



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.

Mississippi Department of Environmental Quality

Environmental News

VOLUME 11 ISSUE 6

JULY 2014

FINDING SOLUTIONS IN THE DELTA THROUGH COOPERATION

Trudy Fisher invited USDA Deputy Undersecretary Ann Mills, and USDA Senior Advisor for the Gulf of Mexico Coastal Ecosystem Restoration Division, Michele Laur, to the Delta to learn more about how MDEQ is working with producers to address water resource concerns in the Delta through voluntary approach.

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Travis Satterfield, Bolivar County Producer and Delta F.A.R.M. Director (center) chaired discussions with Trudy Fisher, Executive Director, MDEQ (left), Ann Mills, USDA Deputy Undersecretary for Natural Resources and the Environment (right), and Michele Laur, Gulf of Mexico Coastal Ecosystem Restoration Division (far right). Photo courtesy Delta F.A.R.M.

Day one was spent focusing on how the Mississippi Delta is minimizing its impact on the Hypoxic Zone in the Gulf of Mexico. MDEQ and Delta F.A.R.M. co-lead a process to develop the first voluntary Nutrient Reduction Strategy by a Mississippi River Basin state. After the strategy was finalized in 2009, the document served as the centerpiece for applications by the Mississippi Soil and Water Conservation Commission that eventually attracted over \$28 million worth of conservation funding to the Delta through the USDA Mississippi River Basin Initiative.

Day two was focused on water conservation and efforts that have evolved from the Delta Sustainable Water Resources Task Force. Dr. Jason Krutz discussed how much water savings producers could expect if they fully adopted MSU RISER Program recommendations and USDA State Conservationist Kurt Readus outlined the new Mississippi Irrigation Management Program that is encouraging adoption of these best management practices for irrigation.



Photo: Trudy Fisher (MDEQ), Ann Mills (USDA), Rep. Angela Cockerham, and Sen. Sally Doty.

MDEQ HOSTS WOMEN'S LEADERSHIP FORUM

MDEQ Executive Director Trudy Fisher and the agency hosted a Women's Leadership Forum on July 17 with Ann Mills, Deputy Under Secretary for Natural Resources and Environment at the U.S. Department of Agriculture, State Senator Sally Doty, and House Energy Committee Chair Angela Cockerham at the Old Capitol.

This interactive forum convened many of Mississippi's women leaders for a robust discussion of leadership in the public sector, the role of women leaders in shaping and implementing public policy, and issues of common interest to women leaders across the organizational spectrum.





FIRST VOLUNTARY METERING PROGRAM GOAL MET

The Delta Sustainable Water Resources Task Force and its members announced June 30 that the first milestone of the Voluntary Metering Program had been met. Cooperating producers and landowners have installed permanent meters, and agreed to report annual water use, on at least 5% of all permitted groundwater irrigation wells in all Mississippi Delta and part-Delta counties on or before the June 30, 2014, deadline.

Yazoo City native Chat Phillips, Chair of the Commission on Environmental Quality, commented, “The Commission on Environmental Quality appreciates those who chose to participate in the voluntary program. It also must be noted that this goal would not have been met without the tireless and collaborative efforts of each and every member of the Delta Sustainable Water Resources Task Force.”

Trudy Fisher, Executive Director of the Mississippi Department of Environmental Quality, was equally pleased: “The Delta has worked hard to achieve this first milestone and is congratulated for these efforts. We cannot lose our focus going forward as more milestones must be reached for the Voluntary Metering Program to be a success. I couldn’t be more pleased with the momentum and the partnerships, and I look forward to continued success. I would like to personally thank each and every member of the Task Force for reaching this milestone.”

According to the Voluntary Metering Program protocol adopted in April of 2013 by all members of the Task Force, the next major step in the process is for all volunteers to submit water usage reports by February 1, 2015. Water usage report forms will be mailed to all volunteers later this year. There will also be an online reporting option for volunteers to use, if they prefer.

In addition to the 5% reporting requirement on February 1, 2015, there also must be additional meters installed to meet the overall 10% metering goal, by county, by December 30, 2015. Subsequent water use reports must be filed on all 10% by February 1, 2016, and by February 1 of each year thereafter. If any milestones are not met, the Mississippi Department of Environmental Quality will implement a mandatory metering program.

The Mississippi Delta Sustainable Water Resources Task Force serves to facilitate and foster the development and implementation of water resource management strategies in the Yazoo-Mississippi Delta. The MDEQ-led Task Force includes Delta Council, Delta F.A.R.M., Mississippi Farm Bureau Federation, Mississippi Soil and Water Conservation Commission, U.S. Army Corps of Engineers, USDA Natural Resources Conservation Service and the Yazoo-Mississippi Delta Joint Water Management District.

Voluntary Program Milestones

June 30, 2014: 5% of all groundwater wells metered by county.

February 1, 2015: 2014 water use reports due on at least 5% of all groundwater wells by county.

December 30, 2015: 10% of all groundwater wells metered by county.

February 1, 2016: 2015 water use reports due on at least 10% of all groundwater wells by county.



Photo courtesy Delta F.A.R.M.

EPA AWARDS NEARLY \$2 MILLION IN BROWNFIELD GRANTS TO CLEAN UP AND REVITALIZE COMMUNITIES IN MISSISSIPPI

On May 28, 2014, the U.S. Environmental Protection Agency (EPA) announced five brownfield grants in Mississippi.

