ANNUAL REPORT 2021

MISSISSIPPI

Department of Environmental Quality

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STRATEGIC GOALS

Message from the Executive Director

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

Chris Wells
Executive Director
MDEQ

Building a Better Mississippi: The Statewide Strategic Plan for Performance and Budgetary Success contains goals applicable to MDEQ and it mission. This annual report seeks to correlate the following goals of the agency's strategic plan with the results of its work in Fiscal Year 2021.

Air Quality: Ensure that Mississippi air quality is protective of the health and welfare of its citizens.

Waste Management: Protect Mississippi's soil and water resources through proper nonhazardous solid waste and hazardous solid waste management.

Remediation: Protect human health and the environment through proper mitigation, remediation, reclamation, and restoration of natural resources.

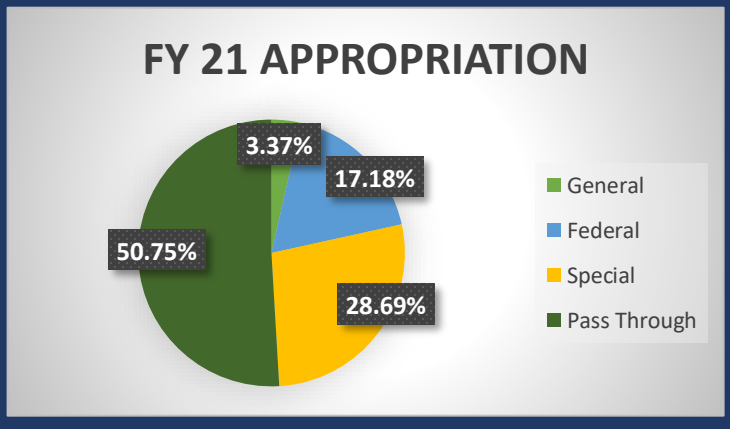
Reclamation: Ensure lands impacted by mining activities are restored to reclamation standards that are protective of human health and the environment.

Water Quantity: Maintain sustainable quantities of surface and groundwater in Mississippi.

Water Quality: Protect and restore surface and groundwater quality in Mississippi.

Emergency Preparedness and Response: Prevent, prepare for, and respond to public health, safety, and environmental emergencies.

Environmental Outreach, Research and Education: Encourage and empower citizens, businesses, and communities to engage in behaviors to protect public health and preserve Mississippi's environment.



AIR QUALITY

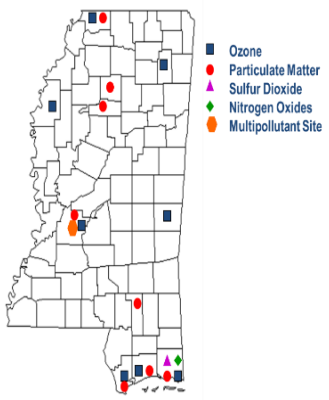
Ambient Air Quality

The U.S. Environmental Protection Agency (EPA) is required by the federal Clean Air Act (CAA) to set national ambient air quality standards (NAAQS) for certain pollutants considered to be "criteria" air pollutants. EPA conducts periodic reviews of the standards, and the science upon which they are based, and revises the standards when appropriate. EPA uses the data collected by air monitoring networks to help determine whether areas are meeting the NAAQS.

MDEQ operates a statewide ambient air monitoring network of automated continuous air analyzers and 24-hour manual samplers for measuring ambient air quality.

This monitoring network serves many purposes:

- Determines if areas are meeting the NAAQS for ground-level ozone (O_3), particulate matter, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO)
- Generates data to assist in determining methods to reduce visibility impairments
- Supports ozone reduction programs
- Determines general air quality trends



Air Quality Objective: Maintain Compliance with Federal Air Quality Standards.

Quality Goal: Ensure that Mississippi air quality is protective of the health and welfare of its citizens.

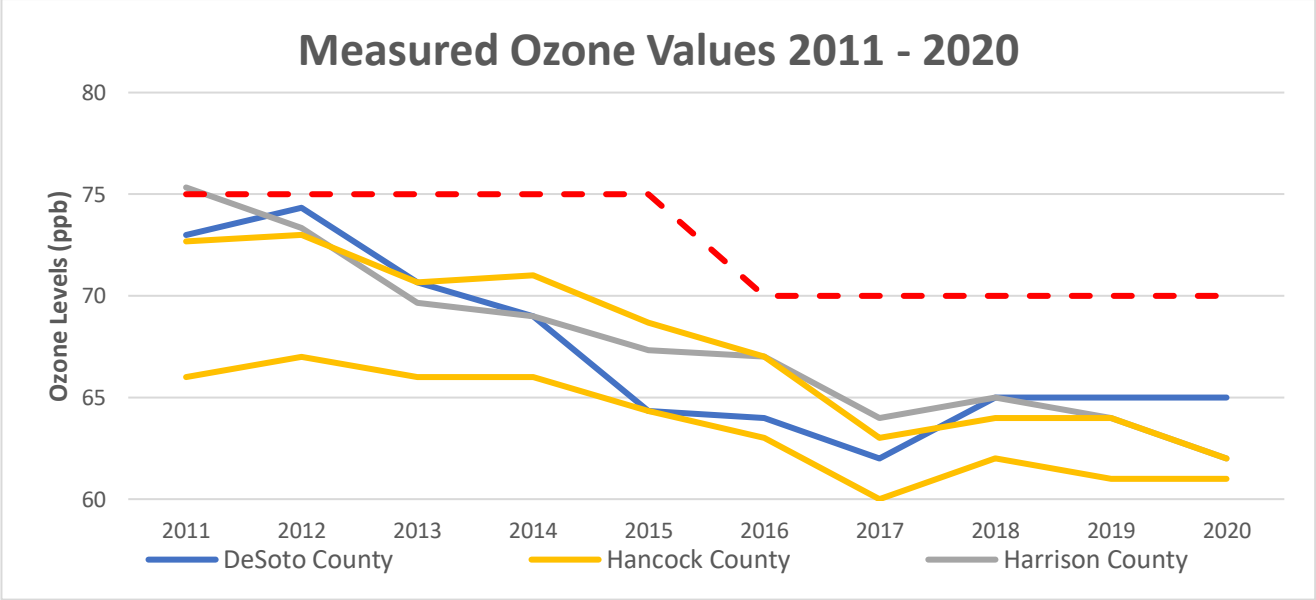
Mississippi Ambient Air Monitoring Sites

Although the NO_2 and CO standards were established years ago, they have been reviewed many times over the years. After each review, EPA has chosen to retain these standards. EPA considers all Mississippi counties as attaining the NO_2 and CO standards and has designated them as such.

MDEQ worked in cooperation with affected facilities to complete the assessments needed to achieve this designation. MDEQ continues to work with these facilities to provide EPA with information required each year to demonstrate these areas continue to attain the standard. EPA established the current secondary SO_2 standard years ago, and Mississippi is currently attaining that standard.

EPA has both primary and secondary 24-hr and annual standards for fine particulate matter, or $PM_{2.5}$, and primary and secondary 24-hr standards for PM_{10}. Mississippi is meeting these standards and has been designated as such by EPA. All particulate matter standards are currently undergoing review by EPA.

Emissions reduction in Mississippi and surrounding states, as well as favorable meteorological conditions, resulted in downward trends in ozone concentrations. This allowed EPA to designate Mississippi as attaining the standards set in 2015. MDEQ participates in a voluntary ozone-precursor reduction program in partnership with local governments and business leaders on the Mississippi Gulf Coast and in DeSoto County to prevent or mitigate future nonattainment of ozone standards.



In Fiscal Year 2021, MDEQ continued to work with EPA to get approved, mandated, long term planning documents, known as State Implementation Plans (SIPs), in place. These plans demonstrate Mississippi's commitment and ability, through our regulatory infrastructure, to continue meeting all ambient air quality standards throughout the state.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health warnings of emergency conditions. The entire population is more likely to be affected.
Hazardous	301 to 500	Health alert: everyone may experience more serious health effects

MDEQ issues daily air quality forecasts using EPA's Air Quality Index (provided here) for both ozone and particle pollution for the Mississippi Gulf Coast and the Jackson Metropolitan Area from April through October each year. Additionally, MDEQ, in association with the Memphis-Shelby County Health Department, issues air quality forecasts for DeSoto County. MDEQ makes these forecasts available through e-mail, the MDEQ website, and Twitter. MDEQ uses the forecasts to keep the public informed about the status of air quality, to issue health advisories, and to notify the members of ozone reduction programs to implement actions.

Regional Haze Planning

Mississippi is working with nine other southeastern states and tribal associations known as the Visibility Improvement State and Tribal Associations of the Southeast (VISTAS) to address EPA's Regional Haze Rule. MDEQ staff participates with the VISTAS group to analyze air emissions impacts to visibility in Federal Class I areas in the southeast. Mississippi does not have any designated Federal Class 1 Visibility areas; however, the Breton National Wildlife Refuge (Chandeleur Islands) in Louisiana and the Sipsey Wilderness area in northern Alabama are close enough to Mississippi that air emissions from sources in Mississippi must be evaluated for visibility impacts. While past years efforts were focused on developing the modeling necessary to identify sources to be included in Regional Haze state implementation plans (SIP), efforts in Fiscal Year 2021 focused on drafting the Regional Haze SIP for the current planning period. MDEQ plans to finalize and submit the plan to EPA next year.

Title V Operating Permit Program

The Clean Air Act requires each major source of air pollution to obtain a Title V Operating Permit, which sets out all air requirements applicable to the source and specifies the methods by which the source must demonstrate compliance. Sources subject to the program are required to pay an annual fee to cover the program costs. The MDEQ Environmental Permits Division (EPD) handles all aspects of Title V permitting, while the MDEQ Environmental Compliance and Enforcement Division (ECED) handles all compliance certifications and demonstrations. The MDEQ Air Division is responsible for managing the fee portion of the Title V program.

Mississippi law requires the establishment of the Title V Advisory Council (Council) to evaluate the costs of the program, to recommend an equitable fee system, and to conduct an annual program review that establishes an appropriate fee for the upcoming fee year. MDEQ staff meets regularly with the Council to provide updates on Title V program activities. Annually, the Air Division staff develops a work plan for the upcoming year that includes all functional areas of the Title V program. During that time, staff compiles data on projected and actual program revenue, expenditures, and pollutant emission rates. Air Division staff reports this information to the Council to aid in their annual review of the program and evaluation to determine an adequate annual fee. MDEQ staff reports the results of the annual review and fee recommendation to the Commission on Environmental Quality (Commission). The Commission considers the recommendation and sets the Title V fee for the upcoming fee year.

Recently, the Council determined that the current fee system, established in 1995, was no longer equitable or adequate based on their evaluation of the needs and costs of the program and sought to identify a more appropriate fee system. In Fiscal Year 2021, MDEQ staff worked with the Council to develop a new fee system and draft revised regulations necessary to implement such a change. Over the next year, MDEQ will conduct outreach and provide appropriate notice to Title V sources and the public regarding the proposed changes and take the necessary steps to officially adopt and implement the new fee system.

During Fiscal Year 2021, the fee rate was $47 per ton of regulated air pollutants, which generated $4.17 million for Mississippi's Title V program. There were 58 Title V permits issued, including initial issuances, renewals, and modifications. There were also 15 new Synthetic Minor Operating Permits issued to facilities that would have otherwise been required to obtain a Title V permit, except that the owner or operator elected to take federally enforceable permit restrictions to limit allowable emissions below Title V major source thresholds. There were 100 Title V inspections conducted.

Air Emission Inventory Branch

The MDEQ Air Division develops an inventory each year that quantifies the air emissions from larger sources. This work involves gathering the emissions data from sources and submitting it to EPA. The inventory quantifies emissions for over 200 air pollutants and includes emissions-related information such as control devices, exhaust stack parameters, and fuel type. Every third year, EPA requires a complete, much larger inventory. The complete inventory includes emissions from all major Title V sources on a detailed level, estimated emissions from smaller stationary sources, and emissions from mobile sources. The Emission Inventory Branch completed and submitted the 2019 emission inventory in January 2021. In addition, data for 2020 has been requested and the inventory is being compiled to be submitted in January 2022.

Diesel Emission Reduction Project State Grants

MDEQ utilizes Diesel Emissions Reduction Act (DERA) grant funds from EPA for the replacement of older school buses with newer, cleaner, and more efficient ones. The DERA-funded Mississippi School Bus Replacement program began in 2014 and has since helped replace 116 school buses in oil spil school districts, for a total of $1.85 million. In Fiscal Year 2021, after receiving applications from 36 school districts, MDEQ contracted with 15 school districts to replace 20 school buses, for a total of $354,700.

Asbestos

State regulations require affected facilities to inspect for asbestos before any demolition or renovation work begins and to specify work practices and procedures to prevent asbestos fiber emissions during such activities. MDEQ assists project owners and operators in understanding the requirements of the regulations and performs demolition and renovation project inspections to ensure safe and compliant operations. Additionally, MDEQ provides outreach to homeowners, supplying them with information on how to safely manage the possible asbestos hazards of non-regulated demolition or renovation activities.

Each Mississippi school district must address regulatory requirements and school activities in an asbestos management plan. MDEQ performs asbestos management plan inspections to ensure that the requirements are being satisfied and that the plan is protective of students, teachers, and school employees.

MDEQ also ensures, through its asbestos abatement activity certification program, that individuals who engage in asbestos abatement activities receive professional training and

demonstrate they are competent to perform these services.

During Fiscal Year 2021, MDEQ inspected 345 demolition and renovation projects, investigated 14 complaints, certified 1420 applicants to perform asbestos activities, and inspected 20 school districts with asbestos management plans.

Air Toxics

The term "air toxics" refers to air pollutants that EPA has listed as Hazardous Air Pollutants (HAP). These air pollutants may cause acute or chronic health conditions and are primarily controlled or reduced through regulations called Maximum Achievable Control Technology (MACT) standards. Impacted facilities generally must install additional control equipment or change process equipment and materials in order to reduce HAP emissions. These standards and emission limitations utilize best-demonstrated technology and highly efficient emission controls to achieve reductions.

The MACT standards regulate 174 different source categories of major HAP emitting facilities and 70 source categories of smaller HAP emitting facilities called area sources. The universe of affected facilities is quite large and varied and the affected facilities range from large chemical facilities and petroleum refineries to small dry-cleaning facilities, gasoline stations, and even small auto body repair shops.

Air toxic activities also include the implementation of accidental release prevention regulations. These regulations apply to facilities with certain chemicals that could be very dangerous to public health and the environment in the event of a chemical accident or uncontrolled release. There have been multiple revisions to these regulations in recent years. The frequent changes have resulted from evaluation of chemical accidents, court challenges, and petitions for review. The most recent revision occurred in December 2019 to remove or streamline previously added requirements. Under President Biden's Executive Order 13990, the December 2019 revision is currently under review.

The accidental release prevention regulations require facilities with chemicals in amounts above de minimis levels to employ process safety measures and controls and plan for the possibility of an accidental chemical release that could endanger public safety. A regulated facility's planning and procedures to prevent and mitigate chemical accidents must be outlined in a Risk Management Plan (RMP) that is submitted for agency review. MDEQ remains aware of all changes in regulatory requirements, monitors the ever-changing universe of regulated sources, and evaluates each RMP during compliance inspections.

During Fiscal Year 2021, there were 142 active regulated facilities, and staff completed 48 compliance inspections.

Greenhouse Gases

On December 7, 2009, the EPA Administrator signed the Endangerment Finding for greenhouse gases from mobile sources. EPA used this finding as the basis to expand its regulatory efforts to regulate large stationary sources of greenhouse gas emissions. Initial regulatory efforts of greenhouse gases included regulations for the power sector, oil and natural gas industries, and landfills. The most significant effort to date has been multiple attempts to regulate existing electric utility generating units at power plants. First, EPA released the Clean Power Plan in August of 2015. After many court challenges, a stay of the rule requirements, and EPA's required review of the rule under then-President Donald Trump's Executive Order 13783, EPA repealed the Clean Power Plan in July 2019. Through this same action, EPA replaced the Clean Power Plan with the Affordable Clean Energy (ACE) Rule. The ACE rule had legal challenges of its own and was vacated by the court and remanded to EPA on January 19, 2021. EPA anticipates issuing a replacement rule in the near future.

MDEQ and the regulated community have invested significant time and effort into regulating existing units in the power sector. MDEQ will continue to monitor EPA's efforts to regulate these units and participate in the regulatory process where necessary to support reasonable and effective regulation.

Lead-Based Paint Program

Mississippi's Lead-based Paint Program is an EPA-approved and delegated state certification program that determines the requirements for the certification of persons and firms engaged in lead-based paint activities. It also establishes work practice standards for performing such activities and the procedures and requirements for the accreditation of lead-based paint training programs. The regulations are applicable to all persons engaged in lead-based paint abatement and renovation activities in targeted housing and child-occupied facilities.

During Fiscal Year 2021, MDEQ performed 11 training course audits, seven desktop reviews of lead abatement reports, nine paperwork review inspections, 51 site inspections, and certified 625 individuals and firms involved in lead-based paint activities.

