



The mission of the Mississippi Department of Environmental Quality is to safeguard the health, safety, and welfare of present and future generations of Mississippians by conserving and improving our environment and fostering wise economic growth through focused research and responsible regulation.

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Mississippi Department of Environmental Quality Environmental News

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GOVERNOR BRYANT ANNOUNCES THREE NEW RESTORATION PROJECTS TOTALING \$28 MILLION

Governor Phil Bryant announced in November that Mississippi has been awarded more than \$28 million from the National Fish and Wildlife Foundation for three new restoration projects spanning Harrison, Hancock, and Jackson counties. This brings to date nearly \$39 million in restoration and planning projects awarded to Mississippi through the Gulf Environmental Benefit Fund.

NFWF's Gulf Environmental Benefit Fund was created 18 months ago as part of the settlement between the U.S. Department of Justice, BP, and Transocean to resolve certain criminal charges against both companies in relation to the spill. Under the allocation formula and other provisions contained in the plea agreements, a total of \$356 million will be paid into the Gulf Fund over a five year period for conservation projects in the state of Mississippi.



Red snapper photo courtesy of the Mississippi Development Authority.

"This money means Mississippi is going to be able to restore valuable lost marsh habitat, enhance and protect the habitat of our wildlife throughout the coast, and strengthen our fishing industry," Governor Phil Bryant said. "These three new projects will help continue to build our coastal economy, while improving our coastal way of life, as we address vital issues such as invasive species, shoreline erosion, and overfishing in the Gulf of Mexico."

More than \$21 million of the money will be used for vital marsh creation and restoration in three priority bay systems along the Gulf Coast including St. Louis Bay, Back Bay of Biloxi, and the Pascagoula/Escatawpa system. Over many decades, these priority bays have experienced significant impacts due to shoreline erosion, storm damage, and alterations to sediment transport – contributing to the loss of thousands of acres of tidal marsh habitat. This project will advance Mississippi's beneficial use program to facilitate a cost-effective, sustainable approach to restoring and protecting significant coastal marsh and bay shorelines.

"By restoring these vital marsh areas we will create habitat that is vital to our coastal and marine resources, and is essential to our Mississippi economy. The project will also reduce erosion along our crucial bay shorelines while providing protection for coastal communities from storm surge and the rising sea level. At the end of the day, this project will help fulfill one of our most important goals for restoring our coast – to improve water quality -- as we improve water quality on the Gulf Coast we ultimately improve our coastal economy and our way of life," Bryant added.

The third project, totaling more than \$2.6 million, will continue enhancement of habitat value of state lands in coastal Mississippi through improved management of invasive species. This project is an expansion of the 2013 Gulf Environmental Benefit Fund awarded to address invasive species management on land within Mississippi's Coastal Preserves Program.

Invasive species management work will take place in Buccaneer and Shepard State Parks as well as in the Ward Bayou Wildlife Management Area. An invasive species assessment will take place in the Pascagoula River Wildlife Management Area. Work to control persistent invasive species will include prescribed burning, mechanical and chemical control of invasive vegetation, and feral hog control.

This project will focus on improving significant coastal marsh and transitional upland habitat through the control and eradication of non-native and invasive plant species and the improved tidal connectivity of these habitats to the Mississippi Sound.

The three projects were developed in consultation with the Mississippi Department of Environmental Quality and federal resource agencies, and are designed to remedy harm or reduce the risk of future harm to natural resources that were affected by the 2010 Deepwater Horizon oil spill.

“These projects are another crucial step in Mississippi’s commitment to restore the Gulf Coast and remedy the harm to our natural resources that were affected by the 2010 Deepwater Horizon oil spill,” said Gary Rikard, MDEQ Executive Director.

“The model for the Gulf Environmental Benefit Fund is one of partnership,” said Jeff Trandahl, executive director and CEO of NFWF. “In order to succeed, NFWF must bring together state resource agencies, federal agencies, non-governmental organizations and private partners, all working in harmony to fund the best projects that will do the most good for the Gulf of Mexico and the communities that depend on it each and every day.

“These projects demonstrate the value of our efforts to work in a collaborative fashion to select projects that will provide significant benefits to wildlife and people for many years to come.”

More information can be found at www.restore.ms and www.nfwf.org.



Photo courtesy of the Mississippi Development Authority.

GOV. BRYANT ANNOUNCES MISSISSIPPI PHASE III PROJECTS READY TO MOVE FORWARD

Governor Phil Bryant announced October 3 that an additional \$68.9 million will be spent on restoration projects on the Mississippi Gulf Coast as a part of Phase III of early restoration from the Deepwater Horizon Oil Spill. The full suite of Phase III projects across the five Gulf States totals \$627 million.