The Mississippi brownfield grant recipients are:

- City of Biloxi (\$400,000)
- City of Corinth (\$400,000)
- City of Gautier (\$400,000)
- City of Laurel (\$400,000)
- Monroe County (\$350,000)

In the fall of each year, EPA solicits proposals for communities interested in receiving grant funding for brownfield redevelopment activities. For 2014, 171 communities in 44 states shared \$67 million in EPA Brownfield grants to help clean up, revitalize, and sustainably reuse contaminated properties, turning them from problem properties to productive community use. The grants, awarded by the U.S. Environmental Protection Agency, provide funding to eligible entities through brownfield assessment, revolving loan fund, and clean-up grants.

Historically, Mississippi communities have not been very successful in winning these competitive EPA Brownfield Grants. In 2010, no Mississippi communities were awarded an EPA Brownfield Grant. In 2009, only one community received a grant. Recognizing the competitive nature of the national grant writing field, MDEQ stepped up its outreach efforts to help communities write better grant proposals. In cooperation with the Mississippi Municipal League (MML) and EPA Region 4, MDEQ for the past three years has been holding an “Advanced Brownfield Grant Writing Workshop” during the annual MML Conference. The workshop provides the year’s unsuccessful Mississippi communities an opportunity to receive feedback on their grant proposals from technical experts who have been successful in securing Brownfield Grants.

One goal of the advanced workshop is to identify strengths and weaknesses in the unsuccessful proposals. Another goal is to provide a forum for community leaders to meet face-to-face with successful Brownfield grant writers. Since launching this outreach effort, grant awards have gone up. In 2013, the six communities which were successful in competing for a Brownfield Grant were Greenville, Holly Springs, Moss Point, Pascagoula, Starkville, and West Point. In 2012, three grants were awarded to Hernando, Columbus, and McComb. The winners in 2011 (Quitman and Gulfport) will be wrapping up their three year grant cycle later this year.

MDEQ believes that the enhanced outreach efforts have shown positive results with Mississippi doing better than the national and regional averages as measured by Brownfield Grant Success Rate (see chart).

Brownfield Grant Success Rate

National – .337 (199/590)

Region 4 - .223 (27/121)

MS 2014 - .417 (5/12)

MS 2013 - .600 (6/10)

MS 2012 - .200 (3/15)

MS 2011 - .167 (2/12)

MS 2010 - .000 (0/8)

MS 2009 - .067 (1/15)



City leaders ask questions about EPA Brownfield Grants at annual MML Conference



ENHANCE SPOTLIGHT: COOPER TIRE COMPANY

Cooper Tire Company in Clarksdale joined the enHance program in 2014 at the Steward level. Their Tupelo facility is also a Steward in the program. enHance is a voluntary environmental stewardship recognition program initiated by MDEQ.

1. Why did Cooper Tire in Clarksdale apply for the enHance program?

The Clarksdale plant has long worked on ways to improve the environment and found that through recycling and energy conservation we could make a big impact. Joining the enHance program was just a way to let the community know what good stewards we are and to hopefully encourage others to follow suit.

2. How is membership beneficial for your company including now having two facilities in the program?

Membership has benefited Cooper the most through increased networking with like-minded companies. Through the interaction with various enHance members new and innovative ideas have been identified to help the company further improve its programs.

3. What steps has your company taken to be more environmentally friendly?

As a company, Cooper has adopted aggressive targets to reduce some of our key environmental performance indicators at all of our manufacturing locations around the world. The targets that have currently been implemented would improve Cooper's performance in such areas as removing materials from landfills, reducing our energy usage, decreasing our water consumption, and promoting improved recycling opportunities for our scrap materials.

Why?

These actions have been implemented to honor Cooper's longstanding commitment outlined in our environmental policy to be a good corporate citizen, protect the environment in the communities where we operate, to prevent pollution by managing our materials responsibly, use energy and natural resources efficiently, control our emissions, and to reduce our waste.

4. How are you involved in your community?

As an organization, Cooper is a longstanding supporter of such programs as United Way and Habitat for Humanity in the communities around our plants. In addition to this the Tupelo and Findlay, Ohio, plants have sponsored scrap tire amnesty days for their local communities.

5. Would you recommend enHance to others?

Yes, the program is a good way to get the facility recognized for its achievements and also educate the local community about the improvements that have been made as well as make everyone feel better about the facility being in the community.

6. Tell us about the facility in Clarksdale. What do you manufacture?

The Clarksdale facility is a satellite facility for all of the Cooper Tire & Rubber Company facilities worldwide. Clarksdale produces curing bladders and mixed compounds for all of the North American Cooper Tire facilities.



JOIN ENHANCE!

MDEQ is accepting applications for the enHance program from July 1 to September 30. Check out the enHance website for information on current members, a calendar, training workshop materials, and information on how to apply.

enHance is open to all types of facilities with a separate initiative for municipalities.

enHance is a voluntary initiative to recognize environmental leaders in Mississippi. Participating organizations make a commitment to address and achieve on-going environmental improvements. More information, benefits, an application, and application instructions can be found at www.enhance.ms.

Send the completed application to enhance@deg.state.ms.us.



enHance's annual workshop provides information on a variety of topics for enHance members and visitors.

MDEQ OUTREACH

James Starnes from the Office of Geology recently provided a lecture on the wonders of geology and science to the Children's Summer Reading Program at the Eudora Welty Library in Jackson.





