grants

\$320, 658 - Total Competitive Grants
19 Municipalities & Counties Received Competitive Grants

Waste Tire Grants - FY2006

\$1,038,462 - Total Waste Tire Grants Awarded
466,000 - Waste Tires Collected

The Solid Waste Policy, Planning and Grants Branch also assisted in planning efforts across the state, working with local governments to assist in the development of long-range plans and goals for solid waste management and recycling. Planning grants totaling \$123,990 were awarded to Claiborne, Newton and Rankin Counties to develop comprehensive solid waste management plans for their communities.

In addition, the Solid Waste Policy, Planning and Grants Branch has continued to develop and implement the state's strategy to achieve statewide recycling of waste tires. During FY 2006 the recycling rate for waste tires processed in the state was over 90% of the tires collected. In addition, 31 new waste tire grants totaling \$1,038,462 were awarded to local governments to fund local waste tire collection and clean up programs during Fiscal Year 2006. 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 450,000 waste tires.

Counties receiving waste tire grants during FY06 included: Adams, Alcorn, Attala, Bolivar, Chickasaw, Clarke, DeSoto, Franklin, Harrison, Hinds, Holmes, Humphreys, Kemper, Lauderdale, Leflore, Lincoln, Madison, Newton, Panola, Rankin, Smith, Stone, Sunflower, Tallahatchie, Tate, Tunica, Wayne, Yazoo and Yalobusha and Northeast Solid Waste Authority and Three Rivers Solid Waste Authority.

Agricultural Chemical Pesticide Container Recycling Program

It is conservatively estimated that more than 2,000,000 plastic pesticide containers are used annually for agricultural purposes in Mississippi. Unfortunately, the method of disposal for these containers in the past often involved unsound environmental practices such as landfilling, illegally burning, dumping, or burying. The Mississippi Pesticide Container Recycle Program was initiated in 1989 to provide an alternative method of disposal. During the initial year of this program, a total of 24,000 pounds of plastic pesticide containers were recycled from one county. The program now has grown to include almost half of the 82 counties in the state with over 725,000 pounds recycled in 2006. For the period 1989 through 2006, more than 9,000,000 pounds of plastic, representing approximately 13,500,000 containers, have been collected and processed through this program. Based on the best estimates available at this time, it is calculated that Mississippi is currently recycling over 50% of all plastic pesticide containers used for agricultural purposes.

Solid Waste Training and Certification Programs

The MDEQ Solid Waste Programs also administer training and certification programs for solid waste professionals in the state of Mississippi. 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 in the state. There are currently 32 certified commercial landfill operators in the state. In addition, MDEQ is in the process of developing and implementing the states training and certification program for class I rubbish site operators. MDEQ has issued an interim certification to one operator for each class I rubbish site in the state while the agency develops the training program for these operators. MDEQ assembled an advisory group in the summer of 2006 that met over several months to develop the guiding parameters and goals for the training program. The advisory group consisted of representatives from the State SWANA chapter, private rubbish landfill owners, the Mississippi Independent Solid Waste Association, the Mississippi Association of Supervisors, the Mississippi Municipal League and the permitting, compliance and planning divisions of MDEQ. Based on the efforts of the advisory group, MDEQ will be hosting training and examination sessions for class I rubbish operators in 2007. In addition to these two solid waste certification programs, MDEQ also offers training to solid waste enforcement officers, solid waste grant writers, and solid waste planning specialists in the state.

Recycling Programs

In 2006, the MDEQ solid waste and recycling programs worked on a number of recycling issues. The MDEQ, at the instruction of the Legislature, reconvened the State Task Force on Recycling. The Task Force is by state law comprised of 19 members, 13 from designated organizations and associations in the state and 6 gubernatorial appointees representing the different recycling material sectors. The Task Force with the assistance of the Mississippi Development Authority and the MDEQ developed a report that was submitted to the State Legislature that reviewed the state's recycling industry and recyclable materials markets in the state of Mississippi. The report contained a review of the different recycling material sectors in the state, along with the economic impacts of the recycling industry in Mississippi and the recommendations from the Task Force on improvements to recycling business conditions in the state. In addition, to the report of the Task Force, MDEQ developed its own report, at the instructions of the Legislature on the status of recycling and pollution prevention in Mississippi. This study by the agency included a survey of local governments throughout the state on the recycling services currently offered to their citizens and presented these findings for the consideration of the state Legislature.