Volkswagen Settlement

In 2017, then-Governor Phil Bryant designated MDEQ to administer the state's portion of the funds resulting from the Volkswagen (VW) Diesel Settlement. The state allocation was $9.87 million out of the $2.7 billion Environmental Mitigation Trust. The state's allocation was based on the number of offending vehicles registered in the state. VW established the Mitigation Trust Fund (Fund) to settle claims under the Clean Air Act that it sold vehicles with "defeat devices" designed to cheat emissions tests for its diesel vehicles.

Mississippi will use the funds to support mitigation projects to replace older diesel emission sources with cleaner technology to reduce excess nitrogen oxide (NOx) emissions and improve air quality. MDEQ will award funds in accordance with the trust agreement and the state's Beneficiary Mitigation Plan, which was approved by the Fund's Trustee. An application package for mitigation projects was released on June 11, 2021, and the application due date was October 29, 2021. The selected projects are expected to be announced in January 2022.

WASTE MANAGEMENT

MDEQ is responsible for ensuring that solid wastes generated in the state are managed in a manner that is protective of the environment and human health. Solid wastes include all types of garbage, refuse, debris, sludge, or other discarded materials from residential, commercial, industrial, and institutional sources. The Mississippi Legislature has declared it to be the policy of the state that the generation of waste should be reduced or eliminated at the source, whenever feasible; waste that is generated should be recycled or reused, whenever feasible; waste that cannot be reduced or recycled should be treated in an environmentally safe manner; and, disposal or other permitted release into the environment should be employed only as a last resort in an environmentally safe manner. MDEQ regulates the management of solid wastes at storage sites, transfer stations, composting operations, recycling facilities, processing facilities, rubbish sites, landfills, and other types of solid waste facilities.

MDEQ also has delegation from EPA to oversee and implement most of the federal Hazardous Waste Management program in Mississippi for discarded materials that have characteristics that make the waste potentially more dangerous or harmful to human health or the environment if managed improperly. MDEQ also has delegation from EPA to regulate certain waste disposal activities that are conducted through underground injection control wells.

Waste Management Strategic Goal: Protect Mississippi's soil and water resources through proper nonhazardous solid waste and hazardous solid waste management.

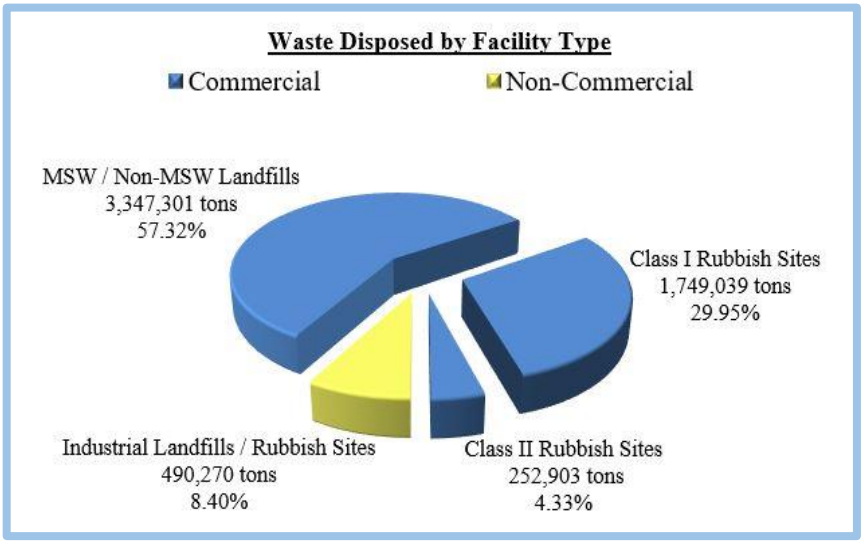
Mississippi Solid Waste Management and Disposal

MDEQ's Nonhazardous Solid Waste programs ensure the proper management of solid wastes, promote the reduction and recycling of solid wastes, and plan for future solid waste management needs.

In early 2021, MDEQ collected annual reports from facility owners for the solid waste management activities conducted during Calendar Year 2020. These reports indicate that just over 5.8 million tons of wastes were disposed at permitted landfills and rubbish sites in 2020. Approximately 5.3 million tons were disposed at commercial facilities with nearly 3.3 million tons (63 percent) disposed at commercial landfills and approximately 2 million tons (37 percent) at commercial rubbish sites. Approximately 490,000 tons (eight percent) of the total wastes were disposed at non-commercial disposal facilities. Solid waste disposal facilities received just over one million tons of waste from out-of-state sources representing approximately 18 percent of the total waste disposed at solid waste disposal facilities.

In addition, a total of approximately 14,000 dry tons of wastes were applied at permitted land application sites in 2020, and over 52,000 tons of material were received at solid waste composting and mulching facilities. The 2020 annual reports also indicated that nearly 119,000 tons of material was received for management at solid waste processing facilities and nearly 969,000 tons of wastes was managed by solid waste transfer stations.

MDEQ utilizes the Re-TRAC Connect Software platform developed by Emerge Knowledge Design, Inc. to collect solid waste annual reporting information, and the agency has mandated that all annual reports be submitted electronically through this system including the information submitted for Calendar Year 2020. MDEQ has assisted solid waste facility operators in getting registered and set up to file the electronic annual reports and will continue to assist any operator with these new requirements.



Recycling and Waste Reduction

Mississippi's recycling programs and the recycling industry have experienced multiple challenges due to the COVID-19 pandemic and the continued unpredictability of international market conditions. Many local governments in Mississippi and across the nation have made difficult decisions to cut or reduce services such as recycling. The impact has also been evident as well in material recovery facilities (MRFs) in Mississippi and neighboring states. Early during the pandemic, MRF facilities experienced difficulty marketing some materials as manufacturing activity slowed in some sectors. Despite these challenges, MDEQ has continued to work to promote and sustain recycling in the anticipation that the demand for recyclables will improve. This past year has shown marked improvements as the demand for materials has increased with development. The market value of materials such as cardboard, mixed paper, and #1 and #2 plastics have seen increases. In addition, Fortune 500 companies have continued to invest in the U.S. recycling infrastructure.

In the past Fiscal Year, MDEQ's Recycling Program continued the Statewide Recycling Reporting and Measurement Program implemented in 2019. Mississippi state law sets a waste reduction goal of 25 percent for the state, and mandates that local governments develop and implement a waste reduction strategy as a part of local solid waste plans. Historically, Mississippi has had no formal means of measuring recycling rates; however, with this measurement program, MDEQ is beginning to collect solid waste and recycling data from local governments. As participation in the program grows, this data will be used to measure the state's progress toward reaching the 25 percent waste reduction goal. In addition, these local governments will have information and tools to determine the success of their recycling programs and to build more sustainable and efficient solid waste and recycling services for their citizens.

These recycling data collection efforts continue to be conducted on a voluntary basis with plans to transition towards more formal reporting of recycling program information. In gathering this data, MDEQ has continued a partnership with Emerge Knowledge Design, Inc. (Emerge) and The Recycling Partnership to employ the Municipal Measurement Program (MMP), an electronic reporting system. The MMP is provided through Emerge's Re-TRAC Connect Software platform and was launched in 2019 for reporting 2018 data which provided a convenient fit for Mississippi's reporting needs. This year, MDEQ again reached out to those cities and counties which are known to have active recycling programs and about a third of those communities entered 2020 data. The information may also be used in evaluating how state recycling grant funds may be distributed for cooperative projects by local governments to collect, transport, process, and market recyclable materials.

Given the global pandemic and challenging market conditions, Mississippi has experienced a decline in the number of active, local recycling programs as well as active recycling businesses over the past two years. These reductions in recycling services have contributed to a reduction in the percentage of the population that has access to community recycling programs. The most recent rate has been approximated at around 55 percent of the state's population, and of this 55 percent, approximately half of the residents with recycling access are provided curbside recycling services with the remaining half having access to drop-off recycling services. In addition, the 40 percent or more of the state's population that do not have access to community-based programs may have some alternate access to recycling through commercial recycling businesses, non-profit recycling programs, or other organizations. For example, in recent years a number of subscription curbside recycling services have been started in various areas of Mississippi. The types of materials and frequency at which these items are collected vary slightly depending on the company, the area of operation, and customer preferences.

MDEQ has continued to promote local government recycling programs and encourage cooperative efforts among local governments to collect, process, and market recyclables. During Fiscal Year 2021, the Waste Division continued working towards the development and release of a new Funding Opportunity Announcement (FOA) for a second round of grant funding under the Regional Recycling Cooperative Grants (RRCG) program. Grant funding in excess of $1 million was previously awarded in 2014 to local, cooperative recycling efforts led by the Cities of Oxford, McComb, Greenwood, and Natchez. These MDEQ recycling grants helped to develop new and upgrade existing local recycling programs. MDEQ anticipates a new FOA could be released in Fiscal Year 2022.

In addition, MDEQ has continued to encourage public participation in local recycling programs by expanding information available to the public on how, where, and what they can recycle in their community. The State Recycling Directory on the MDEQ website identifies local governments, businesses, institutions and other organizations that provide recycling services to the public for paper, plastics, metals and glass. The information in the directory is periodically updated to address changes, new recycling opportunities, special waste recycling services and other materials that may not be collected through the traditional recycling programs.

MDEQ has also developed an updated listing of materials recovery facilities (MRFs) in Mississippi and adjacent states to provide local governments with information on the best available options for managing recyclables. MDEQ is also developing a new recycling transfer station guidance document to provide information facilities for managing and improving the collection and transport of recyclables to receiving MRFs and end-users.

MDEQ has also continued to lead by example with its agency recycling program updating and promoting the internal office recycling program to make recycling as convenient as possible for employees. These improvements ensure both increased quantity and quality of recyclables. The program is promoted through recycling signage and guidance throughout MDEQ's facilities and through various employee meetings and new employee orientation activities. MDEQ uses its recycling program promote and encourage other state agencies to enhance or revive their recycling programs and is available to assist them.

The Waste Division also works with various external partners to provide education and outreach on the importance of sustaining and growing recycling in Mississippi and provides training and technical resources to recycling professionals. One of the agency's key partners is the Mississippi Recycling Coalition (MRC), a non-profit consortium of local governments, state agencies, industries, institutions, businesses, trade organizations and non-profit groups working together to promote and grow recycling. MDEQ staff provide assistance to MRC promoting and managing membership, hosting board meetings, managing the organization's website, developing and assisting with conferences, press releases, and programs involving student scholarships and school grants and awards. Other partners include Keep Mississippi Beautiful and its local affiliates, the Mississippi Beverage Association, the Mississippi Municipal League, the Southeast Recycling Development Council, the Mississippi Manufacturers Association and various other local, state, regional and national organizations.

Solid Waste and Waste Tire Grants Programs

The Waste Division awarded over $3.4 million in Fiscal Year 2021 for solid waste management and recycling projects, solid waste planning projects, and waste tire projects. Of that total, almost $1.7 million was awarded in Solid Waste Assistance Grants to local governments for projects that involved clean-up of illegal dumps, establishment of collection programs for bulky wastes and recyclables, funding support for employing local solid waste enforcement officers, provision of household hazardous collection programs,

conducting public information efforts on solid waste and recycling programs, and various other local waste management projects.

Grant Awards for Fiscal Year 2021

- 56 counties were awarded as total of $982,481 through the non-competitive (or allocated) solid waste assistance grants (SWAG) program.
- 22 additional local governments, including municipalities, counties, and solid waste authorities, were awarded a total of $723,816 in competitive SWAG grant funds.
- 34 local governments were awarded $1.48 million in waste tire assistance grants.
- Six local governments were awarded a total of $211,155 to fund efforts to develop updated, local comprehensive solid waste management plans.

Solid Waste Planning

The Solid Waste Program works with local governments to develop and implement long-range local solid waste management plans. Each local government is required by state law to develop and implement these comprehensive local, solid waste management plans for a 20-year period. Many of these plans have reached the end-of-life and have been or are in the process of being updated.

During Fiscal Year 2021, MDEQ continued to review draft plans for the Golden Triangle Solid Waste Authority and the Northeast Mississippi Regional Solid Waste Management Authority as well as the counties of Coahoma, Grenada, Holmes, Lauderdale, Leflore, Tunica, and Warren with several plans expected to be finalized for Commission approval in 2022. In addition, efforts to comprehensively update solid waste plans were initiated or continued for Pearl River County, the City of Jackson, and the City of Ridgeland with several other local governments preparing to initiate their comprehensive plan updates in 2022.

Local governments also made decisions in Fiscal Year 2021 to significantly alter or modify their plans to add new facilities or to alter the direction of programs and services. MDEQ reviewed the modifications to these existing local plans to assure adequate disposal services and capacity and consistency with state law. Communities that completed modifications in Fiscal Year 2021 include Harrison County, Hinds County, the Pine Belt Regional Solid Waste Management Authority, and the Three Rivers Regional Solid Waste Management Authority. Additionally, MDEQ is continuing review of requests for plan modifications for the counties of Marion and Tate and the Pine Belt Regional Solid Waste Management Authority.

Waste Tire Management Program

The Waste Tire Management Program develops, implements, and promotes the state's strategy to recycle waste tires. The program's success is reflected in the most recent annual program information indicating an overall waste tire recycling rate of over 91 percent for all tires collected for processing, and the recycling rate for waste tires generated in the state that were processed was over 92 percent. It is anticipated that the state's rates will continue to exceed the current national average of approximately 81 percent. Overall, waste tire processors managed approximately 4.5 million waste tire equivalents with approximately 51 percent of the tires being imported from out-of-state sources.

The state's network of waste tire transporters and waste tire management facilities consists of 99 licensed waste tire haulers, 146 local government waste tire collection sites, and seven active commercial waste tire processing and collection facilities. Collectively, approximately 6.3 million passenger tires were managed through the waste tire management program during 2020.

The Waste Tire Program also provides assistance for the clean-up of unauthorized tire dumps and investigates complaints on the mismanagement of waste tires. Since the Waste Tire Abatement program began, MDEQ has removed approximately 2.5 million waste tires from historic and random dumpsites. During Fiscal Year 2021, the previous waste tire abatement contract expired, and MDEQ initiated the process to procure new or renewed contractors for the purpose of performing abatement activities at unauthorized waste tire dump sites.

Electronic Waste Management

MDEQ assists communities, businesses, and private citizens with the proper methods for recycling and disposing of e-waste through a directory of electronic recycling companies and other options for managing and recycling discarded electronics. MDEQ also provides information and resources to support the implementation of the state's Certified Electronics Recyclers law which requires state agencies to use a certified electronics recycler for the end-of-life management of electronic assets.

State law also requires that MDEQ promote the certification of electronics recyclers. MDEQ has continued to promote certification programs managed by two national organizations, Sustainable Electronics Recycling International (SERI – formerly R2 Solutions) and the Basel Action Network. These two organizations provide certification of recycling businesses that collect and recycle used electronic products in a safe and responsible manner. MDEQ encourages communities, businesses and local and state agencies to consider the benefits of using an electronics recycling company certified under one of these programs.

MDEQ provides grants to communities to sponsor e-waste collection events or programs for the public, often as part of larger household hazardous waste collection events. MDEQ also resumed its partnership with the Greater Jackson Chamber Partnership helping to promote and staff electronic collection events in the Jackson Metropolitan area.

MDEQ continued its support for the computer refurbishment program conducted at Jackson State University with grant support to assist in the collection and restoration of used computers. The program collects used computers then donated to low-income families, churches, summer programs, nonprofit organizations, or day care centers, and it provides technical training to young adults on computer repair and restoration.

Medical Waste Management

Commercial Medical Waste

MDEQ shares regulatory authority with the Mississippi State Department of Health (MSDH) for medical waste management. This includes oversight of medical wastes collected and transported from health care facilities and veterinary care facilities, emergency and trauma response, business and institutional clinics, and medical wastes generated in private

residences through home healthcare. In addition, MDEQ oversees commercial medical waste management facilities of three existing commercial autoclave facilities actively operating for the treatment of infectious medical wastes.

Household Medical Sharps

MDEQ oversees a statewide sharps collection program and an associated educational program for the safe disposal of medical syringes, needles, lancets and other devices with a collection network of drop-off locations at pharmacies, fire stations, and other business locations. During Fiscal Year 2021, MDEQ registered nine new drop-off locations bringing the total number of locations throughout the state to 343 with 11,809 pounds of household medical sharps collected, a 12 percent increase from the previous fiscal year. Mississippi continues to lead the nation in the number of household sharps drop-off locations per capita.

Pharmaceutical Wastes

MDEQ encourages the proper management of pharmaceutical wastes and discourages flushing or washing of household medications and other similar products down a toilet or sink. The Mississippi Department of Public Safety offers nine drop box locations at various offices of the Mississippi Highway Patrol and other local law enforcement agencies offer drop boxes for collection of prescription drugs and expired pharmaceuticals. The U.S. Drug Enforcement Administration also offers periodic drug take-back events in partnership with local law enforcement.

Organic Wastes

MDEQ promotes the reduction, recycling and proper management of organic wastes that originate from plants or animals and are biodegradable such as grass clippings, leaves, limbs and woody debris, food wastes, biosolids and other organic sludges, animal manure, and certain commercial and industrial woody or plant-based wastes. The reuse or recycling of organic wastes involves processes such as composting, mulching, anaerobic digestion, and land application of the wastes for soil amendment purposes.