Trey Hess



David Singleton

STAFF CHANGES

Trey Hess

Trey Hess has been promoted to Chief of MDEQ's Groundwater Assessment & Remediation Division (GARD). GARD is responsible for the oversight of assessment and remediation of contaminated sites in Mississippi. The Division includes the CERCLA Branch that oversees the assessment and cleanup of Superfund Sites, the Underground Storage Tanks (UST) Branch that manages Mississippi Groundwater Protection Trust Fund for clean up of petroleum contaminated sites, and the Voluntary Cleanup, Uncontrolled Sites, and Mississippi Brownfield Programs which manage the clean up and redevelopment of abandoned and underutilized sites in Mississippi.

"MDEQ has always promoted reuse and conservation, and finding ways to clean up and redevelop our land has always been a challenge. I'm looking forward to advancing MDEQ's vision of protecting and revitalizing our communities in my new role as Chief of GARD," said Hess.

Trey's career started at MDEQ in 1993 with the Groundwater Division where he provided oversight of the design and operation of solid waste management operations at industrial and commercial facilities. In the mid-1990s, while working in the Hazardous Waste Division, he managed soil, sediment, and groundwater cleanups. Since that time, he has served as Brownfield Program Coordinator for the State of Mississippi and has provided program support to staff working on Superfund, RCRA, brownfield, and petroleum contaminated sites. Trey is a registered Professional Engineer with a Bachelor's degree and MBA from Mississippi State University. He also has a Master's degree in Environmental Engineering from the University of Mississippi.

David Singleton

David Singleton was recently selected to serve as MDEQ's Laboratory Director. He has worked for the agency since 1989, and has a B.S. in Chemistry from Mississippi College.

Cont. next page.



"I am very excited and grateful for this opportunity to serve as the Laboratory Director of the Field Services Division. I have had the privilege to work at the laboratory for 24 years in various roles in the lab and field. I look forward to the new challenges ahead of me and the opportunity to work with others inside and outside of the agency. I'm very fortunate to do what I love!



"The lab is committed to delivering quality by fully understanding and always meeting the requirements of those we serve. The staff solves analytical problems, provides expert witnesses in environmental litigation, and offers technical support and information to the programs, the regulated community, and the public," said Singleton.

The Office of Pollution Control - Laboratory is located in Pearl and has a professional staff of 27 scientists and support personnel that serve the routine and special analytical and monitoring needs of the agency.

The laboratory is broken down into two sections, Chemistry and Biology:

The Chemistry Section annually processes more than 3,000 samples from specific programs; more than 50,000 analytical determinations are made with as many as 250 different analytes performed on a single sample.

The Biology Section duties include sample collection from tissue, water, soil; coordinating and managing of statewide ambient and special projects; taxonomic identification of macro invertebrates, fish, and other fauna; and critical habitat assessment and evaluation of state waters. The biology section plays a critical role in the investigating, monitoring and recovery evaluation of critical impacted areas by natural and anthropogenic processes.

WATERFEST 2014

MDEQ and the Pearl River Valley Water Supply District hosted the annual WaterFest on June 28. The event informs the public about the importance of the Ross Barnett Reservoir and other natural resources issues in a fun and engaging way. The work of exhibitors, sponsors, and volunteers is much appreciated!





MDEQ AWARDS \$105,000 FOR NEW SCHOOL BUSES

MDEQ has awarded \$105,000 to seven school districts for new school buses for the upcoming school year. Each district was given a \$15,000 grant toward the purchase of a new bus to replace an older bus. Stricter emissions standards for diesel engines, including school buses, were implemented by the U.S. Environmental Protection Agency in 2007.

The districts selected were:

- ▶ Amory School District
- ▶ Greenville Public School District
- ▶ Holly Springs School District
- ▶ Pontotoc City School District
- ▶ Tupelo Public School District
- ▶ Holmes County School District
- ▶ Monroe County School District

“Because thousands of Mississippi children begin and end their days with a trip on a school bus, providing for clean school buses is an ongoing priority for the Mississippi Department of Environmental Quality. School buses are the safest and most efficient way to transport students, but we want to ensure that it’s a healthy trip,” said Trudy Fisher, MDEQ Executive Director.

Reducing diesel emissions is currently one of the most important air quality challenges in Mississippi. Since 2009, through grants and the Mississippi School Bus Retrofit Project, MDEQ has retrofitted 1,931 school buses and provided partial funding for 10 new buses to reduce emissions of particulate matter, hydrocarbons, and carbon monoxide. MDEQ has also encouraged school districts to adopt anti-idling policies and implementation of such a policy is a requirement for the seven districts that received funds for buses this year.

66TH ANNUAL MISSISSIPPI DEEP SEA FISHING RODEO

MDEQ Field Services Division staff worked the Mississippi Deep Sea Fishing Rodeo over the July 4th weekend with the main objective to collect tissue samples objective from King Mackerel for mercury and selenium analysis. MDEQ is concentrating on collecting samples from King Mackerel not only because of the higher mercury content within King Mackerel, but also it is the only saltwater fish with an advisory issued by MDEQ. The advisory states that you can consume King Mackerel that is less than 33 inches long. For King Mackerel ranging in size from 33 to 39 inches long, MDEQ advises that adults and children under seven years old should eat no more than one meal of these fish every two weeks and women of child bearing age should eat no more than one meal of these fish every two months. It is advised that you do not eat King Mackerel greater than 39 inches. Even though many studies have shown that when selenium combines with mercury it lowers the toxicity of the mercury, EPA has not changed their regulations to reflect this. At present, Mississippi still abides by the EPA present mercury standards.