“This is another step in bringing back all the states affected by the 2010 Oil Spill to their original condition,” Gov. Bryant said. “I want to thank all the Natural Resource Damage Assessment Trustees on the great work they have done to approve this suite of projects. For Mississippi, the \$68.9 million brings with it not only restoration for our Gulf Coast, but jobs for our coastal residents hit hard by the oil spill.”

The four Phase III projects approved for Mississippi include the Hancock County Marsh Living Shoreline which totals \$50 million, and is in partnership with the National Oceanic and Atmospheric Administration. The six mile long shoreline barrier located in Heron Bay will be constructed with a combination of stone and oyster shell. The barrier will help reduce erosion of marshes, provide a protective barrier to storm surge, and create healthy habitats for barnacles, oysters, small fish, and crab.

“Every fisherman in our state already understands how important structures like this are to the quality and quantity of our speckled trout, redfish and flounder,” Bryant said. “The Living Shoreline project is the largest of all the Mississippi restoration projects to date, and will provide many benefits to the people of Mississippi including jobs.”

The remaining three projects expand the public's access to enjoy Mississippi's coastal resources and to support the education and awareness of Mississippians of all ages on their important roles as stewards of these resources. These projects include the Restoration Initiatives at the INFINITY Science Center Project totaling \$10.4 million, the Pascagoula Beachfront Promenade Project totaling \$3.8 million, and the Popp's Ferry Causeway Park Project which totals \$4.7 million.

A total of \$82.5 million has been spent on early restoration projects in Mississippi since 2010. Completed projects include the laying of the largest oyster cultch in the history of the Mississippi Sound totaling \$11 million, and a \$2.6 million near shore artificial reef enhancement project. Completed projects brought jobs to the Mississippi Gulf Coast as local contractors were hired to do the work.

"The Mississippi Department of Environmental Quality is poised and ready to get these Phase III projects underway as we continue our efforts to restore our Gulf Coast and fulfill our promise to 'Make Mississippi Whole'," said Gary Rikard, MDEQ Executive Director.

Visit www.restore.ms for complete details about the Mississippi Phase III projects.

Oyster cultch being deployed in the fall of 2012.





WELLS APPOINTED CHIEF OF STAFF

MDEQ Executive Director Gary Rikard has appointed Chris Wells to serve as his Chief of Staff. Wells has been with the department since November of 2007 primarily serving as legal support for the Environmental Compliance and Enforcement Division.

"I am honored by the confidence that Gary has shown in me and a chance for new opportunities. It's a privilege to serve the agency in this new role as well as the people of the great State of Mississippi. I've had many rewarding experiences working to conserve and enhance Mississippi's environment, and I look forward to the challenges to come," said Wells.

Chris earned a Chemical Engineering degree from Mississippi State University in 1996, and graduated from the Mississippi College School of Law in 1999. He served as a Law Clerk to U.S. District Court Judge William H. Barbour, Jr., and was in private practice with Scanlon, Sessums, Parker & Dallas in Ridgeland from 2000 to 2007. He has also taught as an Adjunct Professor at the Mississippi College School of Law.

He is a native of Brandon and still lives in that area along with his wife Catherine and their children Megan and Nolan.

IDLEAIR OPENS TRUCK STOP ELECTRIFICATION FACILITY

Top: at the event were Chris Richardson from U.S. Senator Thad Cochran's office, Gary Rikard, MDEQ Executive Director, Haley Fisackerly, President and Chief Executive Officer of Entergy Mississippi, Congressman Gregg Harper, and Ethan Garber, Chief Executive Officer of IdleAir.

Bottom: demonstration of an electrification station.

IdleAir hosted a grand opening of Mississippi's first truck stop electrification facility in Pearl on October 22. The event included demonstrations of the electrification stations that offer an alternative to trucks idling for extended periods of time thereby reducing air emissions and fuel consumption. The new facility was made possible through Entergy's Environmental Initiatives Fund.



TASK FORCE TO HOST WATER CONSERVATION SUMMIT

The Governor's Delta Sustainable Water Resources Task Force will host an Irrigation and Water Conservation Summit at the Capps Center in Stoneville on December 10 beginning at 9:30 a.m. The event will begin with a General Session followed by five Breakout Sessions, each with five concurrent presentations. Producers, landowners, consultants, natural resource professionals and other interested parties may choose which presentation to attend during each Breakout Session. After the second Breakout Session, another General Session will be held as lunch (lunch is provided) is served before resuming Breakout Sessions at 1:00 p.m.

The initial General Session will include introductory remarks by MDEQ, Dr. Jason Krutz, Mississippi State University Irrigation Specialist, will present results from the 2014 MSU RISER Program, and Kay Whittington, Director of MDEQ's Office of Land and Water Resources, will discuss Task Force progress during lunch.