Composting and Mulching

Annual report information from composting and mulching facilities indicated that over 52,000 tons of wastes were collected and processed as compost or mulch in 2020. MDEQ has continued to work towards streamlining and simplifying the state's composting and processing facility regulations and permitting process.

Biosolids Land Application

The Waste Division utilizes the Biosolids Land Application General Permit to issue permit coverage for various biosolids projects. The permit offers a streamlined mechanism for eligible biosolids use projects and provides for a more efficient permitting process while maintaining appropriate environmental safeguards on the soil amendment use of these materials. In calendar year 2020, over 12,000 tons of biosolids were land applied as an agricultural soil amendment. In addition, MDEQ's Beneficial Use program allows for the soil amendment use of Exceptional Quality (EQ) biosolids, and a number of Beneficial Use Determinations (BUDs) have been approved for such use of biosolids.

Landfill Methane Outreach Program

MDEQ maintains a partnership with EPA through the Landfill Methane Outreach Program (LMOP) to promote the use of landfill gas as an alternative energy source. Landfill gas is a byproduct of the decay of municipal solid wastes in landfills and contains methane--a potent greenhouse gas that can be captured and used to fuel power plants, manufacturing facilities, vehicles, homes, and more. Mississippi currently has six active landfill gas-to-energy projects, including direct industrial use, at Waste Management's Pecan Grove landfill (Pass Christian), the Golden Triangle Regional landfill (West Point), the Three Rivers Regional landfill (Pontotoc), Waste Management's Prairie Bluff Landfill (Houston), the renewable natural gas project operated by Air Liquide Advanced Technologies US using landfill gas from the Northeast Mississippi Regional Landfill (Walnut), and the landfill gas-powered leachate evaporator also at the Prairie Bluff landfill.

Byproduct Beneficial Use Program

The Waste Division promotes the beneficial use of nonhazardous by-product materials that would otherwise be disposed of in landfills or managed under a solid waste management permit. The state's beneficial use regulations allow for industries and other waste generators to request that their non-hazardous industrial by-product materials be evaluated for use in the place of products or raw materials. If MDEQ's evaluation of a beneficial use request confirms that the material has suitable physical and chemical properties for the proposed use, then the agency issues a Beneficial Use Determination (BUD) that exempts the specific use of the material from solid waste management permitting requirements. One of the conditions of a BUD is that the responsible person must annually report on the uses conducted during the state for the calendar year.

Annual report figures provided to MDEQ indicated that BUD holders distributed over

928,000 tons of by-product materials for beneficial uses in calendar year 2020. Over 81 percent of the by-products distributed were used for construction purposes while approximately 18 percent of materials were used in soil amendment applications and a small fraction used in other types of beneficial uses.

MDEQ works with generators and suppliers of these by-products who provide by-product materials for uses in construction, agricultural soil amendment and other applications. The agency also works with industries and waste generators to authorize beneficial use "demonstration projects" that allow an industry or company to conduct a short-term pilot project using the material to demonstrate the suitability of the material for longer term use. During Fiscal Year 2021, MDEQ approved seven new BUDs for new byproduct materials with proposed uses including soil amendments, mining reclamation materials, and construction materials and approved one demonstration project for soil amendment use.

MDEQ is currently in the process of evaluating additional requests for beneficial uses including proposals for the use of egg hatchery waste, coal combustion ash, Exceptional Quality biosolids, and other industrial wastewater treatment by-products. The agency is evaluating whether the proposed uses of these materials meet the state's minimum criteria for a beneficial use determination.

Solid Waste Training and Certification Programs

MDEQ partners with the state and national chapters of the Solid Waste Association of North America (SWANA) to provide training and certification to commercial solid waste landfill operators. MDEQ issued certificates for three new landfill operators and six renewals for existing landfill operators. At the end of Fiscal Year 2021, there were 37 active commercial landfill operator certifications.

MDEQ also offers a state-developed certification program for commercial Class I rubbish site operators. Due to constraints during the pandemic, MDEQ did not conduct a rubbish operator training class in Fiscal Year 2021. MDEQ staff did help to promote and organize the Fall and Spring SWANA Conferences for CEU opportunities for rubbish operators. MDEQ also issued certificates for one new rubbish operator and 18 renewals for existing rubbish operators. At the end of Fiscal Year 2021, there were 123 active Class I rubbish site operator certifications.

Mississippi Corrective Action Trust Fund

The Waste Division administers the Mississippi Nonhazardous Solid Waste Corrective Action Trust Fund (CATF) to evaluate or address problems at historic landfills. The CATF provides an opportunity for financial assistance to the landfill site owners to conduct

preventative or corrective actions at municipal solid waste landfills that closed prior to the effective date of the Federal Subtitle D Regulations. A landfill owner can request assistance from the fund for actions related to either a known release or to evaluate or assess a potential release of contaminants from the landfill. The uses of the funds could include monitoring or abating problem conditions such as onsite or offsite impacts from potential groundwater contamination or landfill gas migration or remediating other forms of contamination at an eligible landfill site.

In Fiscal Year 2021, work continued on a previously-approved corrective action project with the City of Laurel to relocate, stabilize and properly cover historic wastes at a closed city landfill at the city's Sportsplex property. MDEQ also awarded additional funds from the CATF to the city to secure suitable materials for the final cover system, since the property will be utilized for public sporting events with a total awarded of over $510,000.

Hazardous Waste Management Program

MDEQ's Hazardous Waste Management Program ensures that hazardous wastes are managed, treated and disposed of in a manner which protects communities and the environment. MDEQ is authorized by EPA to manage and implement the Hazardous Waste Program, and EPA exercises oversight of the program to ensure it is implemented in accordance with federal regulations--the 2021 Resource Conservation and Recovery Act (RCRA) Grant Work Plan and the 2015 Memorandum of Agreement for the RCRA Hazardous Waste Management Program. Hazardous waste program elements of permitting, compliance and enforcement and regulation adoption are consolidated in the Hazardous Waste Management Program.

Currently, there are four permitted operating facilities which treat or store hazardous wastes. There are also 16 permitted facilities conducting remediation and post-closure activities for historic hazardous waste units. MDEQ also provides compliance oversight, as well as outreach for hazardous waste generators, and currently approximately 133 large quantity generators and 286 small quantity generators are operating in Mississippi. The MDEQ Hazardous Waste Program met its compliance oversight obligations as per the EPA program delegation requirements conducting 51 inspections of hazardous waste management facilities during federal Fiscal Year 2021. In addition, the Hazardous Waste Branch provides support to the agency's Household Hazardous Waste Grants program coordinating additional MDEQ staffing support to local community events.

Underground Injection Control Program

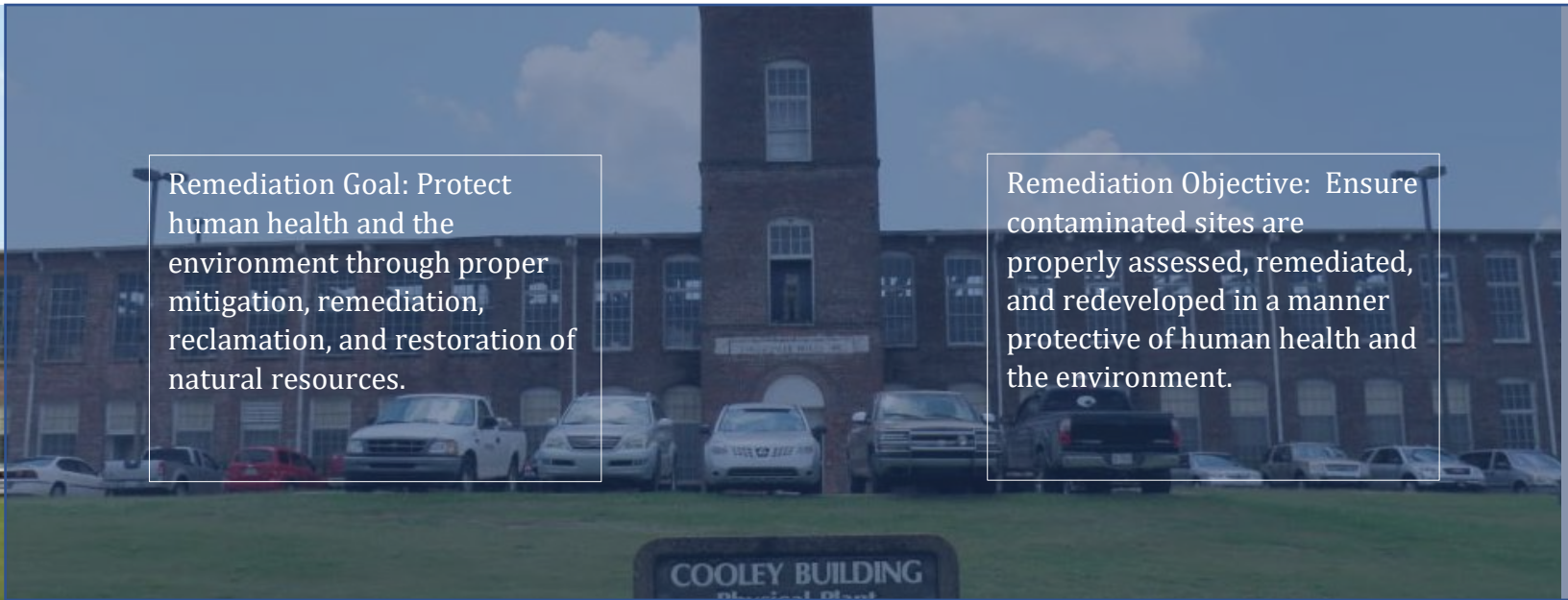
MDEQ's Waste Division administers the agency's underground injection control (UIC) program overseeing the disposal of certain nonhazardous and hazardous aqueous industrial wastes by deep well injection practices. MDEQ is the designated regulatory authority by EPA for the protection of underground sources of drinking water through the regulation of Class I, III, IV, and V Underground Injection Control (UIC) wells. The MDEQ UIC program is managed by the Geotechnical Programs Branch in the Waste Division. Class II wells are regulated by the Mississippi State Oil and Gas Board as delegated by EPA and state law. In addition, in the recent 2021 Session of the Mississippi Legislature, action was taken to amend state law to clarify that the regulation of Class VI UIC wells (wells used for carbon sequestration) would be delegated to the Mississippi State Oil and Gas Board and to direct that agency to seek primacy for the implementation of the Class VI well program from EPA in coordination with MDEQ.

The UIC program responsibilities in the protection of underground sources of drinking water include the regulation of 11 permitted Class I UIC wells and over 7,500 class V wells. MDEQ also has regulatory authority over Class III and Class IV wells, but no wells of these classifications exist in the state. The UIC program did not permit any new wells during the year. In addition, the program continued its oversight of the state's first commercial nonhazardous underground injection control well facility operating in Amite County for the disposal of nonhazardous municipal landfill leachate and other wastewaters from oil and gas exploration and production.

REMEDIATION

Brownfields

A "brownfield" is a property which may be complicated by the presence of a hazardous substance, pollutant, or contaminant that affects the expansion, redevelopment, or reuse of the property. MDEQ's Brownfield Program allows prospective purchasers and developers, along with existing companies, to assess, remediate, and revitalize these sites. Through the program, companies can coordinate with MDEQ and the Mississippi Development Authority (MDA) to participate in a redevelopment incentive program to defray the remediation costs associated with cleaning up contaminated properties. To date, 57 companies have participated in the program. This fiscal year, MDEQ provided technical support to the Cities of Canton, Crystal Springs, Greenville, Hernando, Jackson, Louisville, Vicksburg, West Point, and Yazoo City along with the South Delta Planning and Development District and the Southern Mississippi Planning and Development District to conduct assessments and cleanups for site redevelopment for locations that have potential or perceived environmental issues. These cities and development authorities received EPA grants to conduct brownfield revitalization projects. In 2021, MDEQ completed two Targeted Brownfield Assessments (TBAs) on the behalf of the Mississippi Emergency Management Agency (MEMA) for their future MEMA warehouse and the City of Hernando for redevelopment of the former Buddy's Antiques. These TBAs reduce costs and promote redevelopment opportunities for fellow government agencies. In addition, MDEQ approved four Brownfield Ageements, two of which have applied to the Mississippi Development Authority for the Mississippi Economic Redevelopment Act (MERA). These two sites located in Starkville and Louisville are expending over $2 million in cleanup costs while leveraging almost $30 million in investment and over 100 jobs for these communities.



Remediation Goal: Protect human health and the environment through proper mitigation, remediation, reclamation, and restoration of natural resources.

Remediation Objective: Ensure contaminated sites are properly assessed, remediated, and redeveloped in a manner protective of human health and the environment.

Uncontrolled Sites and Voluntary Evaluation Program

During Fiscal Year 2021, Groundwater Assessment Remediation Division (GARD) staff actively oversaw 223 assessments and/or cleanups with the total number of sites at 2,182. These 2,182 sites cover all the known and suspected contaminated sites reported to the state since 1967. Also, MDEQ issued "No Further Action" letters for 18 of these sites that were evaluated and remediated to levels protective of human health and the environment resulting in an additional 100 acres ready for reuse.

MDEQ issued five Restrictive Use Agreed Order/Environmental Covenants, allowing these sites to be reused with certain activity and use limitations. During Fiscal Year 2021, MDEQ provided responses to 16 hazardous site determination requests from local governments and/or development districts to foster economic development and redevelopment and to assist with compliance with National Environmental Policy Act.

The Voluntary Evaluation Program (VEP) offers an opportunity to receive an expedited review of site characterization and remediation plans and reports for parties that are voluntarily cleaning up uncontrolled sites that they have an interest in. The VEP is funded entirely by these participants who pay for MDEQ's oversight costs. To date, 460 sites have participated in the VEP program, approximately 20 percent of GARD's total number of sites.

Superfund and Federal Facilities Cleanup and Redevelopment

Oversight of the assessment and remediation process at seven federal Superfund sites, seven Department of Defense Facilities, a NASA Facility (Stennis Space Center) and several Formerly Used Defense Sites (FUDS) continue to be a large portion of the work involving the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Branch of MDEQ. This oversight work is funded through agreements with EPA, the Department of Defense, and NASA. Through these agreements, CERCLA staff perform preliminary assessments, site investigations and site inspections at hazardous waste sites for National Priority List (NPL) consideration, coordinate with EPA on emergency/removal projects, and assist EPA with the oversight of the remediation of seven Superfund sites

In 2018, two additional sites, Mississippi Phosphates (Pascagoula) and Rockwell International (Grenada), were added to the National Priorities List (NPL). The state will be required to pay ten percent of the remedial costs if a viable potential responsible party is not identified. To date, a viable potential responsible party (PRP) has been identified for Rockwell International.

The Mississippi Phosphates site has no viable PRP identified at this time, and no estimate of future remedial costs has been given to date. EPA is proceeding with ongoing wastewater treatment during cleanup and closure of the East Gypsum Stack with an engineered

geosythetic turf. EPA is projecting completion of their responsibilities in 2024, and estimates the state's remedial costs will begin in 2025.

Underground Storage Tanks

MDEQ manages the state's Underground Storage Tank (UST) Program, which prevents and detects leaks of petroleum products and hazardous substances and protects groundwater from leaking tanks. The UST Program registers all USTs in the state, conducts operator training, certifies contractors, and conducts inspections and compliance assistance at petroleum storage facilities. The program is also responsible for the assessment and remediation of UST facilities and the management of the Mississippi Groundwater Protection Trust Fund (Trust Fund) if a confirmed release of petroleum product is identified at a facility.

The compliance program inspects UST facilities and are responsible for ensuring 6,760 tanks at 2,573 facilities have the appropriately maintained equipment. In Fiscal Year 2021, there were 1,182 inspections conducted.

A UST-certified contractor program ensures proper installation and maintenance of UST systems. This past year 32 new UST certified contractor licenses were issued, and 246 renewal licenses were issued. There are currently 393 certified individuals that perform tank installations, alterations, testing, and/or permanent closures.

In the event of a release, the Trust Fund is used by MDEQ to assess and clean up contamination resulting from leaking USTs with no additional costs for eligible tank owners and operators. The fund began in 1987, and in June 2021 it reached an overall payout of $216 million to reimburse eligible tank owners for the assessment and cleanup of sites contaminated from leaking USTs. At the end of this fiscal year, MDEQ was working on 664 sites that have had a confirmed or non-confirmed release and Trust Fund eligibility may or may not have been determined. During Fiscal Year 2021, $7.5 million was used to assess and remediate leaking underground storage tanks, a decrease of four percent of spending.

Revenue to operate the UST Program is derived from federal grants and annual active tank fees imposed on tank owners. In 2018, a UST Advisory Council was created to provide an independent review of the MDEQ UST Program funding neds to determine the recommended amount of the upcoming fiscal year annual tank fee. The UST Advisory Board has recommended a potential law change to allow the Trust Fund to be used to help fund the UST Program in lieu of continuing to raise the annual tank fee. Since the Trust Fund has remained sound since 1987, this law change appears to be a viable option.