Recycling Education

The Recycling and Solid Waste Reduction Program at MDEQ is charged with working with local and state governments, 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 Affiliates, and the Mississippi Soft Drink Association. In FY 2006 the Recycling and Solid Waste Reduction Program gave presentations to seven organizations and schools across the state, provided recycling and solid waste information via exhibits at three events. The program also conducted eleven inspections of recycling activities around the state. The program also utilized a recycling education display that was made available to libraries and other organizations in the Jackson metro area for public display.

Along with Keep MS Beautiful, MDOT, and the Department of Tourism, MDEQ finalized the placement of aluminum can recycling bins at all Welcome Centers in the state so that visitors can conveniently recycle aluminum cans as they travel through the state.

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, the EPA/Mississippi Pollution Prevention (P2G) Grant, and other EPA competitive grants.
- Coordinate/partner with both states and the federal government (e.g. DoD) and non-governmental entities to promote effective pollution prevention practices.

During FY 2006, the MDEQ Pollution Prevention Program accomplished the following program elements:

- Reviewed and approved 16 industry waste minimization plans
- Reviewed and monitored 196 annual waste minimization certified reports
- Met all conditions of the 2006 EPA/Mississippi Pollution Prevention (P2G) Grant
- Assistance in Pollution Prevention efforts and recycling efforts was provided as requested.
- Compliance Assistance was provided to three small businesses in 3 different SIC Codes
- Permitting/Regulatory Assistance Activities was provided as requested.
- Mercury Reduction Initiative- a pilot voluntary Mercury Switch Recycling Program was developed and implemented in partnership with the Mississippi Auto Salvage Association and the Jackson companies of General Recycling and Nucor Steel. General Recycling recently shipped the first container of automotive mercury switches for recycling from Mississippi.
- The development of outreach and waste reduction program - Best Management Practices (BMP) for the Wood Treating Industry Sector in the state to reduce hazardous waste/Storm water-fifteen (15) facilities were visited. Guidance Best Management Practices (BMP) were drafted and under review concerning hazardous waste and storm water management.

Department of Education:

- Work was done with the Department of Education on program development for chemical management in schools presentations to the Department of Education Conference on HealthySeat, an environmental assessment tool.

Up-coming Priorities

Mercury Reduction Initiative

Will expand efforts to reduce mercury pollution in the environment by addressing the following areas:

- 1) Reduction of mercury from automotive switches - Expand program to additional facilities and coordinate merger with national program.
- 2) Reduction of mercury in schools and hospitals.
- 3) Reduction of mercury from dental offices.

Mississippi Hospitals for a Healthy Environment:

Will work in partnership with the national H2E program and state groups to achieve the three primary goals of

- 1) Virtual elimination of mercury-containing waste from healthcare facilities waste streams.
- 2) Reduce total waste volume by 50%.
- 3) Identification of hazardous substances for pollution prevention and waste reduction, including hazardous chemicals and PBT's.

HealthySeat for Healthy Schools:

Will pilot the EPA Software tool with a local school district and work with the Department of Education to customize the software on the state level.

GRANTS AND LOAN PROGRAMS

Coastal Impact Assistance Program (CIAP)

Mississippi's Coastal Impact Assistance Program was created by Congress in October 2000 appropriating Mississippi \$24,300,000 through NOAA to improve the health of the coastal ecology. MDEQ as the lead agency and the three coastal zone counties — Hancock, Harrison and Jackson — have collaborated to develop a program directed at coastal protection, enhancement, restoration and conservation.

The state's plan continues to be implemented through 81 projects in the three coastal counties. The CIAP projects cover a wide range of approaches including wetlands and coastline restoration, watershed protection and restoration, waste water infrastructure and planning, ecotourism, invasive species control, technology/GIS developments, coastal urban forestry, conservation education, sustainable development and smart growth, air quality, fisheries, wildlife and shellfish habitat, water quality, land acquisition and conservation easements. The funds to support these projects were awarded to non-profit organizations, city, county and state agencies and academia working in the three coastal counties.

Each award recipient is required to seek partnerships and other funding to implement and sustain their project past the CIAP funding. Approximately 75 percent of all CIAP projects have been completed and the remainder will be finished before November, 2007 when the CIAP program ends. Those projects delayed or significantly impacted by Hurricane Katrina have received an extension in order to complete their workplan. The new 2007 - 2011 CIAP program will be administered by the Mississippi Department of Marine Resources. MDEQ staff will actively work with MDMR on the initiation of the new program.

All workplans and additional information on CIAP can be found at www.deq.state.ms.us under the CIAP program.