Eleven different presentations will be offered during the five Breakout Sessions:

- ▶ Maximizing Irrigation Efficiency in Rice
- ▶ Maximizing Furrow Irrigation Efficiency in Corn, Cotton and Soy beans
- ▶ Economics of Irrigation, Conservation and Water Availability
- ▶ Using the New, Free Pipe Planner from Delta Plastics
- ▶ Pump Performance to Increase Irrigation Efficiency
- ▶ Cover Crops to Maximize Available Soil Water
- ▶ Automated Irrigation Systems
- ▶ Proper Use of Surge Valves
- ▶ Use of Meters as a Conservation Tool
- ▶ Signing Up for NRCS Irrigation Management Practices
- ▶ Maximizing Pivot Performance

Breakout Session speakers will include professionals from Mississippi State University, the University of Arkansas, USDA Natural Resources Conservation Service, YMD Joint Water Management District, Delta Plastics, and the Mississippi Department of Environmental Quality. Farmers will also be coupled with several of the speakers to share their experiences related to the subject matter being discussed. Breakout Sessions will be offered twice during the day.



GEOLOGIC MAPPING AND ENERGY RESOURCES

David E. Thompson, RPG and David T. Dockery III, RPG, Office of Geology

Ken Burns' recent series on PBS, *The Roosevelts*, showed the accomplishments of the Works Progress Administration (WPA) in building roads, bridges, and airports across the country and even creating art projects for out-of-work artists. What is less well known is that in the late 1930s the WPA provided \$106,193 to the Mississippi Geological Survey to do geological surveys of 10 counties. To obtain these funds, the State Geological Survey, as sponsor, pledged to contribute \$12,768 of that amount. The State Legislature appropriated less than \$4,000 to cover the state's share; consequently, it was necessary for the counties to act as cosponsors and provide the balance of \$9,000. The counties responded, and the State Geological Survey's pledge was paid in full. Yazoo County was the second county in the survey. Financial support for this work was provided by Yazoo County, Yazoo City, and the Chamber of Commerce under the leadership of Secretary K. S. Foster. In February of 1939, State Geological Survey geologist Fred Mellen discovered an outcrop of the Moodys Branch Formation on Perry Creek in Yazoo County at an elevation 250 feet above its normal position. Recognizing that this structure might have oil and gas potential, it was reported in a press release dated April 12, 1939. Union Producing Company leased the area over the structure and completed the G. C. Woodruff No. 1 well, the first commercial oil well in Mississippi, just four and a half months after the press release. Tinsley Field in Yazoo County would prove to be the largest oil field in Mississippi with a cumulative production of over 200 million barrels of oil and the potential for another 46 million barrels with tertiary recovery (carbon dioxide injection).

Tinsley Field was a huge return on Yazoo County's financial investment in geology and set off an oil exploration boom that benefited the state as well. Tinsley proved the value of geologic mapping in the discovery of new oil-bearing structures, something already known by major oil companies who had their own field-mapping geologists working in Mississippi. Cooperation between the State Geological Survey, the oil and gas exploration industry, the U.S. Geological Survey, and the Mississippi Geological Society resulted in the production of Mississippi's first statewide geologic map at a scale of 1:500,000 in 1945.

Currently, the U.S. Geological Survey contributes around \$5.5 million per year in matching funds through the STATEMAP program to state geological surveys for geologic mapping. Mississippi has received \$1,752,468 in matching federal funds (from 1994-2014) for geologic mapping through STATEMAP grants.

Dudley Hughes in *Oil in the Deep South* (University Press of Mississippi, 1993) gave an account of Gulf Refining Company's geologic mapping work in Mississippi in 1929 and 1930, some nine years before Mellen discovered Tinsley Field. Bud Norman was on one of Gulf's two-man teams mapping the Yazoo Clay outcrop belt through southeastern Mississippi. According to Hughes, "Bud's team discovered a wide arc in the Yazoo Clay outcrop circling the town of Heidelberg. This later proved to be the result of a large buried structure that formed the trap for the Heidelberg Field, to be discovered 14 years later." Gulf checked with geophysical work to confirm the structure, but it was Bud's surface mapping work that brought it to the company's attention originally. The "wide arc" in the Yazoo Clay outcrop discovered by Bud Norman's mapping team can be seen in a new color version of DeVries' 1963 *Geologic Map of Jasper County Mississippi* in Mississippi Geological Survey Bulletin 95 entitled *Jasper County Mineral Resources*.