King Mackerel



Top: MDEQ's Barbara Viskup with a Pompano.

Bottom: Bigeye

Aside from collecting tissue from King Mackerel, MDEQ personnel helped out other agencies with their sampling. This sampling consisted of collecting tissue from Alligator Gar for DNA analysis and helping MDMR measure sharks and sample Red Snapper. This year a new fish category was added to the rodeo, Pompano. It has become a popular fish to catch.



One of the most unusual fish brought in this year was the Bigeye. These fish have very large eyes and are caught over hard bottoms in deep water. This fish is also red in color.



GLOBAL WARMING AND HIGH SEA LEVEL (125,000 YEARS AGO)

David T. Dockery III, David E. Thompson, & Barbara Yassin, Office of Geology

The Eemian Stage of the Pleistocene was first recognized by Harting (1875) from boreholes in the area of Amersfoort, Netherlands, which contained a warm water marine molluscan assemblage that was different from the modern cold-water fauna of the North Sea. In North America, this stage is known as the Sangamonian Stage, or Sangamon Interglacial Stage, the last interglacial warm period before the present. The Sangamon Soil, a paleosol, underlies Wisconsinan loesses or tills in the water wells in northwestern Sangamon County, Illinois. At the Eemian's warmest peak about 125,000 years ago, the hippopotamus was distributed as far north as the Rhine and Thames rivers; trees grew as far north as Baffin Island in the Canadian Arctic Archipelago, and sea level peaked at 5.5 to 9 meters (18 to 29.5 feet) higher than today. This warm period is recorded in Antarctic ice cores (figures 1-2). Evidence for the Eemian sea-level highstand can be found in exposed fossil coral reefs worldwide throughout the tropics, including those of the Bahamas (Figure 3) and Florida Keys. Evidence can also be found in marine terraces along stable continental coastal areas such as that of the Mississippi coast. This sea-level highstand occurred long before the advent of anthropogenic carbon dioxide and indicates that such a sea-level rise could occur in the future for reasons unrelated to carbon dioxide levels.

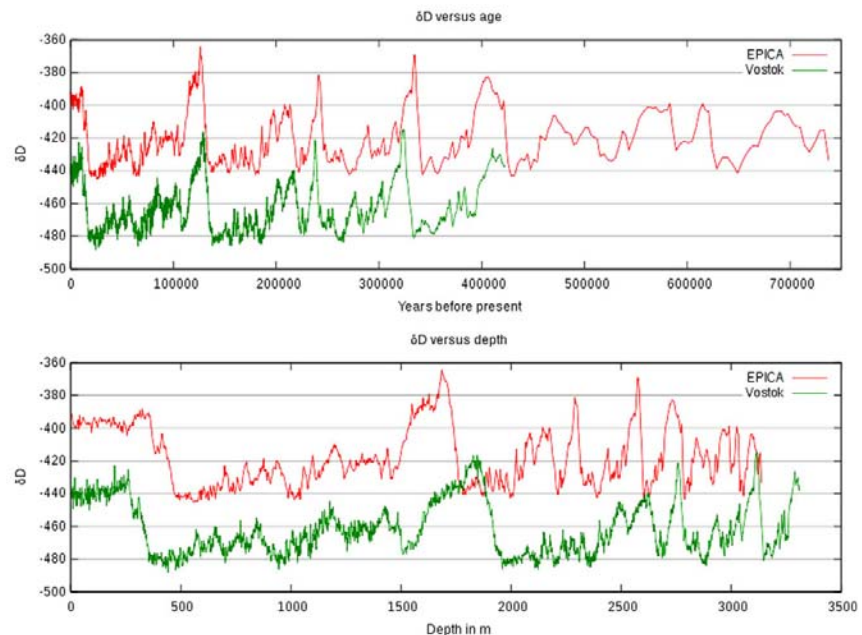


Figure 1. The Eemian Stage is between 1500 and 2000 meters in depth in the EPICA and Vostok ice cores, though a little offset due to problems in correlating depths to ages in the cores. The curves plot delta-deuterium against age and depth; the lower the negative delta-deuterium number, the higher the temperature (toward the top of the graph). In the EPICA curve (in red) the Eemian Stage was significantly warmer than the present interglacial period (from Wikipedia).