Section 319 Nonpoint Source (NPS) Pollution Control Grants

MDEQ in cooperation with a number of federal, state, and local stakeholders has been successful in developing a comprehensive statewide NPS pollution control program to help protect and restore our valuable water resources. The state's NPS Program fulfills the requirements of Section 319 of the Clean Water Act (CWA) and section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA), two federal laws with NPS pollution control provisions.

Since its inception in 1990, a total of \$45 million in grant funds have been secured and utilized to implement 143 NPS pollution control projects. These projects include: water quality best management practice demonstrations, monitoring and assessment, water quality education, and watershed protection and restoration projects.

In FY2006, MDEQ received approximately \$3.8 million in Section 319 Grant funds. Of this amount, six (6) percent is allocated for administrative work, twenty (20) percent for assessment and monitoring, thirty-four (34) percent to implement statewide education and public outreach projects, and forty (40) percent is allocated for priority watershed restoration and protection projects in the Coastal Streams Basin.

Water Pollution Control Revolving Fund

During FY2006, MDEQ funded nine new projects for a total of \$18,573,743 from the Water Pollution Control Revolving Loan Fund (WPCRLF) program. This program provides low interest loans to public entities in the state for construction, repair, or replacement of wastewater, storm water, and nonpoint source pollution projects. Funding for these projects comes from federal grants, state match, repayments, and interest on deposits. Since Hurricane Katrina, the Department has been working with the loan recipients on the Coast to provide repayment forbearance periods when requested due to the impacts of the storm.

Water Pollution Control Emergency Loan Fund

This program provides loans to communities for the emergency construction, repair, or replacement of wastewater collection and treatment facilities. This fund has \$1,800,000 available through MDEQ for such emergency projects. MDEQ encourages communities throughout the state to utilize this program whenever emergency wastewater projects are needed. Since Hurricane Katrina, the Department has been working with the loan recipients on the Coast to provide repayment forbearance periods when requested due to the impacts of the storm.

CITIZEN SAFETY/ ACTION/ OUTREACH PROGRAMS

Dam Safety

The Commission on Environmental Quality adopted amended Dam Safety Regulations in 2004 requiring owners of High Hazard dams (dams that have the potential to cause loss of life or major property damage in the event of a failure) to have their dams inspected by a registered professional engineer. As a result of these engineering inspections and evaluations, forty (40) dams have been removed from the High Hazard category bringing the total down to 264 as of the date of this report. Some of those removed were shown to have been placed on the inventory based on inaccurate or incomplete information; others were removed because

downstream conditions had changed; and in still other cases, the owners elected to decommission the dams rather than expend funds for the analysis and major repairs that would obviously be required to bring the dam into compliance with safety standards. The information produced by these inspections has helped MDEQ staff prioritize enforcement activities and more efficiently regulate the High Hazard dams in the state.

Approximately eighty (80) percent of the private owners of High Hazard dams are in various stages of complying with the requirement for the inspection and the development of an Emergency Action Plan for their dams. Because of the large number of state owned and locally owned dams, those owners have requested time extensions to allow them to spread the cost of inspections over several years. MDEQ staff is continuing to work with those owners, as well as delinquent private owners, in establishing acceptable schedules for compliance with the regulation provided the dams are structurally sound and well maintained. In some cases, owners will be required to lower the water levels in their lakes and maintain the lower levels until they comply with the regulation.

enSite - Improving Environmental Information Management

Development and enhancements of e-Government applications continued to be the focus for improved environmental information management in 2006. MDEQ began a phased implementation of its electronic Discharge Monitoring Report (eDMR) application during this fiscal year with a positive response from the regulated community. MDEQ's enSite system and its complementary applications, enSearch and enSearch Online, were essential tools in Katrina rebuilding efforts.

MDEQ continues to be a leading state in the National Environmental Information Exchange Network, improving data exchanges between environmental partners at the state and federal levels.

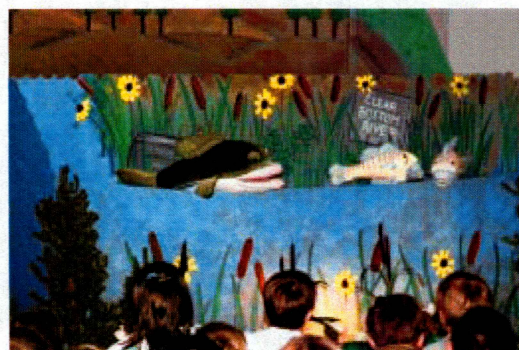
Toxic Release Inventory

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 10 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.