The map in Figure 1 adds to Hughes' account; while Bud's surface mapping may have focused on the Yazoo Clay outcrop belt, the actual arc that defined the Heidelberg structure was the outcrop belt of the overlying Forest Hill Formation depicted in yellow. Figure 2 is a close up view of the map with an overlay of the Heidelberg East and West fields. Interstate 59 crosses the midsection of both fields and splits the middle of the Yazoo Clay outcrop belt's "wide arc." Figure 3 is an overlay of the Heidelberg fields, associated faults, and contours on the top of the uplifted Cretaceous section (Selma Chalk) underlying the "wide arc" (contour and fault overlay from Puckett, Bearden, Mancini and Panetta, 2000, Topical Report 3—Petroleum Plays and Underdeveloped Reservoirs in the Mississippi Interior Salt Basin).

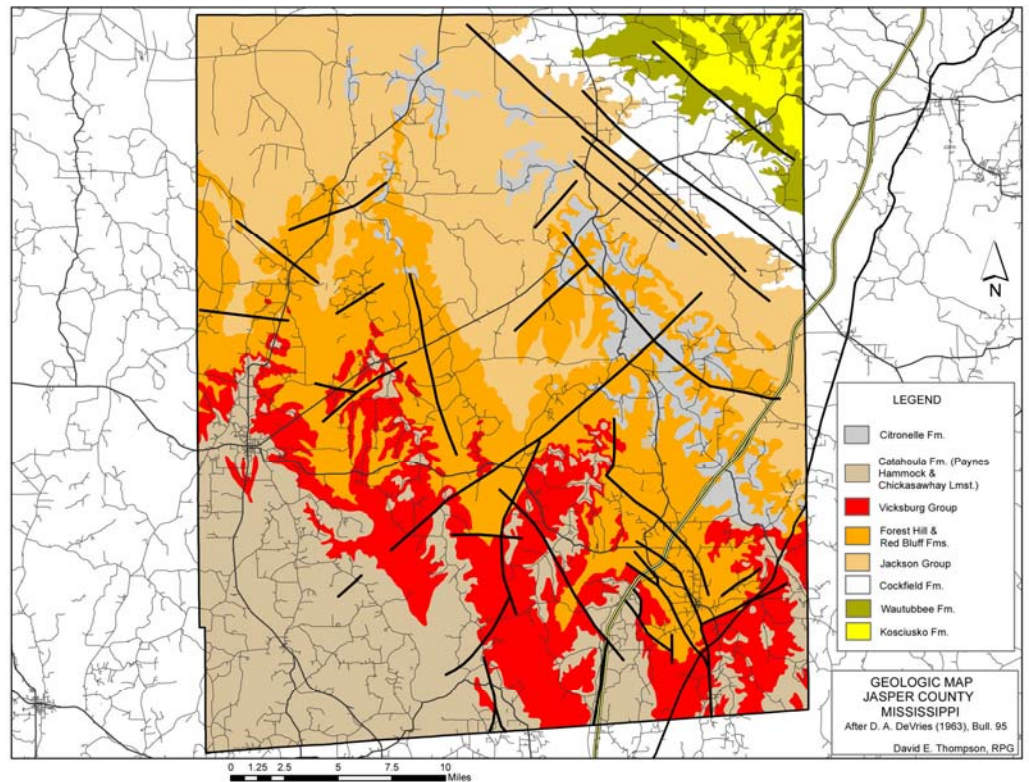


Figure 1. Color version of DeVries 1963 black and white *Geologic Map of Jasper County Mississippi*, showing the “wide arc” in the Yazoo Clay outcrop belt around Heidelberg, Mississippi.