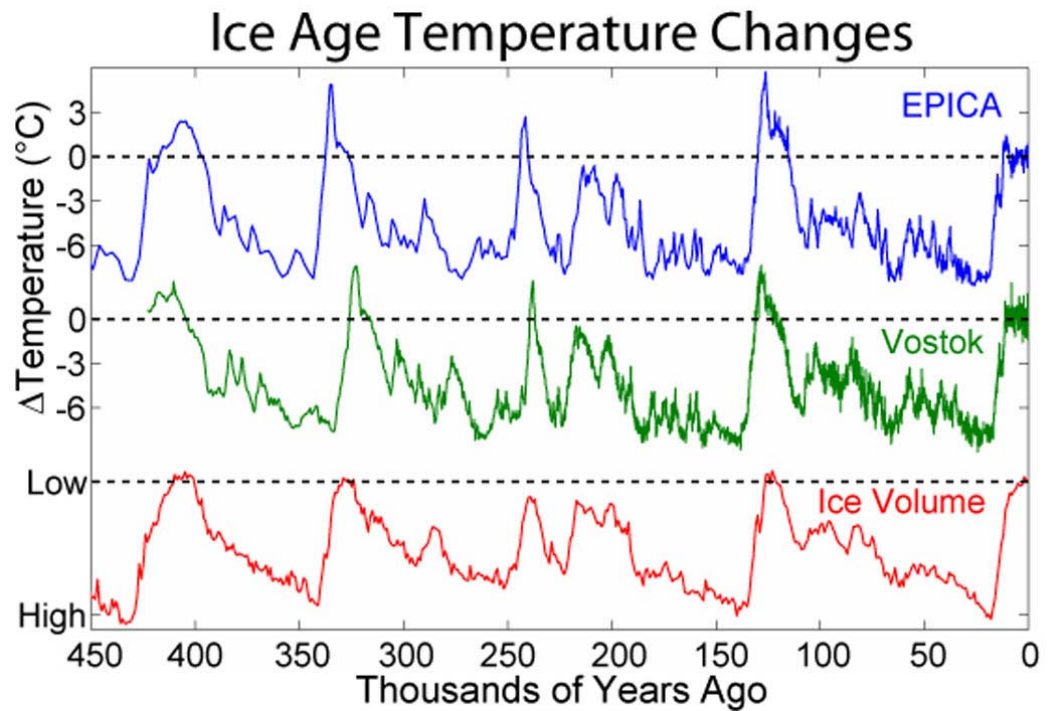


Figure 2. Antarctic temperature changes during the last several glacial/interglacial cycles of the present ice age and a comparison of temperature and ice volume. The upper two curves show local changes in temperature at two sites in Antarctica as derived from deuterium isotopic measurements on ice cores. The warm peak of the Eemian Stage is at 125,000 years (Wikipedia).



Figure 3. An Eemian (Late Pleistocene) fossil coral reef, now above sea level, on Great Inagua, The Bahamas. The foreground shows coral truncated by erosion during Eemian sea level fluctuations; behind the geologist is a post-erosion pillar which grew after sea level rose again (from Wikimedia).

In an article published in the July 13, 2012, issue of *Science* entitled “Ice volume and sea level during the last interglacial,” Dutton and Lambeck stated that “During the last interglacial period, ~125,000 years ago, sea level was at least several meters higher than at present, with substantial variability observed for peak sea level at geographically diverse sites.” To account for such a rise in sea level would require both the collapse of the West Antarctic ice sheet and the Greenland ice sheet due to small changes in radiative forcing.

Figure 4 is a 1942 aerial photo-mosaic of the Mississippi Gulf Coast in portions of Harrison and Jackson counties. This early photo-mosaic predates much of the recent development and clearly shows beach ridges of Eemian/Sangamonian age, extending from Gulfport to Belle Fontaine. The fluctuating sea level of this period created first the Gulfport beach ridges, which trended southwest to northeast, and then the Biloxi beach ridges, which cut across the Gulfport beach ridges with more of a west-to-east trend. Stewart, Everett, and Marble, in an unpublished map (limited prints made in 2004), recognized 14 coast-parallel terraces in central and southern Mississippi. Figure 5 is a portion of that map, showing the lower 4 terraces: Pamlico 1 at 1–10 feet above msl, Pamlico 2 at 11–30 feet above msl, Wade at 31–50 feet above msl, and Big Point at 51–90 feet above msl.

An island informally named here as the Sandhill Crane Island (an island pointed out to us by Lindsey Stewart) rests on the Wade Terrace; Big Ridge is a westward extension of that terrace with some beach-ridge highlands on its western end. Figure 6 is a lidar-data-derived relief map of the Mississippi coast in parts of Harrison and Jackson counties. This image shows the Gulfport and Biloxi beach ridges in great detail and Big Ridge and the Wade Terrace highlands associated with Sandhill Crane Island, which diverges from Big Ridge in a westerly direction. Dr. Ervin Otvos (1975) recognized the Gulfport and Biloxi beach ridges to be of Sangamon age and named these structures the “Gulfport Formation.” Underlying this formation, Otvos described a fossiliferous marine unit of Sangamon age, which he named the “Biloxi Formation.”



Figure 4. A 1942 aerial photo-mosaic of the Mississippi Gulf Coast in portions of Harrison and Jackson counties. Beach ridges from Eemian/Sangamonian Stage can be seen at Belle Fontaine on the east and along the Biloxi coast where they cut across older southwest-northeast-trending ridges at Gulfport on the west. The Biloxi beach ridges deflect the Biloxi River from a north-south, to a west-to-east course (image from the Mississippi Department of Marine Resources).