Nonpoint Source (NPS) Pollution Education

Polluted runoff or 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 and finally deposits them into rivers, oceans, and even underground sources of drinking water. These pollutants include; excess fertilizer, sediment, nutrient, pesticides, oil and grease, and bacteria from faulty septic systems. Since every one of us contributes to polluted runoff, every one can make a difference in reducing it. Therefore, the NPS Program concentrates on many public outreach and education programs that will increase awareness and move citizens to actions to improve their quality of life.

Watershed Harmony Musical Puppet Theater - A 30 minute musical production with 7 songs, a multi-level stage, and 10 puppet characters. This entertaining puppet show teaches responsible environmental stewardship of our waters and how Best Management Practices (BMPs) and planning can reduce the impacts of polluted runoff. During 2006, the show toured Mississippi reaching a total of about 5,200 students and 330 adults during 17 separate performances.



Enviroscape and Groundwater Model Distribution - During 2006, MDEQ staff reached over 4,500 students, teachers and the general public with water pollution prevention and water quality presentations. Over 80 water models have been distributed throughout Mississippi to county MSU Extension Service Offices, district Department of Health Offices, Soil and Water Conservation Districts, Environmental Learning Centers, the Choctaw Indian Reservations and other organizations.

Environmental Workshops for Teachers, Environmental Educators and Students- Over 200 educators attended 11 CEU-approved workshops conducted statewide during 2006. In addition, 3 student Ecology day camp sessions were conducted with over 35 students in attendance.

Community Growth Readiness- A program that teaches local officials about ordinances and methods to create greener communities and ways to improve water quality, reduce runoff water from urban areas, and improve quality of life for citizens. The program incorporates smart growth and low impact development principals as well as providing erosion and sediment control training for contractors and inspectors. With Phase II Stormwater permit requirements, there is an urgent need for the training of local inspectors. In 2006 NPS staff made presentations at a coastal training workshop and to landscape architects statewide.

Storm Drain Marking - A program that promotes water quality awareness of the impact 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". During 2006, volunteers participated in several subdivisions in the Jackson Metro Area as well as in communities in north and south Mississippi where over 1,500 markers were placed on storm drains.



Adopt-A-Stream Program - A program that promotes environmental stewardship by training volunteer citizens about stream ecology, aquatic life, and water chemistry. Volunteers attend a two-day water education workshop to learn how to monitor a stream, conduct a stream cleanup, or mark storm drains. MDEQ conducts two or three workshops a year in different regions of the state.

Citizen's Guide to Water Quality in the Yazoo Basin 2006 Booklet- This 32-page booklet was created to inform citizens about water resources and the effects of land use on water bodies in the Yazoo Basin. Other features include cultural and recreational resources, wildlife, and stewardship opportunities of the Yazoo River Basin.

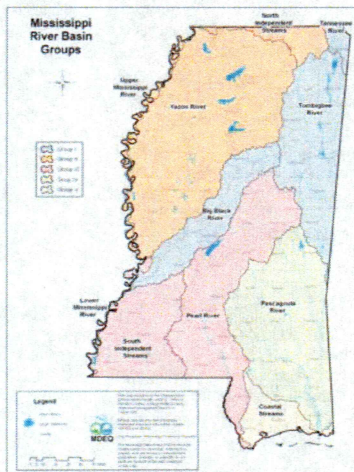
Urban Forestry Manuals & Booklets- Four documents are now available to guide communities in planning and managing urban forests: *Introduction to Urban Community Forestry*; *Urban Forestry, Mississippi*; *Urban and Community Forestry Management Manual* (191 pages); *The Community Forest Booklet* (14 pages); and *Preserving Trees in Construction Sites* (12 pages.). To order, contact the Mississippi Forestry Commission at phone #601-359-1386

Basin Management Approach

Mississippi's Basin Management Approach (BMA) is an important non-regulatory function designed to foster stewardship of Mississippi's water resources through collaborative watershed planning, education, protection, and restoration initiatives. During FY 2006, five teams of water resource professionals representing over 50 state and federal agencies and stakeholder organizations implemented the BMA process. These teams, organized into groups representing Mississippi's major drainage basins, work through the five successive phases of the basin management cycle: (1) planning, (2) data collection, (3) data interpretation, (4) management plan development, and (5) implementation. Upon completion in each basin, the process

repeats for the next cycle.

Activities of the first basin management cycle for all basins are nearing completion. Priority watersheds have been selected by all basin teams. Within many of these watersheds, collaborative efforts on the part of state and federal resource agencies working with local stakeholders are resulting in the formation of local watershed implementation teams and the development of watershed implementation plans. The agencies have also worked together to make available funding resources to support implementation activities.