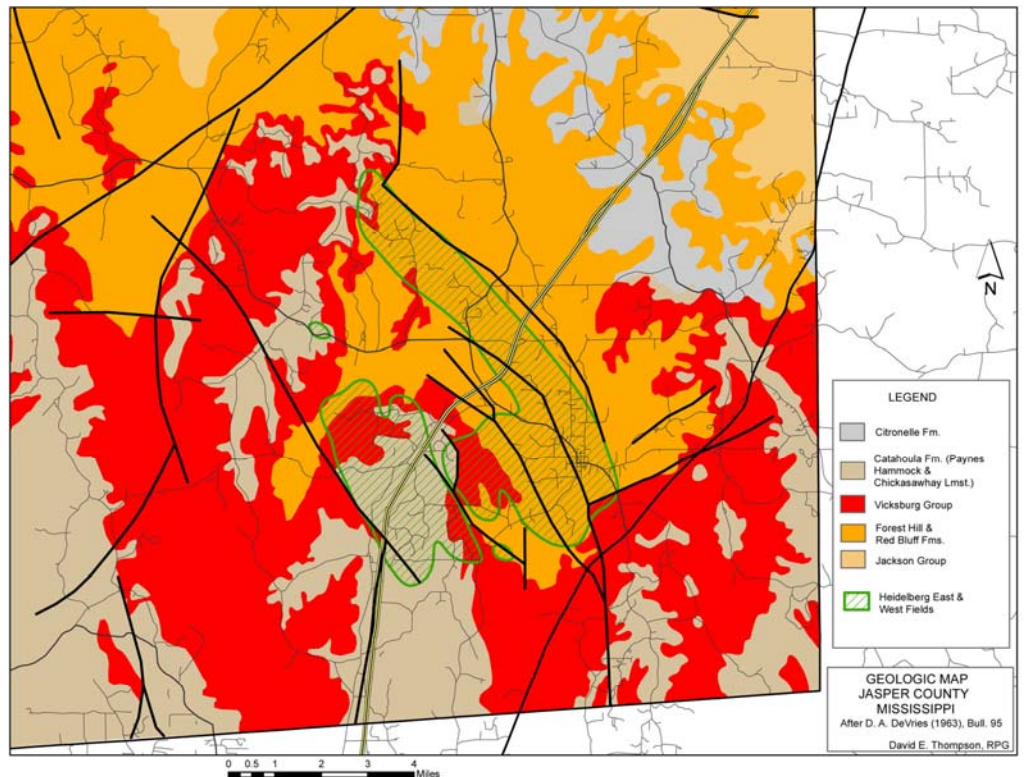


Figure 2. Enlargement of the southeast corner of the *Geologic Map of Jasper County Mississippi*, with Heidelberg East and West fields overlain on the “wide arc” in the Yazoo Clay outcrop belt. Interstate 59 splits the middle of the fields and the arc.

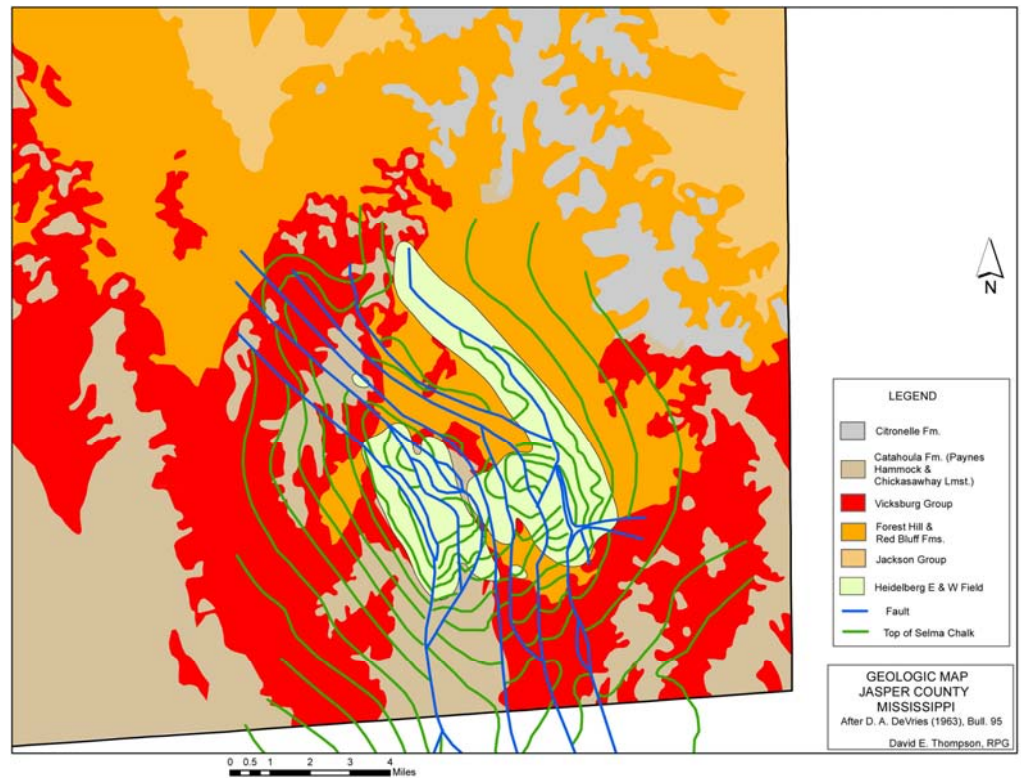


Figure 3. Heidelberg East and West fields, associated faults, and contours of the uplifted Cretaceous section overlain on the “wide arc” in the Yazoo Clay outcrop belt.

Geologic mapping and the discovery of the Heidelberg East and West fields have resulted in the production of over 140 million barrels of oil. Denbury Resources has contracted with the Kemper County (Mississippi) Power Plant under construction to purchase the plant’s “anthropogenic” carbon dioxide for use in tertiary oil recovery from Heidelberg and expects to produce another 44 million barrels of oil.