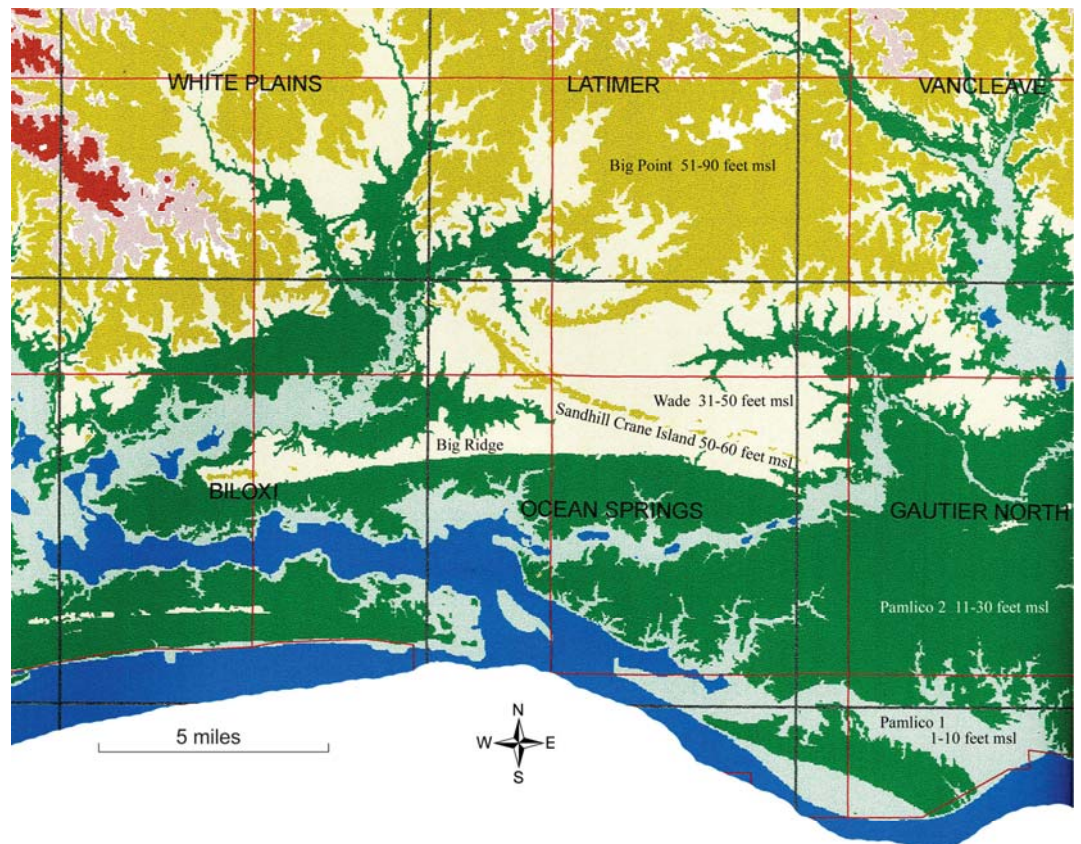


Figure 5. Coastal marine terraces as mapped by elevation data, unpublished map by Stewart, Everett, and Marble (limited prints made in 2004). From lowest to highest elevation, these include Pamlico 1 from 1-10 feet above msl, Pamlico 2 from 11-30 feet, Wade from 31-50 feet, and Big Point from 51-90 feet. Extending westward from the Wade Terrace is Big Ridge with a wave-cut southern margin; perched on the Wade Terrace is the Sandhill Crane Island from 50-60 feet.

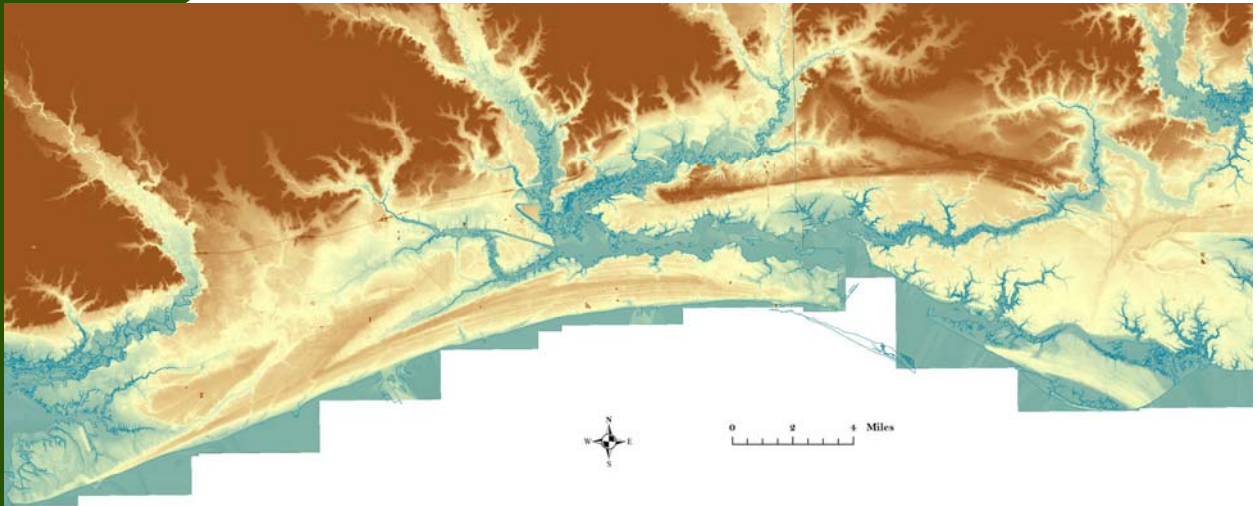


Figure 6. Lidar-data-derived relief map of the Mississippi coast in parts of Harrison and Jackson counties, showing the Gulfport and Biloxi beach ridges and Big Ridge and the Sandhill Crane islands, which converge to the east near their common source. Sequence of events: (1) an old course of the Pascagoula River provided sand to east-to-west longshore currents, creating Sandhill Crane Island and then (2) Big Ridge, (3) the Biloxi River provided sand for the Gulfport beach ridges and then (4) the Biloxi beach ridges, and (5) a later course of the Pascagoula River, visible in high-standing levee deposits, created the Belle Fontaine delta, which was reworked into the Belle Fontaine beach ridges.