RECLAMATION

Surface Mining and Reclamation of Surface-Mined Lands

MDEQ regulates all non-coal surface mines in the state as provided for in the Mississippi Surface Mining and Reclamation Act of 1977. This includes issuing surface mining permits and notices of exempt operations, inspecting permitted areas and complaints, overseeing the reclamation performed by operators, and enforcing the law as per the promulgated Rules and Regulations and Commission orders. Additionally, 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 (OSM).

In Fiscal Year 2021, the Mining and Reclamation Division performed 567 inspections recommended to the Permit Board the issuance of 27 initial and 10 amended permits and received 60 Notices of Exempt Operations. A total of 2,222 exempt operations are on file, covering approximately 8,888 acres. A total of 795 bonded acres were completely reclaimed as a result of the division's efforts to oversee reclamation. The state currently has 601 permits covering approximately 34,786 acres. The Office of Geology's Mining and Reclamation Division continues to update the mining database that provides valuable mining information in a GIS format so mining sites can be located and viewed by anyone using the online Mining Viewer.

The Mining and Reclamation Division provides the required Mine Safety and Health Administration (MSHA) training for mining operations in the state. MSHA regulations require New Miner Training as well as an eight-hour Refresher Training courses be taught to all mine workers. In Fiscal Year 2021, the staff provided 55 New Mining Certifications and 120 Annual Refresher Certifications.

Reclamation Objective: Ensure lands impacted by mining activities are restored to reclamation standards that are protective of human health and the environment.

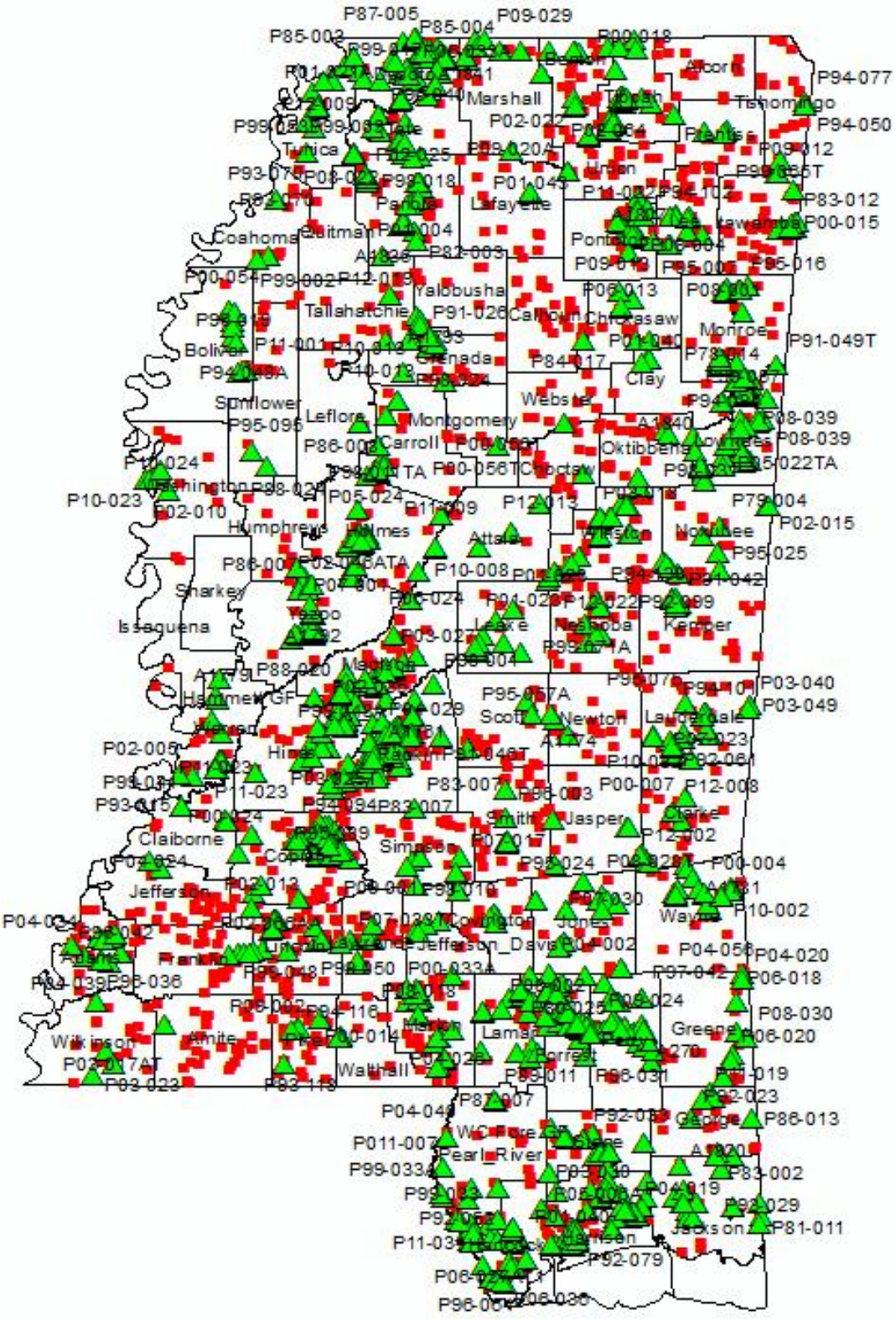
The Mining and Reclamation Division continues to focus on the complexities of coal mine regulation. Mississippi has an industry-estimated five billion tons of surface mineable lignite, a low-grade coal ranked just below sub-bituminous coal. The Mississippi Lignite Mining Company is mining lignite at the Red Hills Mine in Choctaw County to supply fuel for an adjacent 440-megawatt (MW) mine-mouth power plant. The mine produces over 3.5 million tons of lignite per year and has a permitted 6,090 acres. This permit was initially issued in 1998, and was renewed in February 2017 for its fourth five-year term. The planned life of the mine is 30 years. In FY21 an additional 4000 acres was permitted on the east side of Highway 9.

The Liberty Fuels, LLC mine permit in southwestern Kemper County was issued in December 2011 for 2,299 acres. In 2017, Mississippi Power Company discontinued its coal gasification process and elected to operate the power plant exclusively on natural gas. The Liberty Mine has ceased all mining activities and is working toward permanent closure and reclamation of the mine. Reclamation activities at the site are ongoing in FY21, and Liberty Fuels LLC submitted a bond release application for 796 acres of undisturbed land.

Staff site inspections of all 3 surface coal mining permits are conducted at least monthly. One or more joint inspections of each mine are conducted annually with the federal Office of Surface Mining, Reclamation, and Enforcement. It is anticipated that at least three applications for permit revisions will be submitted during Fiscal Year 2022, at least two bond release applications are anticipated during Fiscal Year 2022.

Work under Mississippi's Abandoned Mine Land Program (AML) to identify and locate abandoned historic coal mines has identified four sites--two in Choctaw County and one each in Winston and Lauderdale counties. These sites are believed to have been active sometime in the period from the mid to late 1800s to the late 1920s. In June 2020 another mine entrance was located in Winston County. This area was successfully reclaimed. In FY22 the AML program intends to complete reclamation of sites on 16th Section lands in Covington and Simpson Counties.

Surface Mining and Reclamation of Surface-Mined Lands



WATER QUANTITY

The Office of Land and Water Resources (OLWR) pursues a conjunctive water management approach that coordinates the use of the ground and surface water resources of the state to satisfy desired water needs. The OLWR ensures the use, storage, allocation, and management of water resources and that water pumped and impounded in Mississippi complies with applicable permit regulations. OLWR has programs that include the development and implementation of monitoring plans to facilitate the systematic collection, compilation, and management of data related to aquifers, streams, and lakes; water use surveys and meter reporting tools; application of computer models to assist in making water management decisions; the review and processing of applications for issuance and modification; and enforcement of ground and surface water use permits.

OLWR is also responsible for licensing and regulating water well contractors; regulating the design, construction, and modification of certain dams in accordance with regulatory criteria to ensure that lives and property downstream are protected; and assessing potential contamination threats to public, domestic and industrial water supplies.

In Fiscal Year 2021, OLWR continued to engage large water use in industry, agriculture, public drinking suppliers, and the energy sector to balance water use and economic development. In the Mississippi Delta, OLWR is developing innovative approaches to studying and addressing water sustainability in the heavily utilized alluvial aquifer. OLWR is also monitoring irrigation use outside of the Delta to mitigate competition with domestic and public supply drinking water resources. In addition, OLWR continues to plan for, and work with the energy sector as it relates to hydraulic fracturing activities in southwest Mississippi.

Water Quantity Goal: Maintain sustainable quantities of surface and groundwater in Mississippi.

Water Quantity Objective: Increase the efficiency of water use to improve sustainability of groundwater and surface water in Mississippi.

Water Resource Permitting and Management

The primary objective of the OLWR is to research and manage the water resources of the state to assure adequate supplies for the future. This is achieved by the coordinated interaction of the water withdrawal permitting process including the inventorying and assessment of the availability of water from freshwater aquifers and major freshwater streams. As the entity responsible for managing the water withdrawal permits, OLWR issued 4,781 groundwater permits and 313 surface water diversion permits in Fiscal Year 2021. Included in each permit is an established maximum withdrawal amount and any necessary special terms and conditions associated with a respective permit. For surface water permits, stream flows and lake levels are routinely monitored, and in the event that these fall below established standards, permittees are required to cease withdrawing water until flows rise above established minimums.

The office's Certification and Compliance Branch handles compliance and enforcement actions associated with water well drillers' licensing, terms, and conditions associated with groundwater and surface water withdrawal permits, and any other compliance issues. The branch works with industry, public suppliers, water well drillers, and other members of the regulated community to bring those entities into compliance with state laws and regulations. In addition, the branch continued working with producers in the Mississippi Delta to verify compliance of the appropriate amount of conservation practices on farms as required by the terms and conditions of their groundwater withdrawal permits.

Assessment and Study of Water Resources

The abundant water supplies in Mississippi constitute one of the most important and valuable natural resources contributing directly to the quality of life and economic prosperity of the state. However, the water resources available in a given area of the state can vary significantly depending on various hydrogeologic conditions that may affect base flow in streams, water quality and quantity as well as the prolificacy of local aquifers.

The highly variable nature of these resources means that a concerted effort must be maintained to collect related groundwater and surface water data that will allow proper decisions to be made regarding the management and development of the state's water resources. The OLWR monitors groundwater levels of the state's major freshwater aquifer systems, and reports and potentiometric maps are created to document changes in water levels. Additionally, the OLWR conducts in-depth regional hydrologic investigations of Mississippi's groundwater resources to gain a better understanding of water supplies in regionally prioritized areas. The OLWR staff provides a wide range of information useful for planning economic development projects, groundwater modeling, and development of groundwater resources for public drinking water supplies.

The water resources of Greenville were studied in Fiscal Year 2021. Water from the Cockfield and Sparta aquifers are the primary source of water in the county. Water levels were measured and compared with historical levels in both aquifers. Current levels were used as a part of a larger project to create statewide potentiometric surface maps for the Cockfield aquifer and the Sparta aquifer. Cross-sections were also completed to illustrate the location and depth of each aquifer interval in the area.

MDEQ staff completed a similar project to evaluate the water resources available in the cities of Horn Lake and Olive Branch in DeSoto County. Water levels and trends in the Sparta aquifer and three Wilcox aquifers were studied as part of the work--the lower Wilcox aquifer, the middle Wilcox aquifer, and the Meridian-upper Wilcox aquifer. Aquifer characteristics such as thickness and dip were illustrated with cross-sections running through the county.

Water-level data from wells in the Mississippi River Valley Alluvial (MRVA) aquifer is being collected and evaluated to monitor the effects of pumping and to assist in development of water management practices. The OLWR is also working with the U.S. Geological Survey (USGS) to update, refine, and utilize the Mississippi Delta portion of an existing regional groundwater flow model developed by USGS. This large-scale regional model covers the entire Mississippi embayment and extends through the primary drinking-water aquifers as part of the Mississippi Embayment Regional Aquifer Study (MERAS). This model will be used to better understand the groundwater flow system, the potential effects of variations in pumping patters, and to evaluate various water resources management scenarios. New data continue to be collected for integration into the existing groundwater flow model.

In Fiscal Year 2021, staff completed projects to evaluate the water resources available in the Cockfield aquifer, the Sparta aquifer in Yazoo County and in the Florence-Richland communities of Rankin County, where these aquifers are the primary source of water. Water levels in public supply and home wells were measured and used in the creation of two regional potentiometric surface maps of the aquifers and current maps were compared to track changes.

OLWR continued to map the top of the Glendon Formation and the Moody's Branch Formation in the southern part of Mississippi. Cross-sections running from west to east and from north to south using information from these structure maps will create a framework to build into areas with little information. When completed, these maps will allow for the division of the aquifers of Miocene age into individual aquifer intervals.

MDEQ staff completed 43 flow measurements on streams throughout the state in support of the MDEQ Mississippi Benthic Indicator of Stream Quality project. In addition, USGS continuous stream gauging stations were monitored by the OLWR to evaluate low flow conditions in streams, or reaches of streams, to ensure the water bodies did not fall below their respective statistical low flow averages. During such low flow events, on-site streamflow measurements were made where necessary to validate special terms and conditions related to surface water permit requirements.

Water Resources in the Mississippi Delta

The future of the Mississippi Delta's economic and environmental viability depends on abundant, accessible water of sufficient quality. Over 18,500 permitted irrigation wells screened in the shallow MRVA are used for irrigation, aquaculture, and wildlife management purposes. Over time, pumpage demands have continued to exceed recharge to the MRVA leading to continued overbalances of groundwater withdrawals versus aquifer recharge, disconnected surface and ground water interaction, and notable water-level declines in the aquifer.

To address serious threats to the viability of the Mississippi Delta's MRVA aquifer and Delta-wide stream flows, MDEQ created an executive-level task force to address these water resource challenges in 2011, and a 2014 Executive Order created the Governor's Delta Sustainable Water Resources Task Force.

The Delta Sustainable Water Resources Task Force and its workgroups consist of various state and federal agencies, stakeholder organizations, and academia all focused on the development and implementation of approaches and strategies to ensure sustainable ground and surface water resources for current and future generations in the Mississippi Delta. In Fiscal Year 2017, OLWR adopted a new general permit (MRVA-002), which updated conservation measures as a way to encourage continued adoption of water conservation practices via the permitting process. In Fiscal Year 2021, 4,527 permits and certificates of coverage under the general permit were issued with conservation requirements as part of the special terms and conditions of the permit and certificate of coverage. An online reporting portal developed by OLWR specifically designed to receive meter reading data from participants continues to yield valuable information that will be critical to improving total pumpage estimates and model accuracy.

Source Water Protection

OLWR Source Water Assessment Branch has the primary responsibility of coordinating groundwater quality protection efforts through the source water assessment program to notify public water supplies and customers of the relative susceptibility of their drinking water supplies to contamination. Protecting sources of drinking water is essential for maintaining and improving the quality of human health and the environment.

The program also helps site the proper locations for new drinking water wells. OLWR staff worked closely with 4,404 public water systems, consisting of approximately 3,524 groundwater wells and five surface water intakes, to strengthen protection efforts of underground sources of public drinking water supply. Potential sources of contamination

are identified for each individual city or town in each water supply protection area to use as support for planning decisions. Information gathering in the assessment process is incorporated into recommendations for actions that can be taken at the local level to protect drinking water sources.

Drillers Licensing

OLWR manages and maintains the testing and licensing of water well drillers. Applications for licenses are received along with verification of applicants' basic requirements through testing in accordance with state law and state regulations so current license holders are in compliance. During Fiscal Year 2021, the Drillers Licensing Program issued or renewed 225 licenses, and data for all water wells drilled in the state were added to a database management system. MDEQ staff taught a continuing education course regarding Mississippi drilling laws and regulations at three drilling conferences in Mississippi and one in Tennessee.

Mississippi Agricultural Chemical Groundwater Monitoring Program

More than 90 percent of the population in Mississippi relies on groundwater for drinking water supply. Because of this dependence, there have been growing concerns that agricultural chemicals may be impacting and degrading the valuable groundwater resources in the state. The Agricultural Chemical Monitoring Program determines what, if any, impact these practices may be having. For Fiscal Year 2021, OLWR staff sampled 60 water wells in a continuing effort to ascertain if agricultural practices are affecting the quality of groundwater aquifer systems statewide. These data are recorded and reported to well owners who have concerns about their domestic drinking water. As of Fiscal Year 2021, the program has sampled over 3,088 groundwater sources throughout the state, and to date, results indicate that no significant impacts to groundwater quality are directly attributable to agricultural practices.

WATER QUALITY

Water Quality Monitoring

MDEQ monitors the quality of surface water throughout the state using collected data compared to the state's water quality standards with determinations made about the health and safety of Mississippi's surface waters. The results of the determinations can be found in the state's biennial Clean Water Act Section 305(b) Water Quality Inventory report. Waterbodies not meeting their water quality standards are placed on the state's Clean Water Section 303(d) List of Impaired Water Bodies for action. Data collected through water quality program are publicly available on request or through EPA's Water Quality Portal.