Basin Groups	
Group	Basin
I	Big Black, Tombigbee, and Tennessee River Basins
II	Yazoo River and North Independent Streams Basins, and adjacent tributaries of the Mississippi River
III	Pearl River and South Independent Streams Basins, and adjacent tributaries of the Mississippi River
IV	Pascagoula River Basin
V	Coastal Streams Basin

The Group I and II Basin Teams have begun activities in the second basin management cycle. In Basin Group I, new priority watersheds have been selected and efforts are underway to form local watershed implementation teams. The Group II Basin Team is currently working to select priority watersheds for this management cycle. To assist in this effort, the team is utilizing the newly-developed Mississippi Watershed Characterization and Ranking Tool (MWCRT). This tool uses available watershed data to assess the relative value of watershed resources and potential threats to water quality of watersheds within a basin.

Environmental Resource Center

MDEQ is dedicated to providing statewide focused, collaborative, and coordinated environmental assistance, as a priority, to increase environmental awareness and compliance, and to protect the environment for all Mississippians. MDEQ's assistance vision and ethic incorporates and implements the theme "Environmental Assistance – A Priority." Assistance in the form of workshops, seminars, training sessions, and on-site technical assistance is provided to all MDEQ customers (business, industry, local government, federal government, and citizens of the state) through MDEQ's Environmental Resource Center (ERC). MDEQ assistance activities are developed and implemented in a holistic agency-wide perspective incorporating input from all MDEQ offices, divisions, programs, and across environmental media (air, land, water).

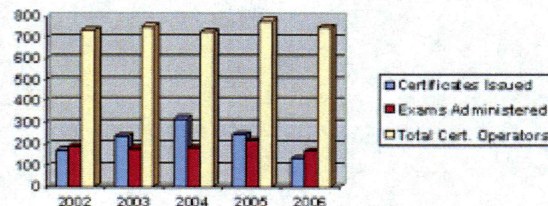
MDEQ/ERC has provided workshops, seminars, assistance, and training session activities including the following topics and issues: solid waste planning, solid waste enforcement officer training, surface mining laws and regulations, high hazard dam regulations, dam safety, solid and hazardous waste recycling, small business technical assistance, dry cleaner assistance, toxic release inventory training, storm water regulations, pollution prevention, paint spray operations, compliance assistance, coating operations, city and county seminars and conferences, wastewater compliance, basin management, watershed implementation, and water quality.

MDEQ/ERC provided on-site technical assistance assessments for 24 individual businesses and industries involved in the following operations: timber and wood products, meat processing, metal and metal fabrica-

tors, service and miscellaneous industries; example laundries, dry cleaners, and car washes, municipal and private facilities, and construction and building materials. These assessments involved a complete review and analysis of the business or industry's operation from an environmental compliance, pollution prevention, permitting, and waste generation standpoint.

Wastewater 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 MS Water & Pollution Control Operator's Association. Administration of the certification program was transferred to the agency in 1987 when the 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 2006 training calendar included 44 days of Agency sponsored training classes. The Agency continued its relationship with the three wastewater related associations in the state (MS water and Pollution Control Operator's Association, MS Water Environment Association and MS Rural Water Association) by cosponsoring and participating in 23 days of training activities. Attendance at Agency sponsored sessions totaled 847 operators, utility managers and engineers. Certification exams were administered to 167 prospective operators with 61 new and 241 renewal certificates issued. There are currently 749 certified pollution control operators in the state.

The training staff also provides on-site technical assistance to small municipal systems through the EPA 104(g) grant program. This assistance program is aimed at providing small communities with no cost assistance in returning to or maintaining compliance with their wastewater permit. In 2006, the staff assisted 22 publicly owned wastewater treatment facilities with compliance issues and made 76 additional community outreach visits. A large part of the assistance effort was aimed at helping facilities recover from the widespread hurricane damage to both treatment and collection systems.

The Wastewater System Security training and assistance program continued this year through a small supplemental grant from EPA. This program, supported by Homeland Security measures, included operator workshops conducted in three locations around the state. The Staff, which have been qualified by FEMA, provided instruction to wastewater facility staff on Basic Incident Command System and National Incident Management System. Sixty four (64) operators representing 44 facilities attended the training sessions.

AWARDS & HONORS

Barbara J. Viskup, the senior Regional Biologist in the MDEQ Biloxi Office, was recently awarded the Southeastern Water Pollution Biologist Association Biologist of the Year Award. This award is sponsored each year by the EPA Region 4 Ecological Assessment Branch in Athens, GA, and recognizes the innovative work of a front line Region 4 State biologist.