Figure 7 is a series of 3 images, which, from top to bottom, gives the coastline after sea-level rises of 16 feet, 25 feet, and 47 feet. At a sea-level rise of 16 feet, the crests of beach ridges at Belle Fontaine appear as barrier islands. At a sea-level rise of 25 feet, the crests of the Gulfport and Biloxi beach ridges appear as barrier islands, and the western end of Big Ridge appears as a spit along a wave-cut shoreline. Islands to the east are levee deposits of an old course of the Pascagoula River, which fed the Belle Fontaine delta. At a sea-level rise of 47 feet, Sandhill Crane Island is visible along with a spit behind the island, extending westward from the mainland, and a barrier island is visible on the western end of Big Ridge. Also at this highstand, irregularities in the coastline between embayed river and stream valleys smooth out to form a linear shoreline.

Figure 8 shows the Point Clear delta of the Pearl River, where truncation of levee deposits associated with an abandoned course of the Pearl River in Hancock County formed barrier spits east and west. Lower on the delta plain are other southeast-northwest trending islands.

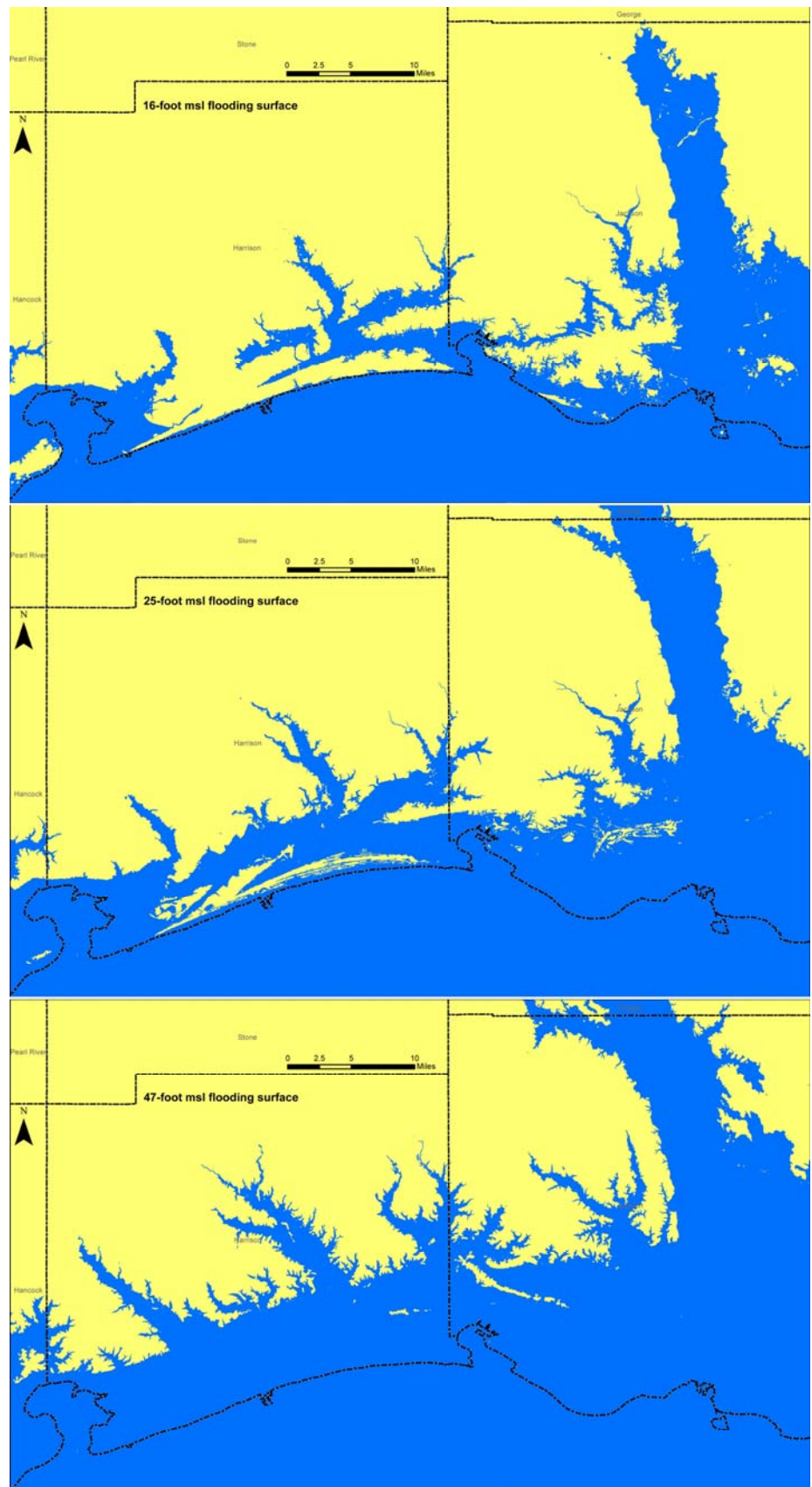


Figure 7. From top to bottom, sea-level rises of 16, 25, and 47 feet show, respectively, the island crests of the (1) Belle Fontaine and (2) Gulfport-Biloxi beach ridges, and (3) Sandhill Crane Island.