Water Quality Strategic Goal: Protect and restore surface and groundwater quality in Mississippi.

Water Quality Objective: Ensure the improvements funded through the Water Pollution Control Revolving Loan Fund Program are adequate to meet the needs of citizens, the business community, and to foster economic growth.

Ambient Recreational Monitoring Network

MDEQ maintains a monitoring network for fecal coliform for flowing waters in the state that are used for primary contact recreation. Monitoring is done at these locations to collect five samples within a 30-day period. This sample frequency allows for the calculation of a geometric mean for the fecal coliform data. Beginning in 2019, 348 stations were monitored for recreational purposes in the state. Each location is monitored in both the contact (May-October) and non-contact (November-April) seasons. For the latest 305(b) report, approximately 45 percent of the assessed perennial rivers and streams are attaining their use and 55 percent are not. Of the recreational rivers and streams that are not attaining their use, 221 miles of the rivers and streams have completed a Total Maximum Daily Load (TMDL) and only two miles of rivers and streams need a TMDL.

Ambient Lake Monitoring

MDEQ collects chemical, physical and biological samples from public lakes throughout the state. The lakes selected are greater than 100 acres in size and without nutrient enrichment. Since the program's inception, MDEQ has selected 20 lakes per year so that over a five-year cycle approximately 100 lakes will be sampled. Of the lakes assessed during the latest five-year cycle, 92 percent were attaining their use and eight percent were not attaining. In addition, three percent have a completed TMDL and five percent require a TMDL. The lakes that are in need of a TMDL were primarily impaired due to nutrients along with organic enrichment and low dissolved oxygen.

State of Mississippi Water Quality Assessment 2020 Biennial 305(b) Report

Every two years MDEQ is responsible for generating the Water Quality Assessment Report under Section 305(b) of the Clean Water Act. The report comprehensively describes for EPA, Congress, and the public the status of the quality of the state's surface waters. The report also describes the state's assessment methodology and gives the causes, where known, for those waters identified as impaired. The 305(b) report is an overview of how the waters are assessed and what the overall results of these assessments are. The 2020 305(b) report is based on data collected from January 2014 through December 2018. The report also touches on public health concerns such as fish tissue advisories and beach advisories. At the end of the report is an appendix that lists each site sampled between 2014 to 2020 and whether it is attaining or not attaining its designated use or uses.

Mississippi Benthic Index of Stream Quality (M-BISQ)

The Mississippi Benthic Index of Stream Quality (M-BISQ) is an index of biological integrity (IBI) that is used to assess all wadeable non-tidal streams in Mississippi with the exception of wadeable streams located in the Mississippi Alluvial Plain. Monitoring efforts completed as part of this effort have greatly increased the number of biological assessments conducted on state waters. The M-BISQ sampling program and the established sampling and analytical methodology contained therein now serves as the foundation for routine biological monitoring in MDEQ's statewide Ambient Monitoring Network. This index was originally developed using biological and environmental data collected from 463 stream locations, and for Fiscal Year 2020 MDEQ staff sampled 130 streams.

Fixed Station Ambient Monitoring

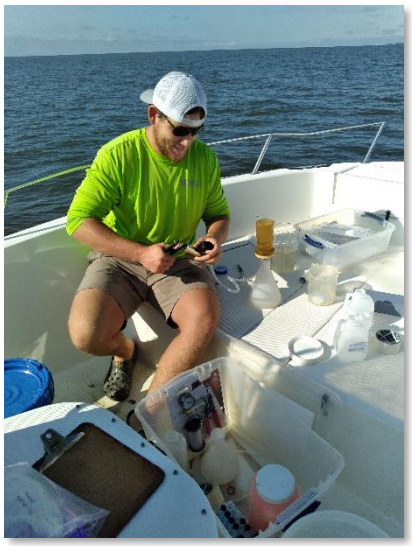
MDEQ's network of statewide ambient water quality monitoring stations provides systematic water quality sampling at regular intervals and uniform parametric coverage to monitor water quality status and trends over a long-term period. Sampling is carried out by MDEQ scientists from each of the agency's three regional offices.

There are currently 41 stations statewide, and laboratory analyses for the samples are carried out monthly by MDEQ's laboratory.

Fish Tissue Monitoring Program

The MDEQ Laboratory monitors fish tissue for contaminant levels that could be harmful to people that consume fish from the state's waters. When elevated levels of contaminants are found in fish tissue, the data is used by a multi-agency task force to determine if a fish tissue consumption warning or advisory is warranted. Presently, there are advisories for Mercury, DDT, Toxaphene, and PCBs on many state waters. Special fish tissue monitoring for Fiscal Year 2020 focused on sites where advisories for DDT and Toxaphene have been issued to collect additional data to further inform decisions on the advisory in the Mississippi Delta. These data are currently being evaluated for advisory updates. In addition, tissue was collected from fishing rodeos in the Mississippi Sound for Mercury and Selenium levels.

Coastal Monitoring



MCA monitoring is conducted during the late summer index period (July to September) and includes biological, chemical, and physical sampling. The sites are selected using a probabilistic site selection methodology, and 33 sites were sampled in Fiscal Year 2021. At the end of a five-year cycle, a total of 125 sites h beeaven sampled for the coastal monitoring program.

Beach Monitoring Network

MDEQ conducts routine bacteria and water chemistry sampling at 21 beach stations located along Mississippi's Gulf Coast as part of the Mississippi Beach Monitoring Program When Enterococcus bacteria concentrations reach unsafe levels, beach water contact 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.

During Fiscal Year 2021, a total of 69 advisories were issued for elevated bacteria detected through routine sampling. The 69 advisories covered 1,372 beach days out of the 7,665 beach days available in the year.

Triennial Review of Water Quality Standards

The Clean Water Act (CWA) requires that each state review their water quality standards at least every three years in a process called the triennial review. Water quality standards must include three components: the designated uses of the state's waterbodies, the water quality criteria necessary to protect those uses, and antidegradation provisions to protect water quality. During the triennial review, that latest science and information available are considered, and when needed, criteria are updated to protect human health and aquatic life.

The last modifications to Mississippi's Water Quality Standards were completed as part of the 2015 triennial review. These modifications were approved by EPA in January 2017. The current triennial review is in its final stage of review with EPA Region four. Initiated in 2018, revisions to Mississippi's Water Quality Standards as part of this triennial review included updates to aquatic life criteria, the addition of three new

waterbody classifications, and additional language related to the implementation of water quality standards. The required 45-day public comment period for the triennial review began on February 11, 2021. A ten-day extension on the public comment period was requested by stakeholders and granted by MDEQ. Public comments were accepted until April 9, 2021. A public hearing was held regarding the proposed regulations on Tuesday, March 30, 2021. The public was invited to participate, to ask questions of the staff, to gain information regarding the proposed modifications to the regulations, and to present verbal comments on the proposed regulations, if desired.

A Notice of Final Rulemaking was made on July 24, 2021. No response was received to the Notice of Final Rulemaking. As the final step, the Special Assistant to Mississippi's Attorney General certified in a letter dated, September 24, 2021, that the revisions had been duly adopted according to state law. The triennial review package has been sent to EPA Region four for their review. MDEQ anticipates EPA Region four approval by the end of the calendar year.

Total Maximum Daily Load and Modeling

Total Maximum Daily Loads (TMDLs) are a requirement of the Clean Water Act (CWA) 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 stormwater runoff from urban areas or agriculture.

Water bodies that do not meet water-quality standards are identified as "impaired" for the particular pollutant of concern. Under Section 303(d) of the CWA, states are required to develop a list of waters that are not in compliance with water quality standards and establish a TMDL for each pollutant causing the impairment. MDEQ biennially creates a list of these impaired waters called the 303(d) List of Impaired Waters. This list was updated again in 2020 and was approved in February of 2021. MDEQ has completed work on stressor identification (SI) analysis for seven water bodies that have been identified as

biologically impaired. The SI process identifies the stressors to water quality for individual water bodies that have been identified as biologically impaired. TMDLs for those water bodies are currently in progress.

Model Calibration Studies

The Pascagoula River and Eastern Mississippi Sound were targeted for model development to better inform permitting decisions for facilities that discharge to this area. Due to unusual weather conditions, the study could not be completed this year and efforts will continue next year. Additional studies were conducted on Sand Creek in Lee County and Bear Lake in Washington County. These efforts included water quality monitoring for an array of parameters including dissolved oxygen, temperature, and velocity. This information will be used to improve the water quality models used to establish TMDLs and waste load allocations for the receiving waters.

Development of the Priority Framework

MDEQ has developed a new collaborative framework for implementation of the Clean Water Act known as the Priority Framework. This new framework coordinates and focuses efforts to advance the effectiveness of the water program. Various environmental factors were adjusted based on professional judgment of the importance of each for characterizing watershed value. Once these factors were developed, standardized, and weighted, a relative ranking of every watershed within the state was produced. This ranking was used to screen watershed for activities that will address the water program goals, and a total of 21 watersheds were chosen as targeted watersheds.

In order to select the priority watersheds, MDEQ used landscape information to calculate metrics on the watershed scale that are used to characterize and rank watersheds by resource value and potential stressors. Resource value is determined using environmental and human welfare data layers. Environmental factors considered include erosion potential, impervious area, wetlands, impaired waters, and concentration and types of discharge permits. Human welfare factors include demographics, fishing advisories, water supply intakes, public water supplies, recreational water bodies, public waterways, national and state parks, and recreational locations. Other factors considered were the presence of existing watershed plans, ongoing restoration or conservation work, and engaged stakeholders all of which greatly increase the chances of success.

MDEQ will review the selection process and screening criteria annually to gauge success and evaluate potential candidate watersheds for a ten-year period. Flexibility will be

retained to re-evaluate selections and amend watershed selection in the face of changing state priorities as well as changing EPA national and regional priorities. As part of this review, MDEQ identified an opportunity to leverage the work being done by several water programs. As a result, the Big Black River Basin will be evaluated as a priority area.

Mississippi River and Gulf of Mexico Watershed Nutrient Task Force

MDEQ continues to support the efforts of the Mississippi River and Gulf of Mexico Watershed Nutrient Task Force (Task Force) to understand the causes and effects of increased nutrients in the Gulf of Mexico and coordinate activities to reduce the size, severity, and duration, and mitigate the effects of hypoxia. Activities of the Task Force include coordinating and supporting nutrient management activities from all sources, restoring habitats to trap and assimilate nutrients, and supporting other hypoxia-related activities in the Mississippi River and Gulf of Mexico watersheds.

Nonpoint Source Pollution

Nonpoint Source (NPS) Pollution is rainwater runoff that picks up and carries away a variety of pollutants as it flows over streets, parking lots, construction sites, and agricultural lands. The pollutants may then flow into rivers, oceans, and underground sources of drinking water. These pollutants include excess fertilizer, sediment, nutrients, pesticides, oil, grease, and bacteria from faulty septic systems.

During Fiscal Year 2021, the NPS Branch managed a total of 43 projects and activities totaling $1.475 million in federal funds. These projects may take from one to four years to complete and include, but are not limited to, education and outreach projects, water-quality monitoring projects, projects that implement Best Management Practices (BMPs) to demonstrate effectiveness of pollution reduction activities, agricultural and chemical waste disposal, and watershed protection and restoration projects.

Basin Management Approach

The goal of Mississippi's Basin Management Approach (BMA) is to restore and protect water resources of the state through collaborative development and implementation of effective management strategies that help improve water quality and quantity while fostering sound economic growth. In an effort to effectively carry out planning and implementation activities, the ten major river basins in Mississippi have been organized into four basin groups. Each basin group has a basin team comprised of the representatives from federal, state, and local government agencies, non-governmental

organizations, and other stakeholders. This program implements strategies that target priority watersheds throughout the state. Prioritization of these watersheds is an evolving process identified in coordination with resource agency partners as part of the Basinwide Approach to Water Quality Management.

The Basin Management and NPS Programs are implemented in cooperation with several agencies, organizations, and groups at all levels of government and in the private sector. A great focus is given to activities that promote consensus building and partnering to increase the overall effectiveness. One key partnership to increase this overall effectiveness is with the USDA Natural Resources Conservation Service (NRCS). MDEQ and NRCS work collaboratively using Section 319 funds for assessment and monitoring of National Water Quality Initiative (NWQI) sites where the NRCS has or will implement various conservation practices such as cover crops, filter strips, and terraces. In addition, information from the Mississippi Watershed Characterization and Ranking Tool (MWCRT) is used to help identify priority watersheds for targeted funding under the National Water Quality Initiative as well as other NRCS funding initiatives.

National Water Quality Initiative

The National Water Quality Initiative (NWQI) was introduced by the NRCS in 2012 as a collaborative effort with EPA and state water quality agencies including MDEQ. NWQI strives to reduce nonpoint sources of nutrients, sediment, and pathogens related to agriculture in small priority watersheds within each state. The watersheds within Mississippi that received funding for Best Management Practices (BMP) implementation in Fiscal Year 2021 included Carmichael Creek-Town Creek (Basin Group I), Coon Creek-Tuscumbia River Canal (Basin Group I), North Tippah Creek (Basin Group II), Middle Porter Bayou (Basin Group II), Upper Porter Bayou (Basin Group II), Hudson Creek-Clear Creek (Basin Group II), Tilda Bogue-Bear Creek (Basin Group III), Lynn Creek-Homochitto River (Basin Group III), and Booths Creek-Bayou Pierre (Basin Group III). Carmichael Creek-Town Creek, Upper Porter Bayou and Middle Porter Bayou also are active Section 319 project watersheds. NRCS is now requiring all NWQI watersheds (previously existing and new) to have a watershed assessment completed to be eligible for funding. Mississippi received $3.9 million in funding this year for NWQI projects.

Stormwater Regulations to Improve Water Quality

MDEQ issues permits covering discharges resulting from rainfall events and the associated stormwater runoff from industrial or commercial sites. These permits focus on avoiding pollutants commingling with stormwater, averting excessive erosion, and preventing contaminated stormwater from entering waters of the state. The permits contain best management plans, monitoring conditions, and operational requirements to ensure

stormwater discharges will not cause or contribute to violations of water quality standards or impair any beneficial uses of waters of the state.

In Fiscal Year 2021, MDEQ took the following stormwater permitting actions:

- The Environmental Permits Division (EPD) issued general permit coverages for 255 large construction projects (five acres or greater) under the Large Construction Stormwater General Permit.
- EPD reissued the Industrial Stormwater General Permit and recovered 349 facilities. Additionally, 21 new facilities received coverage under the Industrial Stormwater General Permit.
- EPD received and processed 66 "No Exposure Certifications" from potentially regulated industrial facilities. Facilities that certify "No Exposure" of industrial activity to stormwater are not required to obtain storm water coverage under the Baseline General Permit.
- EPD issued general permit coverages for 55 regulated surface mining sites under the Mining Stormwater General Permit.

Environmental Operator Training

The training calendar included 41 days of agency-sponsored training classes. Of these training days, 33 were co-sponsored with the three wastewater-related professional associations (Mississippi Water and Pollution Control Operators' Association, Mississippi Water Environment Association, and Mississippi Rural Water Association). Attendance totaled 300 operators, utility managers, and engineers, and certification exams were administered to 193 prospective operators with a total number of 194 new and renewal certificates issued. There were 26 wastewater training requests approved for wastewater continuing education credits in the classroom and online. There are currently 854 certified pollution control operators in the state.

The training program staff participated in energy conservation studies with EPA Region 4 and a wastewater expert in order to save energy costs for facilities while remaining in compliance with their National Pollutant Discharge Elimination System (NPDES) permit.

The MDEQ Operators Training program staff have partnered with the Mississippi Rural Water and the Mississippi Water Pollution Control Operators Association to speak at functions for the Mississippi Municipal League with the ultimate goal of increasing communication between operators and municipal officials. The training staff also provide onsite technical assistance to municipal, commercial, and industrial wastewater facilities. This assistance program provides "no cost" assistance in returning to or maintaining

compliance with their wastewater permit

Water Pollution Control Revolving Fund

The Water Pollution Control Revolving Loan Fund program (WPCRLF) provides low interest loans to public entities in the state for construction, repair, or replacement of wastewater, stormwater, and nonpoint source pollution projects. Funding for these projects comes from federal grants, state match, repayments, and interest on deposits. Additional subsidy funding is also currently available for "Small and Low-Income Community" WPCRLF projects. During Federal Fiscal Year 2021, MDEQ funded eleven new WPCRLF projects totaling $64.1 million.

Water Pollution Control Emergency Loan Fund

The Water Pollution Control Emergency Loan Fund (WPCELF) program provides loans to communities for the emergency construction, repair, or replacement of wastewater collection and treatment facilities. The WPCELF currently has approximately $2.7 million available for such emergency projects. MDEQ encourages communities throughout the state to utilize this program whenever funds for emergency wastewater projects are needed. There were no new WPCELF loans awarded during Federal Fiscal Year 2021.

PERMITTING

MDEQ staff develop various types of environmental permits which are then presented to the Mississippi Environmental Quality Permit board for issuance. The Permit Board issues, reissues, modifies, denies, transfers, and revokes 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, state Solid Waste law, and state water resource control laws.