UPDATE ON SOUTHEASTERN WOOD PRESERVING SUPERFUND SITE

The Southeastern Wood Preserving Site is an abandoned wood preservation plant which operated from 1928 until 1979 when it filed for bankruptcy. The site covers approximately twenty acres and is located in a commercial and residential area just east of downtown Canton. The site was listed on the EPA's National Priorities List on May 15, 2012.

Multiple investigations and actions have been taken by MDEQ and EPA throughout the years, including an emergency response action in 1986, to stabilize three unlined surface impoundments that contained creosote sludge and water. In August of 2009, an emergency response action was conducted to install a slurry wall along the south bank of Batchelor Creek and to remove contaminated sediments from the creek.

These multiple sampling events and response actions have found polycyclic aromatic hydrocarbons, pentachlorophenol, and dioxin contamination in surficial and in subsurficial soils both on and off-site. Private properties adjacent to the site, that were determined to be impacted by site contaminants, were addressed under a Removal Action by the EPA's Emergency Response and Removal Branch in the spring of 2014. Currently, activities associated with the Remedial Investigation/Feasibility Study, including a Human Health Risk Assessment, are occurring to fully assess site-related threats to people living near the site and the environment and also to evaluate cleanup options. MDEQ continues to work closely with the EPA on all subsequent activities associated with the site, and a video with more information can be accessed here: <http://vimeo.com/95208425>.



DAM SAFETY OUTREACH

MDEQ's Dam Safety Division distributed information about the program and showed off its siphon trailer at the Mississippi Civil Defense Emergency Management Association's Mid-Winter Conference held recently in Choctaw. In addition, MDEQ's Chief of Staff Chris Wells spoke at the conference about the agency's role in emergency and disaster response.

The Dam Safety Division ensures citizens' lives and property are protected from dam failures through a proactive system of inspections and assessments that identify and address deficiencies in dam design and construction prior to failure. The staff also works to prevent the loss of lives and property by responding to incidents at dams in order to try and prevent failures.



The Siphon Trailer is used in emergency situations to lower lakes' water levels.



DESOTO EAGLE FEST 2014

The Basin Management Branch and the Air Division joined the U.S. Army Corps of Engineers, Mississippi Wildlife Rehabilitation, Inc., Arkabutla Lake Wildlife Rehabilitation Nature Center, DeSoto County Greenways, and a number of other organizations for the Eagle Fest 2014 on September 27 at the Dub Patton Area near Arkabutla Dam. The Eagle Fest was held to raise funds to build a nature center and wildlife rehabilitation facility on a 154-acre park located on the U.S. Army Corps of Engineers land off Highway 304.

This conservation event provided opportunities for families to learn more about the environment and wildlife resources. MDEQ exhibits featured educational presentations and information to attendees on the importance of preserving the environment by protecting air and water resources. According to the organizers, about 900 people participated at the event along with 20 sponsors who provided prizes and other giveaways to the participants.



MISSISSIPPI COASTAL CLEANUP

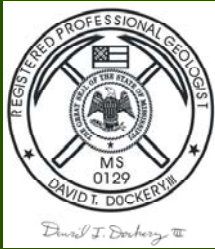
MDEQ staff participated in the annual Mississippi Coastal Cleanup sponsored by the Mississippi Department of Marine Resources again this year on October 18 with efforts focused on Round Island. Coastwide more than 1600 bags of debris were collected.



Top: Pete Howard.

Bottom: MDEQ personnel
cleaning up Round Island:
Damian Ejiohuo, Debi
Dunlap, Chris Griffith,
Matt Carr, Barb Viskup
and Pete Howard.





THE 2014 GOVERNOR'S ENERGY SUMMIT

David T. Dockery III, RPG, Office of Geology

The 2014 Governor's Energy Summit, the third of his administration, was held in the Jackson Convention Center on October 8, 2014. Governor Bryant opened the session with a discussion of the state's energy resources. Bryant told the audience of several hundred (Figure 1): "Mississippi is a major energy player in the United States. The Fraser Institute says we're the second best location to invest in oil and gas." The Governor also acknowledged Mississippi Department of Environmental Quality's efficiency as an asset to energy development, noting that Mississippi ranked second among the fifty states in the time taken to complete permits. During the conference MDEQ Executive Director Gary Rikard and former Executive Director Trudy Fisher were asked to stand in recognition of this accomplishment.



Figure 1. Governor Bryant speaking at the 2014 Governor's Energy Conference at the Jackson Convention Center on October 8, 2014.

Texas Governor Rick Perry was the keynote speaker. He responded to a comment from the crowd about the Mississippi State-Texas A&M football game saying: "I wasn't going to mention this; but since you brought it up, the next time we play, don't expect us to just give you the game!"

Perry spoke of energy as a strategic resource, stating: “Energy is a weapon in the hands of aggressors, so here’s what I say. If energy is going to be used as a weapon, America needs to have the largest arsenal. But our arsenal, that arsenal of American energy, will not be used to bully other nations, but to set them free.” To accomplish this, Perry recommended that America accelerate exports of the country’s vast energy resources and endorsed the construction of an \$8 billion liquefied natural gas (LNG) export facility in Pascagoula. European nations depend on oil and gas resources supplied by Russian pipelines. Figure 2 shows European gas pipelines supplied with LNG and those much larger pipelines with Russian natural gas. It was noted that Lithuania was creating an LNG port to free the country of dependence on Russian gas. The shutdown of Lithuania’s Ignalina Nuclear Power Plant in 2009 made the country even more dependent on gas supplied by a single pipeline from Russia through the Republic of Belarus.

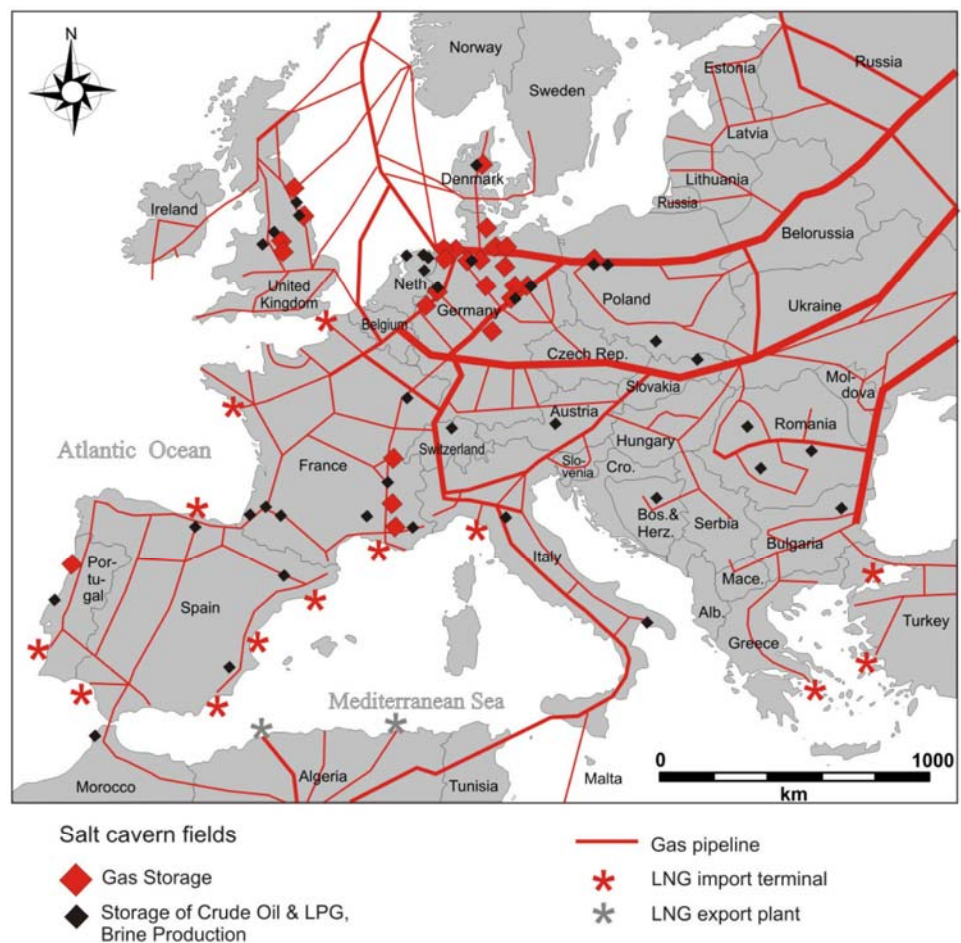


Figure 2. Gas pipelines in Europe, showing the main trunks supplying gas from Russia and smaller trunks supplying gas from LNG import terminals. Figure is from the Solution Mining Research Institute, 105 Apple Valley Circle, Clarks Summit, Pennsylvania.