MDEQ's Office of Geology (GEO) manages permitting activities under the Surface Mining Control and Reclamation Act. The Office of Land and Water Resources manages permitting activities under the water resources control laws. The Office of Pollution Control's (OPC) Environmental Permits Division (EPD) is responsible for Air Construction and Air Operating permits, Air Title V Operating permits, Wastewater - State No Discharge permits, Wastewater – NPDES permits, Wastewater – Pretreatment permits, Stormwater Construction and Operating permits, and Wetlands Impacts permits. The OPC's Waste Division is responsible for solid waste and waste tire permits, Beneficial Use Determinations, Emergency Debris management site approvals lagoon closure exemptions, Hazardous Waste operating and closure/post-closure care permits and generator ID numbers, and Underground Injection Control Program permits.

In Fiscal Year 2021:

- GEO -- issued 27 initial and ten amended permits;
- EPD -- issued, modified or renewed 157 air permits, 176 water discharge permits, 45 pretreatment permits, 56 state operating permits, 63 Water Quality Certifications and 930 statewide general permit coverages including 157 Ready-Mix General Permit coverages and 349 Industrial Stormwater General Permit coverages;
- Waste Division -- issued nine solid waste management permits, 32 authorizations for emergency debris management sites, two lagoon closure exemptions, one waste tire collection site authorization, four Beneficial Use Determinations, two UIC permit modifications, and two class I RCRA permit modifications; and,
- OWLR -- issued, 4,781 groundwater permits and 313 surface water diversion permits.

Currently there are more than 20,000 sites in the agency's permitting database. Many of these sites have permits that, by state and federal regulation, expire every five or ten years and must be reissued. As new companies enter the state and existing companies have changes or modifications, these activities also require permitting actions.

COMPLIANCE AND ENFORCEMENT

The Office of Pollution Control's Environmental Compliance and Enforcement Division (ECED) implements and oversees the majority of MDEQ's air and water compliance and enforcement activities When a site fails to comply with its permit(s) or regulations, appropriate enforcement action is taken to promptly return the site to compliance.

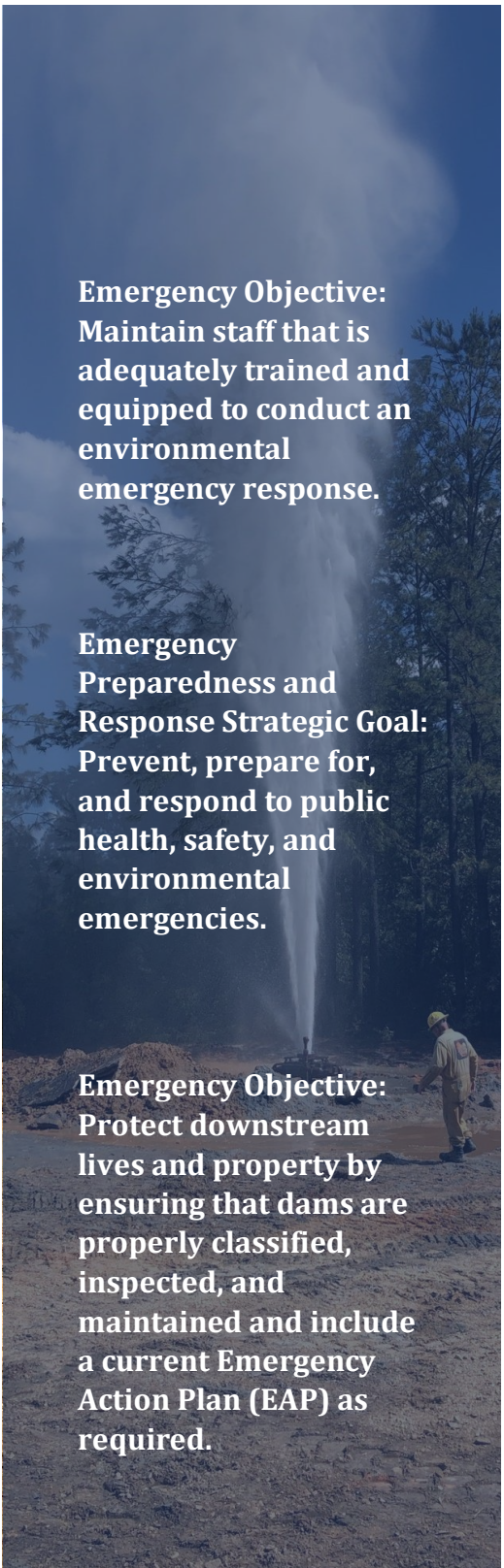
During Fiscal Year 2021, the following number of air and water on-site inspections were performed by ECED and the Field Services Division:

- 155 for compliance with air pollution regulations and permits.
- 1,080 for compliance with water pollution regulations and permits.

ECED actions resulted in 40 orders being issued for non-compliance with air and water regulations and permits, 37 Agreed Orders, two Unilateral Orders, and one Commission Order. Of the 37 Agreed Orders executed, 35 contained provisions for a penalty for a total of $3.36 million. The Commission Order contained provisions for a penalty with a total assessed amount of $505,000. When appropriate, MDEQ allows the use of Supplemental Environmental Projects (SEP), projects that go beyond what is required to comply, to offset a portion of a cash penalty. There were no orders utilizing a SEP during Fiscal Year 2021.

ECED, in conjunction with the Field Services Division, is also responsible for responding to citizen complaints regarding air and water matters. During Fiscal Year 2021, MDEQ received and investigated 861 complaints related to air and water matters. When citizens report an environmental problem, they are asked to explain the nature of the problem and give the location of the problem, including directions to the site. A name is not required; however, if a name and contact information is provided, MDEQ either contacts the complainant during the investigation or provides the results of the investigation after the investigation is complete.

EMERGENCY RESPONSE AND PREPAREDNESS



Emergency Objective: Maintain staff that is adequately trained and equipped to conduct an environmental emergency response.

Emergency Preparedness and Response Strategic Goal: Prevent, prepare for, and respond to public health, safety, and environmental emergencies.

Emergency Objective: Protect downstream lives and property by ensuring that dams are properly classified, inspected, and maintained and include a current Emergency Action Plan (EAP) as required.

The Emergency Response Division responds to emergencies involving hazardous materials, oil spills, or any pollutant that poses a threat to human health or the environment. The Emergency Response staff handled approximately 910 calls for assistance in Fiscal Year 2021, contractor expenditures for response actions were $1.1 million, and the agency was reimbursed approximately $127,000 from responsible parties.

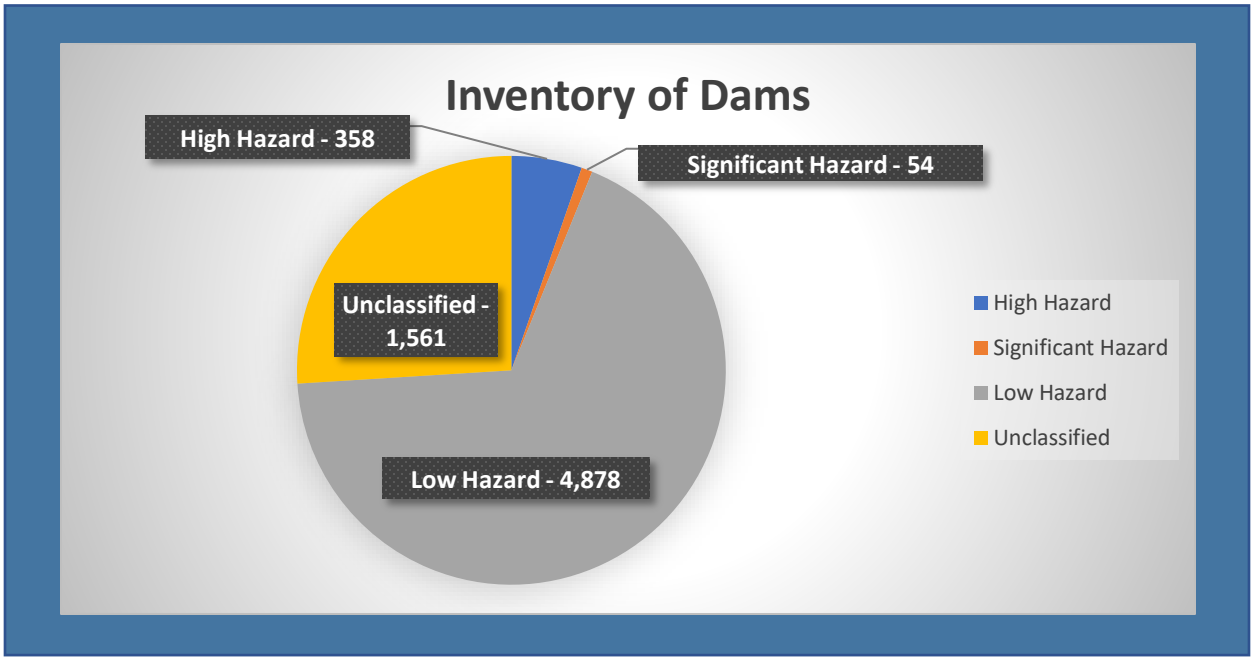
MDEQ and the Mississippi Emergency Management Agency (MEMA) work together to provide effective around-the-clock spill response. MEMA is notified of emergencies, and they, in turn, contact MDEQ personnel who provide on-site response and technical assistance.

MDEQ maintains the resources and readiness to support local emergency response personnel and communities when an environmental or public health emergency occurs quickly and effectively. This readiness is accomplished by training alongside regional response teams, and state agencies such as MEMA, the Mississippi State Department of Health, the Mississippi Department of Public Safety, and federal agencies such as EPA, the Department of Defense, U.S. Department of Homeland Security, and the Federal Emergency Management Agency. Additionally, MDEQ maintains expertise in handling hazardous, radioactive materials, and biohazard emergencies by participating in advanced-level courses and exercises.

The state's dam safety regulations were implemented to protect life and property downstream of manmade dams. Dams are classified as either High Hazard, Significant Hazard, or Low Hazard in accordance with Dam Safety Regulations.

The Dam Safety Division in the Office of Land and Water Resources reviews plans for repairs or modifications to existing dams, for the construction of new dams, conducts dam inspections, performs engineering analyses of dams, and reviews and approves Emergency Action Plans (EAPs) for High Hazard dams in addition to other duties. There are currently 358 High Hazard dams, 54 Significant Hazard dams, 4,878 Low Hazard dams, and 1,561 unclassified dams, totaling 6,851 dams on inventory in Mississippi. Unclassified dams are dams upon which preliminary engineering analysis shows that it could potentially be either High or Significant Hazard, but further analysis is needed for proper classification.

Regulations require that dam owners perform annual inspections of their High and Significant Hazard dams and have periodic inspections performed by a registered professional engineer at least once every five years. Dam owners are required to address any deficiencies noted during inspections resulting in applications to MDEQ for modification and/or rehabilitation. MDEQ also performs random inspections to verify that the conditions of the dams are being accurately reported in submitted inspection reports.

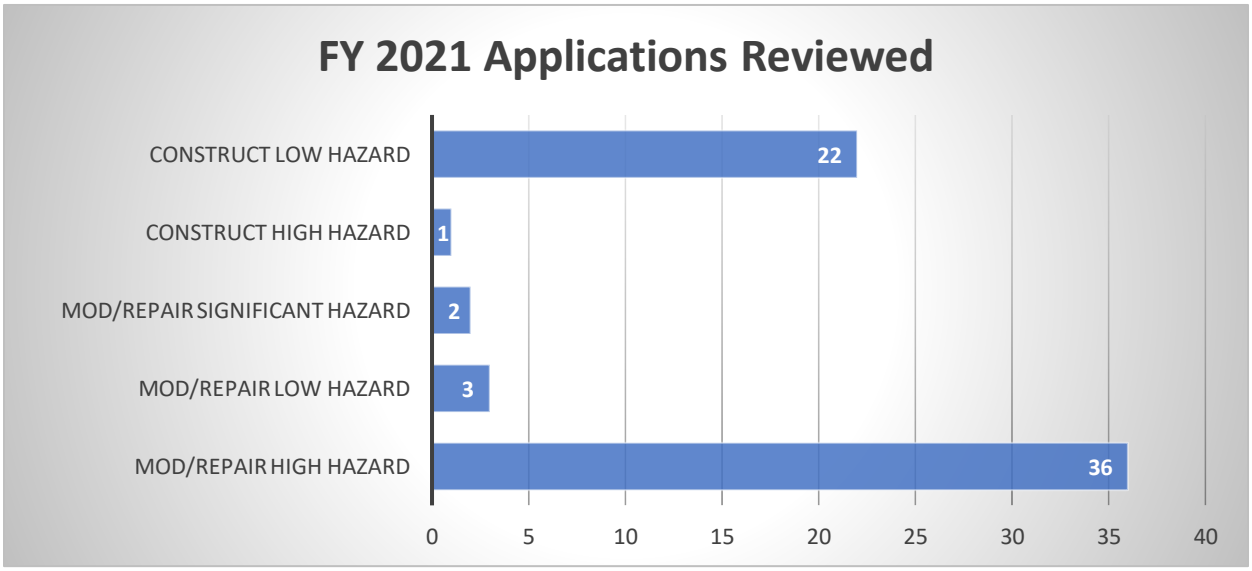


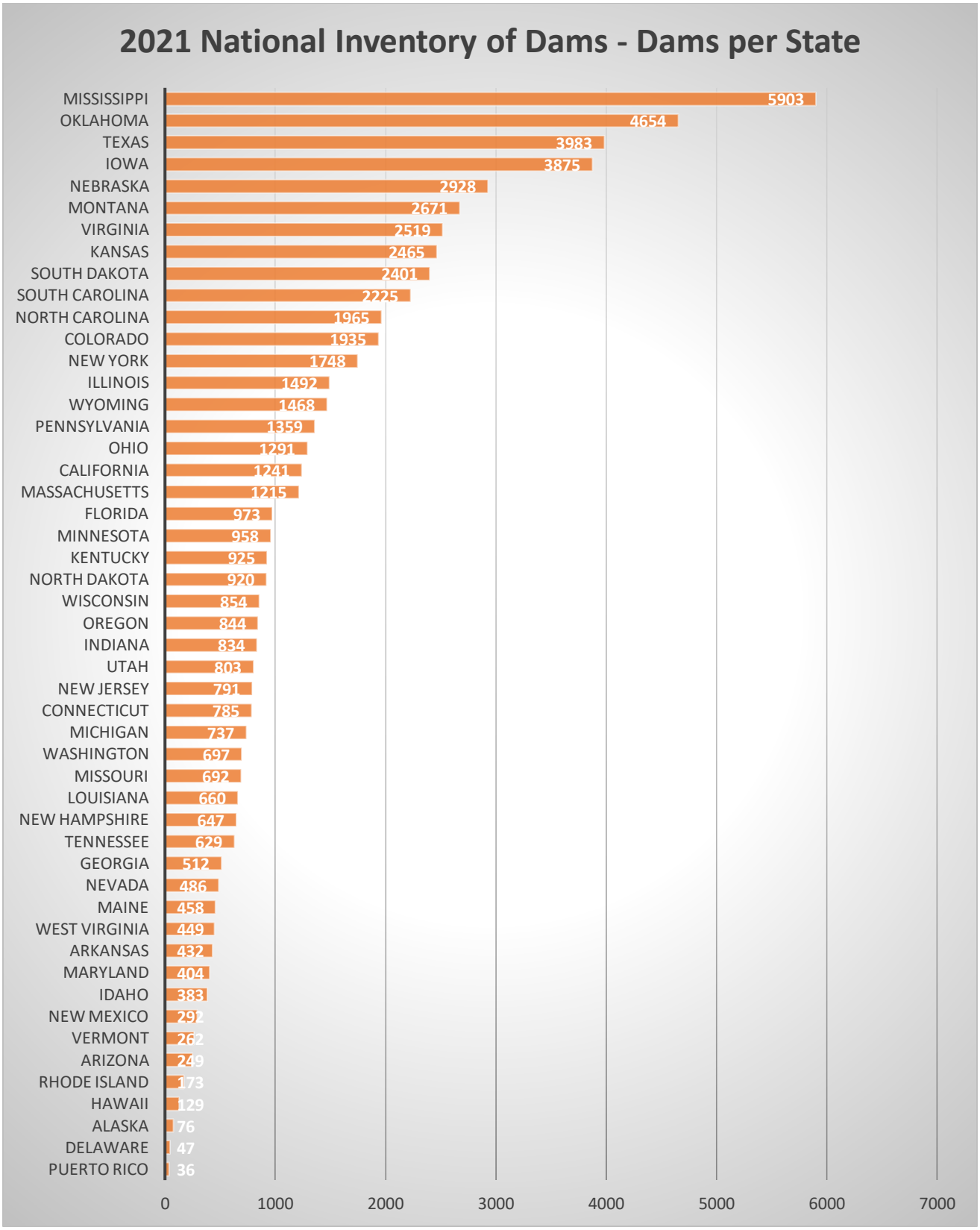
During Fiscal Year 2021, 349 dams were inspected, and the information produced by these inspections resulted in dam owners initiating repairs or rehabilitation on 36 High Hazard dams. The Division also reviewed and approved applications to modify three Low Hazard dams, and to construct 22 new Low Hazard dams and one new High Hazard dam.