A key discussion topic of the summit, especially by Governor Bryant, was the creation of an educated work force to fill the new \$64,000-per-year energy sector jobs. Tables reserved for students were at the front of the dining room (figures 3-4) where Emmy-nominated actor John Ratzenberger of *Cheers* fame and Governor Rick Perry spoke. Bruce Chinn, Manager of Chevron's Pascagoula Refinery, recognized Mississippi's Excel By 5 Program on its tenth anniversary and thanked Governor Bryant for his support of the program. The program is unique to Mississippi and is a collaborative model designed to optimize existing learning resources for children from birth to age five, the most critical time in a child's cognitive development. Greeting the conferees upon adjournment was Petal, Mississippi's, decorated Excel By 5 school bus (Figure 5). Petal was one of the first four pilot communities for the program in 2004, a program which now includes 35 communities.



Figure 3. Jackson State University geoscience students and professor at the Governor's Energy Summit. From left to right, William Kinkead, Laura Matthews, Austin Davis, Carlos Martinez, and Professor Ezat Heydari (formerly with the Office of Geology). Picture was taken on October 8, 2014.

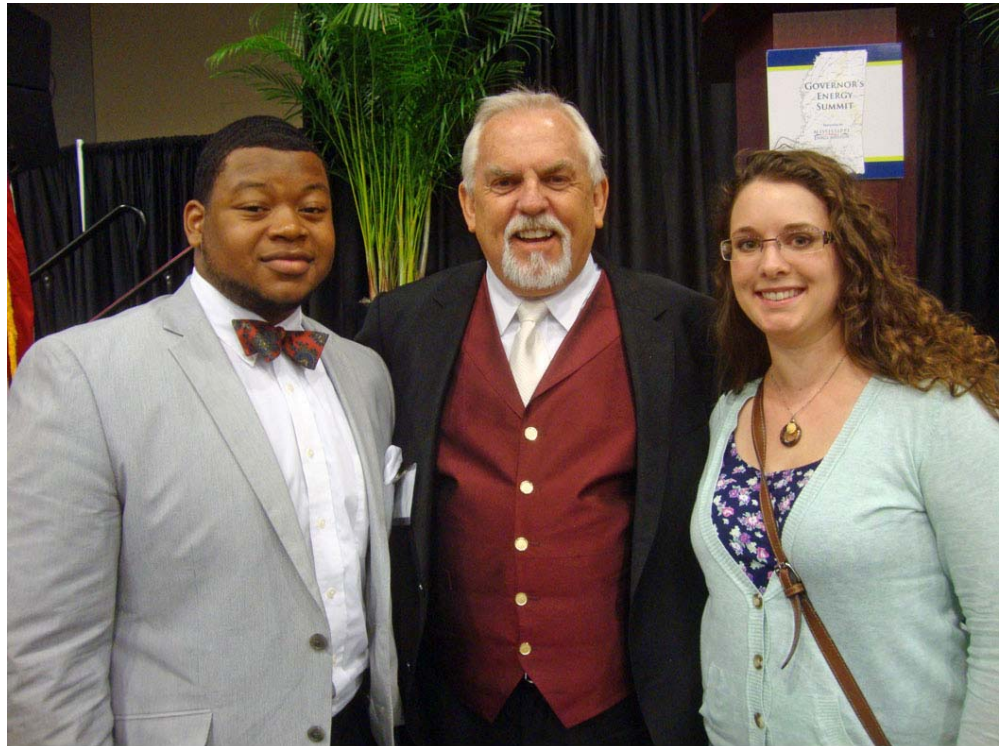


Figure 4. John Ratzenberger (center) with Jackson State University geoscience students Austin Davis (left) and Laura Matthews (right) at the Governor's Energy Summit. Picture was taken on October 8, 2014.



Figure 5. Petal school teachers in front of the school's Excel By 5 bus. Excel By 5 is a program to enhance early learning resources and encouraging best practices to help optimize childhood experiences and early child development for children ages 0-5 in Mississippi communities. Picture was taken on October 8, 2014.



MDEQ ENVIRONMENTAL ACTION LINKS

- Draft permits currently at public notice, <http://opc.deq.state.ms.us/publicnotice.aspx>.
- Permits and certificates issued in the last 90 days, http://opc.deq.state.ms.us/report_permits.aspx.
- General permit coverages issued in the last 90 days, http://opc.deq.state.ms.us/report_gnp_issued.aspx.
- Notices of Intent for coverage under a Statewide General permit received by the Environmental Permits Division, http://opc.deq.state.ms.us/report_gnp_notice.aspx.
- List of the 401 Water Quality Certifications currently at public notice, http://opc.deq.state.ms.us/report_wqc_public_notice.aspx.
- List of the compliance inspections recently conducted, http://opc.deq.state.ms.us/report_eced_tasks.aspx.
- Orders issued by the Mississippi Commission on Environmental Quality, http://opc.deq.state.ms.us/report_orders.aspx.

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PICTURE OF THE MONTH

Pascagoula River Wild-
life Management Area

Taken by James Starnes,
Office of Geology