There are currently 306 EAPs on file for High Hazard dams, and the Division's goal is to have all owners of High Hazard dams submit EAPs for review and approval. Compliance with this goal presently stands at a Mississippi record high of 85 percent. The approval process includes review and approval at the county level by the local Emergency Management Agency and all first responders that would be required to implement the plans. This procedure has extended the anticipated schedule for completing the documents, but the involvement of local agencies in the plan development greatly enhances the value of the plans in safeguarding lives and property in the event of a dam failure.

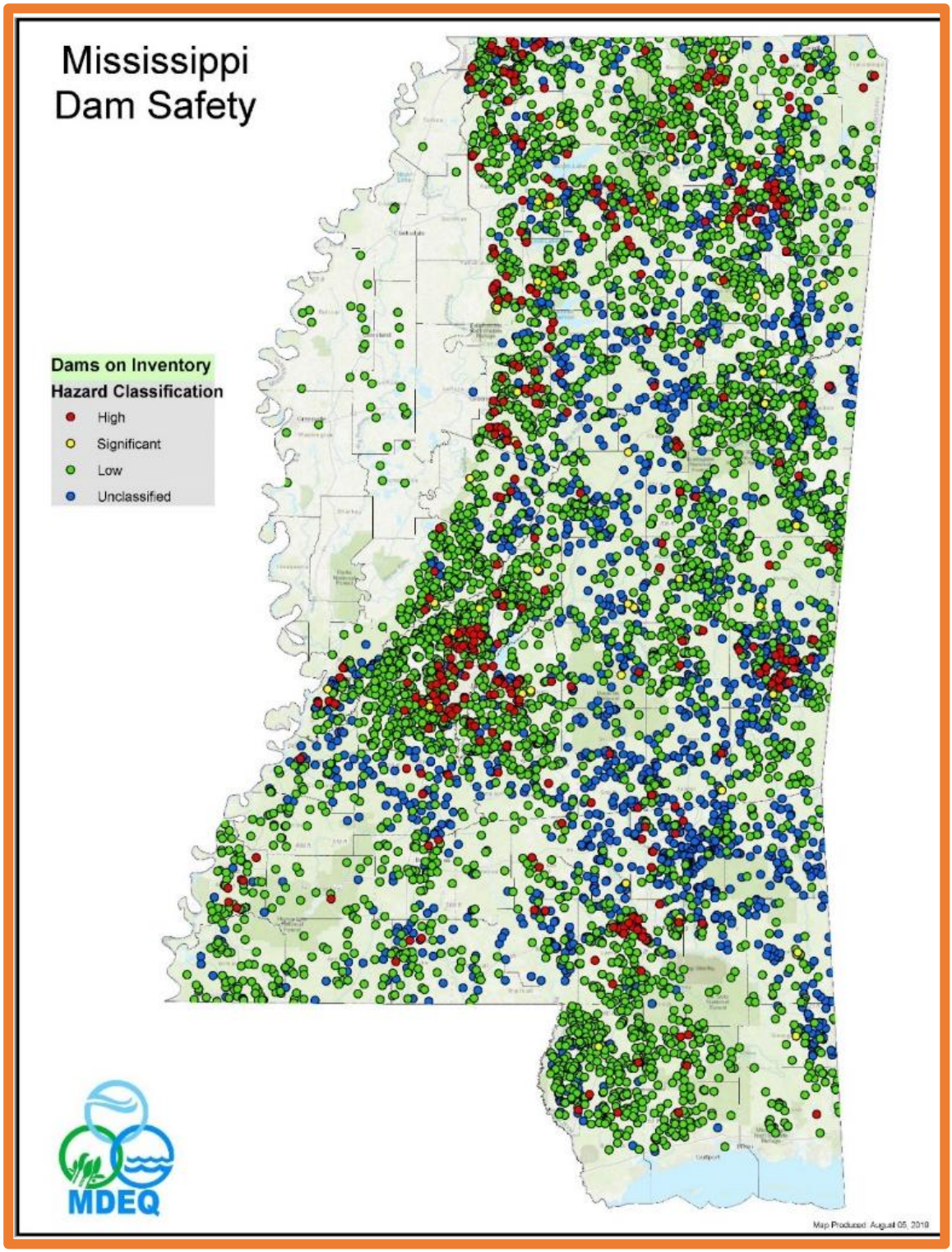
One of the other major duties of the Dam Safety Division is to respond to dam incidents and failures. Staff members responded to nine dam incidents or failures in Fiscal Year 2021 and were able to mitigate each emergency successfully. During emergencies, the Dam Safety Division provides on-site response and technical assistance to county emergency managers and dam owners.

Mississippi leads the country in the number of qualifying dams per state. To be included on the National Inventory of Dams maintained by the U.S. Army Corps of Engineers, a dam must exceed 20 feet in height and impound a volume of 40 acre-feet of water.





Database maintained by the US ACE


Mississippi
Dam Safety
Dams on Inventory
Hazard Classification
High
Significant
Low
Unclassified
MDEQ
Map Produced: August 05, 2019

OIL SPILL RESTORATION

MDEQ leads the state's efforts to restore and enhance Mississippi's natural resources following the 2010 *Deepwater Horizon* oil spill. Executive Director Chris Wells serves as Mississippi's Trustee on the Deepwater Horizon Natural Resource Damage Assessment Trustee Council (NRDA Trustee Council), the Governor's designee for the Gulf Coast Ecosystem Restoration Council (RESTORE Council), and the state's designee for the National Fish and Wildlife Foundation (NFWF) Gulf Environmental Benefit Fund (GEBF). Together these bodies, comprised of federal agencies, five states, and a congressionally-mandated non-governmental organization are working to implement multiple projects and initiatives to restore the natural resources of the Gulf of Mexico region.

MDEQ Office of Restoration

MDEQ's Office of Restoration oversees and manages all aspects of restoration funded through the NRDA process, the RESTORE Act, and the NFWF GEBF. Using a team of scientists, engineers, and other subject matter experts, MDEQ works with state and federal agencies, local governments, non-governmental organizations (NGOs), residents, industries, and business owners to develop and implement restoration projects.

MDEQ continues to engage the public throughout the restoration process. Mississippians also have the opportunity to submit restoration project ideas into the state's project idea portal on the agency's website. Since its inception in October 2013, the portal has received more than 1,200 submissions ranging from ecological projects, to economic development, to infrastructure projects.

Mississippi Restoration Funds

As a result of the oil spill and settlement of claims, MDEQ is managing the approximately $1.45 billion Mississippi will receive to support recovery and restoration efforts. These funds are allocated to the state from civil and criminal penalties levied against the responsible parties under the Clean Water Act and natural resource damages under the Oil Pollution Act. The restoration funds that MDEQ manages for implementing restoration projects come from three primary funding sources:

- RESTORE Act - $769 million to be paid by the responsible parties our time in accordance with the caourt-approved payment schedule through 2031.
  - Direct Component (Bucket 1) - $372 million
  - Comprehensive Plan Component (Bucket 2) – Under the RESTORE Act, approximately $1.59 billion will be administered with each member of the RESTORE Council eligible to receive funding in a competitive process.
  - Spill Impact Component (Bucket 3) - $304 million
  - Centers of Excellence Research Grants Program (Bucket 5) - $26.6 million
- NFWF GEBF - $356 million paid by the responsible parties to the GEBF.
- Natural Resource Damage Assessment (NRDA) - $296 million

The RESTORE Act

The RESTORE Act makes available 80 percent of Clean Water Act civil penalties paid by the responsible parties for the oil spill (i.e. BP and Transocean) for programs, projects, and activities that restore and protect the environment and economy of the Gulf Coast through the Gulf Coast Restoration Trust Fund. Within the RESTORE Act, there are five funding components (or “buckets”), which make funds available to each of the state in accordance with certain legal parameters:

- Direct Component (Bucket 1)
- Comprehensive Plan Component (Bucket 2)
- Spill Impact Component (Bucket 3)
- National Oceanic and Atmospheric Administration (NOAA) Science Program (Bucket 4)
- Centers of Excellence Research Grants Program (Bucket 5)

The State of Mississippi is involved in the administration of funds from Buckets 1, 2, 3, and 5. MDEQ works with the U.S. Department of Treasury for Buckets 1 and 5, and the RESTORE Council for Buckets 2 and 3. NOAA administers Bucket 4.

The RESTORE Council, established by the RESTORE Act, develops and oversees implementation of a comprehensive plan to help restore the ecosystem and economy of the Gulf Coast Region. The RESTORE Council is comprised of governors, or their respective designees, from the five affected Gulf States, the Secretaries from the U.S. Departments of the Interior, Commerce, Agriculture, and Homeland Security as well as the Secretary of the Army and the Administrator of the EPA.

RESTORE Act

Direct Component (Bucket 1)

Governor's Gulf Coast Advisory Committee

In 2021, the Governor's Gulf Coast Advisory Committee formed by Governor Tate Reeves researches and recommends projects to the Governor under the RESTORE Act Direct Component and Spill Impact Component.

The committee's seven subcommittees' recommendations resulted in 16 projects totaling $62 million selected and announced by Governor Reeves in November 2021.

Multiyear Implementation Plan

In April 2020, the U.S. Department of the Treasury accepted Amendment No. 4 to Mississippi's Multiyear Implementation Plan (MIP). The MIP describes the projects, programs, and activities for which Mississippi will spend "Bucket 1" funds. The MIP Amendment No. 4 included the following ten updates totaling approximately $21.3 million of new or additional project funding:

- Improved Fiber Optic Infrastructure (Removed from the MIP, freeing up $4.95 million for other projects)
- Mississippi Gulf Coast Water Quality Improvement Program ($1 million in additional funding)
- University of Southern Mississippi Oyster Hatchery and Research Center ($4.4 million in additional funding)
- Buccaneer State Park Improvements ($1.1 million)
- Biloxi Point Cadet Marina Upgrades ($3.3 million)
- City of Moss Point Interstate 10 Commercial Corridor Improvements ($3.3 million)
- Mississippi State University Northern Gulf Aquatic Food Research Center ($3.3 million)
- Mississippi Gulf Coast Community College Center for Security and Emerging Technologies ($3.3 million)
- University of Southern Mississippi Ocean Enterprise Entrepreneurship Program ($1.1 million)
- Planning Assistance – MIP Amendment Development ($500,000 in additional funding)
- There are 33 approved projects on the MIP.
- There were no amendments to the MIP in 2021.

Council Selected Component (Bucket 2)

In 2015, the RESTORE Council approved the Funded Priorities List (FPL) totaling approximately $156.6 million in restoration activities across the Gulf. In April 2021, the

RESTORE Council approved FPL 3b, which contained two programs which will be implemented by the State of Mississippi:

- Coastal Nearshore Habitat Restoration and Development Program ($34.6 million) – A 10-year program that will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, coastal wetlands by creating, restoring, and enhancing coastal habitat.
- Water Quality Improvement Program (WQIP) for Coastal Mississippi Waters ($34.25 million) – This WQIP will dovetail with existing Bucket 1 and Bucket 3 WQIPs to support overall water quality improvement such as planning, engineering and design, septic-to-sewer conversion, implementation of new stormwater and wastewater systems, and repairing/upgrading existing stormwater and wastewater systems.
- These programs come in addition to projects approved under

Spill Impact Component (Bucket 3)

In April 2020, the RESTORE Council, approved Mississippi's State Expenditure Plan (SEP) Amendment that describes the project, programs and activities for which the state will spend "Bucket 3" funds. The SEP Amendment includes three updates totaling approximately $19 million:

- Mississippi Gulf Coast Water Quality Improvement Program ($7 million in additional funding) - This program includes planning, engineering and design, septic-to-sewer conversion, implementation of new stormwater and wastewater systems, and repairing/upgrading existing stormwater and wastewater systems.
- Beneficial Use of Dredge Material for Marsh Creation and Restoration ($7 million) -- This project will maximize and accelerate marsh creation and restoration by pairing the use of BU materials with local dredging needs in each of the three coastal counties.
- Mississippi Beachfront Resilience ($5 million) - This program will support the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands through the restoration and development of sand dunes and protection of beaches with additional boardwalk.
- There are currently 11 approved projects/programs for the SEP.
- There was no amendment to the SEP in 2021.

Centers of Excellence Component (Bucket 5)

The Mississippi Based Restore Act Center of Excellence (MBRACE) was selected in 2015 as a partnership among Jackson State University, Mississippi State University, the University of Mississippi, and the University of Southern Mississippi focusing on science, technology, and monitoring in the Gulf Coast Region. In 2017, MDEQ executed a sub-award agreement with USM as the lead university for the MBRACE consortium. In the past year, MBRACE began wrapping up the research activities occurring under its initial Core Research Program (Core 1) and is now in the process of beginning its second Core Research Program

(Core 2) which will act as a continuation of the activities which occurred under Core 1. Additionally, in the past year, MBRACE competitively selected several research projects which have been awarded funding.

National Fish and Wildlife Foundation

Mississippi will benefit from $356 million as a result of the Clean Water Act criminal settlements resulting from the oil spill. The National Fish and Wildlife Foundation (NFWF) administers these funds through the Gulf Environmental Benefit Fund (GEBF). NFWF-GEBF has awarded grants for 25 projects in Mississippi with a total of nearly $163 million:

- Enhancement of St. Louis Bay Oyster Reef ($2.8 million) -- This project was awarded directly to The Nature Conservancy to expand an existing oyster reef in St. Louis Bay by 20 acres. Restoration will be accomplished through the deployment of clutch material at an existing ten-acre oyster reef site.
- Mississippi Offshore Artificial Reef and Habitat Enhancement ($2.6 million) -- This project was awarded to MDMR to create artificial reefs to provide ecological benefits to marine fishes in offshore areas. Reef sites will be managed and maintained by the Mississippi Gulf Fishing Banks in coordination with MDMR's Artificial Reef Program.
- Invasive Species Management on Coastal State Lands – Phase II ($800,000) -- To develop species management activities to control and eradicate the invasive Amazonian Apple Snail in the lower Pascagoula River estuary. Eradication efforts are under way and include removing egg masses and live snails. Progress in controlling the non-native snail will be assessed after two years.
- Reef Fish Assessment, Phase IV ($3.6 million) -- Continuing assessments of reef fish in coastal Mississippi and nearshore Gulf waters. Collection of biological, environmental, and fishery-dependent data will help to reduce the scientific uncertainty around several key factors influencing red snapper and other reef fish population structures and stock assessments.

Natural Resource Damage Assessment (NRDA)

The Deepwater Horizon Natural Resource Damage Assessment (NRDA) is the legal process for developing the public's claim for natural resource damages against the party or parties responsible for injuries to those resources and the services they provide. The NRDA settlement allocation for Mississippi is approximately $296 million.

Early Restoration

In 2011, BP agreed to provide up to $1 billion toward Early Restoration projects to partially address injuries to natural resources caused by the oil spill. This agreement, "Framework for Early Restoration Addressing Injuries Resulting from the Deepwater Horizon Oil Spill," represented a preliminary step toward the restoration of injured natural resources and was intended to expedite the start of restoration in advance of the completion of the injury assessment process. Under this agreement, DOI, NOAA, and the Gulf states each received

up to $100 million to implement early restoration projects. The remaining $300 million was allocated by NOAA and DOI for early restoration projects proposed by state trustees.

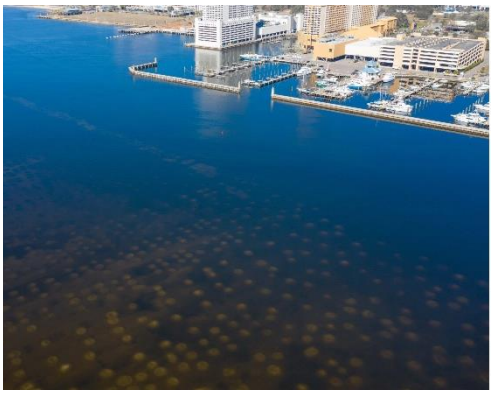
- Phase I ($13.6 million) -- Mississippi's projects from Phase I included the laying of approximately 1,400 acres of oyster cultch in the Mississippi Sound and a near shore artificial reef enhancement project. Construction activities and monitoring activities for both projects are complete.

- Phase II: There were no Phase II projects for Mississippi.

- Phase III: Mississippi has four Phase III projects ($68.95 million)

    - Hancock County Marsh Living Shoreline ($50 million) -- Construction of six miles of breakwaters that will develop into living reefs. Benefits include reduction of erosion, re-establishment of oyster habitat, and enhanced fisheries resources and marsh habitat. Approximately 46 acres of marsh has been constructed in 2020-2021 to protect and enhance the existing shoreline near Heron Bay. In addition, 46 acres of sub-tidal oyster reef were created in Heron Bay to protect the shallow bay and increase oyster production in the area. Construction activities began in 2016 and were completed in late spring of 2021. MDEQ and NOAA are implementing trustees.
    - Restoration Initiative at the INFINITY Science Center ($10.4 million) -- INFINITY is an interactive science research, education, and interpretive center located in Hancock County with funding used for visitors' access to coastal natural resources. Completed in 2018, enhancements include the Possum Walk Heritage Trail and associated electric tram tour, the Biome Boardwalk showcasing natural habitats of native landscaping, construction of a new 3-D Theater, refurbishment of the Xspherience theater, and the construction of 11 new science exhibits.
    - Popp's Ferry Causeway Park ($4.7 million) -- This project in Harrison County included construction of an interpretive center, nature trails, boardwalks, fishing piers, bait shop, kayak launch, and other recreational enhancements.
    - Pascagoula Beachfront Promenade ($3.8 million) -- Funds were used to complete a two-mile, ten-foot wide lighted concrete pathway complete with amenities along the Pascagoula beach.

- Phase IV Project
    - Restoring Living Shorelines and Reefs in Mississippi Estuaries ($30 million) -- This project includes restoration of intertidal and subtidal reefs and the use of living shoreline techniques including breakwaters. Projects have been implemented at Deer Island and Grand Bay and Graveline Bay. The project builds on recent collaborative projects implemented by MDMR, NOAA, and The Nature Conservancy. Over time, the breakwaters, intertidal and subtidal restoration areas will develop into living reefs that support benthic secondary productivity and breakwaters will reduce shoreline erosion and marsh loss. The remaining two components are scheduled for construction in 2021-2022.



Photos above: Deer Island;
Below: Hancock County Living Shoreline

Post-Settlement NRDA Restoration

As part of the settlement with BP in 2016, the court approved a consent decree outlining the framework for the restoration of natural resource damages across the Gulf. The DWH Trustee Council completed the Final Programmatic Damage Assessment and Restoration Plan and Programmatic Environmental Impact Statement and Programmatic Environmental Impact Statement (PDARP/PEIS) that includes an assessment of the injury to and the framework to restore injured natural resources. The NRDA settlement, including early restoration, totals $296 million for Mississippi projects for the following restoration types:

- Wetlands, Coastal and Nearshore Habitats
- Habitat projects on Federally Managed Lands
- Nutrient Reduction (Nonpoint Source)

- Sea Turtles
- Marine Mammals
- Birds
- Oysters
- Provide and Enhance Recreational Opportunities
- Monitoring and Adaptive Management

The Mississippi Trustee Implementation Group (MS TIG) is responsible for restoring the natural resources and services in Mississippi and is comprised of MDEQ, NOAA, DOI, USDA, and EPA. The MS TIG identifies restoration projects, develops draft and final restoration plans, and implements specific restoration actions that are consistent with the PDARP/PEIS. Proposed restoration projects and relevant restoration plans must be consistent with the Consent Decree, OPA Pollution Act, NRDA regulations, and Trustee Council governing documents. The Trustees ensure that the public is involved through public noticing of proposed restoration plans, public comment, and consideration of comments received.

MS TIG Restoration Plan 1

The first plan developed by the MS TIG was released in June 2017, and includes the following three projects currently being implemented:

- Graveline Bay Land Acquisition and Management Project ($11.5 million) – The project includes acquisition, preservation, and habitat management in the Graveline Bay Coastal Preserve. MDEQ and the DOI are Implementing Trustees for the project working with MDMR as a project partner to preserve and enhance up to 1,410 acres of habitat. Priority tracts have been identified and landowner conversations are being initiated.

- Grand Bay Land Acquisition and Habitat Management Project ($16 million) -- This project will result in a combination of acquisition and habitat management within the Grand Bay National Wildlife Refuge, Grand Bay National Estuarine Research Reserve, and Grand Bay Savanna Coastal Preserve. MDEQ and the DOI are Implementing Trustees with MDMR and the U.S. Fish and Wildlife Service as project partners. The project includes preservation of up to 8,500 acres and enhancement of up to 17,500 acres of habitat. In 2018, over 1,500 acres were acquired and will be jointly managed by staff at the Grand Bay National Estuarine Research Reserve/Grand Bay National Wildlife Refuge. In 2020, approximately seven additional acres were acquired.

- Upper Pascagoula River Water Quality Enhancement Project ($4 million) -- The project includes development and implementation of conservation plans to reduce nutrient and sediment contributions in the watershed. The USDA, EPA, and MDEQ are Implementing Trustees for the project which includes an extensive outreach program to landowners. Conservation practices will be planned and implemented on properties throughout the watershed with emphasis given to properties bordering rivers and streams.

Mississippi TIG Restoration Plan II

The second plan developed by the MS TIG was released in September 2020 and includes the following proposed projects. Implementation of the projects will begin in 2022.

- Oyster Spawning Reefs in Mississippi ($10 million) -- The project will restore or create a minimum of 100 acres and a maximum of 400+ acres of high-relief cultch placements in up to six locations in the Mississippi Sound and areas including St. Louis Bay, Heron Bay, Back Bay/Biloxi Bay, Graveline Bay, Pascagoula Bay, and Grand Bay. This project includes the possibility of placement of more than 400 acres where it is feasible.

- Mississippi Oyster Gardening Program ($500,000) -- The project will be implemented over a five-year period and is continuation of the current NFWF-GEBF funded project in which volunteers grow sub-adult oysters from spat on shell stock in gardens that hang from waterfront piers, wharves and docks.

- Wolf River Coastal Preserve Habitat Management (Dupont Tract and Bell's Ferry Tract -- $3.13 million) -- The project will restore ecologically-connected coastal habitats adjacent to St. Louis Bay and benefit habitats ranging from salt marshes to coastal freshwater wetlands to upland buffer communities. Habitat management will occur within 2,500 acres of the Wolf River Coastal Preserve.

- Hancock County Coastal Preserve Habitat Management – Wachovia Tract ($1.76 million) -- The project will restore ecologically-connected coastal habitats by providing habitat management to pine flatwoods as well as freshwater and brackish marsh within the existing 1,203-acre project area.

Restoration Plan II

The MS TIG begin the restoration planning process for Restoration Plan III in 2021. The MS TIG requested project ideas for the following restoration types:

- Habitat Projects on Federally Managed Lands
- Sea Turtles
- Marine Mammals
- Birds
- Provide and Enhance Recreational Opportunities.

The projects will be selected, and the plan finalized in 2022.

OUTREACH, RESEARCH, AND EDUCATION

MDEQ's public outreach efforts are aimed at assisting citizens, schools, businesses, industries, and others learn about required and recommended actions to protect the environment and public health.

Pollution Prevention Program

The MDEQ Pollution Prevention (P2) Program is coordinated by the Waste Division with the various air, water, and waste environmental media programs in the agency. The P2 program coordinates multiple activities focusing on the reduction of wastes at the source that can impact the environment. The Mississippi P2 program efforts are supported in part by a Pollution Prevention Grant from EPA which provides the state with additional resources to assist industries, businesses and government agencies and institutions with pollution prevention and waste minimization efforts.

enHance Environmental Stewardship Program

The P2 program sponsors the agency's environmental stewardship recognition program, enHance. The enHance program has grown to 32 active members representing top environmental performers throughout the state. enHance is a voluntary stewardship program that recognizes committed environmental leaders who accomplish goals beyond their standard regulatory requirements. enHance is open to manufacturing facilities, cities, counties, and other organizations who are interested in the program and meet the

eligibility requirements. Applicants can choose to apply for membership at three tier levels: Leader, Steward, or Associate.

For the class of 2021, MDEQ accepted one new member and six renewing members into the enHance program.

enHance program members have achieved the following total reductions to pollution and wastes:

- Eliminated 325,000 pounds of hazardous waste.
- Reduced, reused, or recycled 1.5 million pounds of solid waste.
- Saved more than 328 million gallons of water.
- Reduced annual energy use by more than six billion kilowatt hours for nearly 20 million MMBTUs of total annual energy savings.
- Reported cost savings from waste reduction practices of over $9 million.
- More than 183,000 tons of air emissions reduction.

Office of Community and Engagement

The Office of Community Engagement (OCE) coordinates with municipalities, industries, the public, and other regulators to create partnerships to allow shared accountability in developing strategies to address environmental concerns. The OCE remains committed to assisting the agency programs in addressing environmental impacts, connecting stakeholders to resources, and providing platforms for meaningful involvement.

Environmental Justice Program

The OCE's Environmental Justice (EJ) Program assists agency programs with addressing environmental impacts across Mississippi. During Fiscal Year 2021, local officials received information during an EJ virtual workshop on how to address issues at the local level by utilizing state government as a resource and technical assistance, and by deciding what industries can be located through effective land use planning and zoning.

Small Business Environmental Assistance Program

The Small Business Environmental Assistance Program (SBEAP) provides information about regulations, programs, and resources that are of importance to small businesses. The MDEQ staff responded to approximately 400 requests for general environmental information or specific requests for permitting or compliance needs. Responses to specific permitting and compliance requests for assistance have resulted in various opportunities to provide one-on-one training for businesses owners and municipal leaders who are unable to secure professional services for technical assistance. The SBEAP has reached over 3,700 stakeholders through various outreach activities.

- Dental Category Rule Outreach

  The SBEAP completed its outreach efforts to nearly 1,900 dental providers regarding the Dental Office Category Rule under the Clean Water Act, which requires the installation of amalgam separators at most dental offices.

- Dry Cleaners Outreach

  Dry Cleaning facilities annually receive the Compliance Monitoring Calendars to help them comply with the monitoring and recordkeeping requirements found in the Perchloroethylene Dry Cleaner Regulations.

- Autobody 6H Rule Outreach
  In June 2021, the SBEAP, with the MDEQ Air Division, sent information packets to over 500 collision repair and autobody shops to inform them about the Autobody NESHAP 6H Rule.

Geological Data Collection Activities

Geologic Mapping

Geologic maps of Mississippi created by Office of Geology staff are fundamental to characterizing the environment and have applications in water resources, pollution prevention, mineral resources, and protecting property from geologic hazards such as landslides, swelling clays, and floods.

The geologic mapping program for Fiscal Year 2021 was funded in part by a USGS State Geologic Survey Mapping (STATEMAP) grant and a federal contract with the National Park Service. The STATEMAP component establishes the geologic framework of areas that are vital to the welfare of individual states. Each State Geologist determines the state's mapping priorities in consultation with a State Mapping Advisory Committee. These priorities are based on state requirements for geologic map information in areas of multiple issue needs or compelling single-issue needs and in areas where mapping is required to solve critical earth science problems.

Deliverables for the STATEMAP 2021 grant were 37 geologic 7.5-minute quadrangle maps, Geologic mapping for the National Park Service is being funded by a two-year renewable contact for the completion of detailed geologic quadrangle maps along the Natchez Trace Parkway. This work is also being performed by Mississippi State University in cooperation with the Surface Geology Division. Six geologic maps were published in Fiscal Year 2021 as

part of this collaborative effort, and one additional unfunded mapping project was produced in Northwest Mississippi.

Flood Mapping

The Office of Geology's Geospatial Resources Division is focused on remote sensing and geographic information systems activities and manages the Mississippi Flood Map Modernization Initiative (MFMMI) and the Mississippi Risk Mapping, Assessment and Planning (Risk MAP) Program. The Risk Map program develops and updates digital flood insurance rate maps (DFIRMs) for the 82 counties under funding from FEMA. In Fiscal Year 2021, Preliminary Flood Insurance Rate Maps covering portions of five counties were released to the local communities for review, and 15 counties had their new mapping become effective for flood insurance and flood plain management purposes.

The Office of Geology's Geospatial Resources Division

The Geospatial Resources Division is responsible for Mississippi Digital Earth Model's (MDEM) development. MDEM develops digital geographic information that will serve as the state base map and consists of eight layers of digital information. MDEQ manages and monitors the MDEM data development contracts and the Quality Assurance of the mapping products that result from this work. Products will be used by state and local governments, engineering firms, and construction companies involved in planning, development, construction, or regulatory work throughout the state.

Environmental Geology

Since the 1950s, the Office of Geology has been collecting subsurface geological information by sending scientific instruments down test holes and water wells to record data on rocks and groundwater. Environmental Geology Division staff logged 46 test holes and water wells during Fiscal Year 2021 and collected 29,419 feet of data on test holes that otherwise would not have been wireline logged. Division personnel maintained the core and sample library by cataloging and archiving samples from oil and gas tests and samples and cores were collected by the Environmental Geology Division participated in. The sample library was used by geoscientists were from oil and gas companies; academia and local people interested in soils and gravel resources.

Publications

MDEQ's Office of Geology had thirty-one papers published during Fiscal Year 2021, including eleven geologic quadrangle maps, four revised geologic quadrangle maps in the *Mississippi Geological Society Bulletin*, two articles in *Environmental News*, four articles in the *Mississippi Archaeological Association Newsletter*, two articles in the Mississippi Gem and Mineral Society newsletter, one article in the *Botanical Society of America*, two pages on Mississippi in the children's book *50 States Gem and Minerals*, a video *Alabama Fossils* by Alabama Public Television, one article in *Southeastern Geology*, one article in the *Louisiana Archaeological Bulletin*, one MDEQ Office of Geology Fact Sheet (#3), one Open File Report entitled *Cretaceous (Campanian) Bivalves of the Coffee Sand in Mississipp*i, one website database on Lithic Materials, one pamphlet on Rocks and Fossils, and one video *Large Boulder Details Mississippi's Geologic Past*.

Waste Division Outreach and Engagement

The Waste Division's solid waste, recycling and pollution prevention programs conducted a variety of outreach efforts throughout Fiscal Year 2021 on various aspects of proper solid waste management, waste reduction, and recycling

Nonpoint Source Education and Outreach

The Nonpoint Source (NPS) Educational Program increases public awareness of NPS pollution and encourages behavior changes that will reduce pollution impacts.

Environmental Teacher Workshops

Teachers learn ways to incorporate conservation into daily lessons and promote stewardship of the state's irreplaceable natural resources. Teachers are given an opportunity to earn continuing education credits.

Adopt-A-Stream

Adopt-A-Stream is an environmental education training program for adults and students focusing on aquatic ecosystems and the effects of NPS pollution on water quality. The coordinator for Adopt-A-Stream, through a sub-grant with the Mississippi Wildlife Federation, educates citizens about water-quality issues within their watersheds, conducts Envirothon team training on aquatic subjects at high schools, presents aquatic-ecology programs in classrooms, leads stream cleanups and storm drain marking projects. The coordinator also reaches people through large-venue events, teacher-workshop training sessions, summer environmental camps, and displays at conferences.

Storm Drain Marking

The Storm Drain Marking Program is a cooperative program between MDEQ and the Mississippi Wildlife Federation (MWF). MDEQ provides funding to promote awareness of the water quality impacts of polluted runoff in urban communities.

Conservation Field Days

Nonpoint Source Conservation Field Days are conducted for students with hands-on activities and exciting topics from natural resource experts. These field days are part of the NPS Watershed Demonstration Projects conducted with the USDA Natural Resources Conservation Service, the Mississippi Soil and Water Conservation Commission, and various water-management district staff.

Summer Ecology Day Camps

Ecology Day Camp is an educational and fun annual camp hosted by the University of Mississippi Field Station with five sessions offered to different age groups. Activities include bug collection and identification, water quality, tree identification, fire ants and spiders and arts & crafts activities.

Project Learning Tree

Project Learning Tree (PLT) conducts workshops through a sub-grant with Mississippi Forestry Foundation to emphasize the importance of water conservation and water pollution control to educators. Participants receive a PLT manual for lessons and resources for future classroom use.

Mobile Classroom

Mobile Classroom is an educational program with two formats geared for children in grades kindergarten through second grade, and another specifically for grades third through fifth. The K-2 grade program entitled *The River Town Story* introduces children to water quality through audience participation, music, and theater. Programs for grades third through fifth engages children in an interactive water quality unit of study known as *All the Water in the World* and includes discussions of the water cycle, properties of water, and the watershed specific to their community.

Envirothon

The Mississippi Envirothon, a program of the Mississippi Association of Conservation Districts, is sponsored through a sub-grant from an MDEQ Nonpoint Source 319 Grant. Envirothon is a hands-on natural resource competition designed to challenge students in grades ninth through twelfth to explore the natural world around them. Competitors are tested in the categories of aquatics, forestry, soils, wildlife, and current environmental issues.

Waste Pesticide Disposal Program

This project helps Mississippi farmers and property owners minimize the environmental risks associated with the disposal of waste pesticide products. These events help the surrounding environment by preventing non-point source pollution and educating the proper way to dispose of unwanted or expired farm chemicals.

COMMISSION ON ENVIRONMENTAL QUALITY

The Commission on Environmental Quality is empowered to formulate department policy, enforce rules and regulations, receive funding, conduct studies for using the state's resources, and discharge duties, responsibilities and powers as necessary.

Chair
Brenda Lathan

Vice Chair
Patrick L. Johnson, Jr.

John Dane III

Jamie Martin

Chat Philips

W.J. (Billy) Van Devender

Jack Winstead

THE MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD

The Mississippi Environmental Quality Permit Board takes action on permits administered through MDEQ. 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.

Chairman
Les Herrington

Vice Chairman
David Snodgrass

Doug Mann

David Dockery

Jennifer Wittmann

Chris McDonald

Chris Hawkins