The morphology of Mississippi Gulf Coast landforms, created during the Eemian/Sangamon Interglacial period, gives evidence of sea-level rises of: (1) a few feet for the beach ridges on Belle Fontaine in Jackson County and the islands on the Clear Point delta of the Pearl River in Hancock County, (2) over 20 feet for the Gulfport and Biloxi beach ridges in Harrison and Jackson counties, and (3) as high as 47 feet for Big Ridge and Sandhill Crane Island in Harrison and Jackson counties. Yet this “run-away” event in global warming did not prevent the subsequent 100,000-year-long ice age known as the Wisconsin Glacial Episode, which reached its maximum extent only 18,000 years ago and dropped sea level as much as 115 meters, or 377 feet, below present sea level.

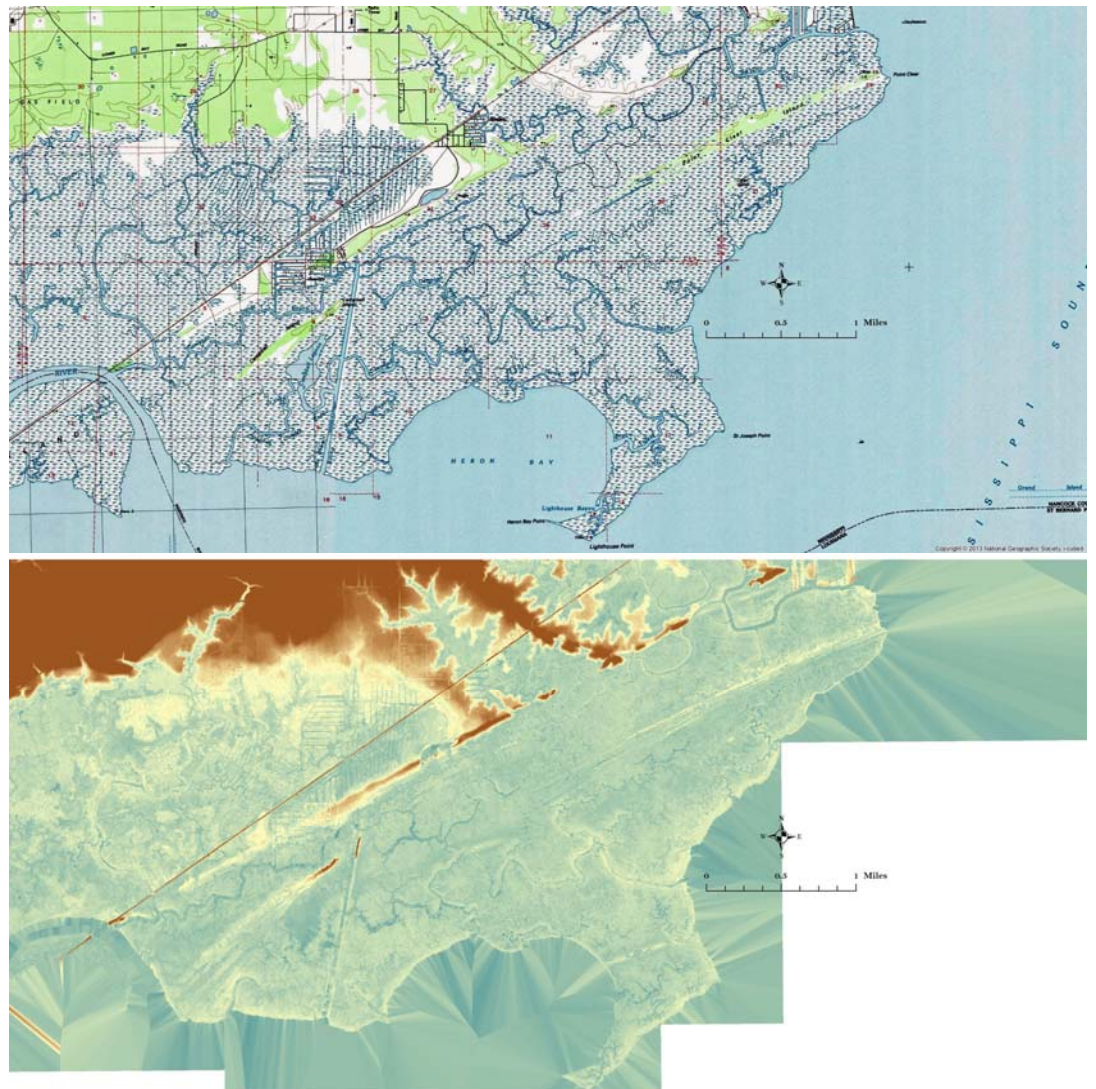


Figure 8. Shoreline prominence in Hancock County at the Point Clear delta of the Pearl River; high ground in brown on the lidar image (bottom) shows the southeastern course of the river's levee deposits, truncated to form southwest-northeast trending barrier islands. Lower on the delta plain are Campbell Island to the west and Point Clear Island to the east (Point Clear Topographic map at top).

JUST GEOLOGY 2012-2013

Just Geology 2012-2013 is a collection of the geology articles from the MDEQ newsletter for the years given. It is available on the MDEQ web site under the Surface Geology Division and then under Downloadable Publications:

[http://www.deq.state.ms.us/MDEQ.nsf/pdf/Geology_JustGeology2012_2013/\\$File/JustGeology2012_2013.pdf?OpenElement](http://www.deq.state.ms.us/MDEQ.nsf/pdf/Geology_JustGeology2012_2013/$File/JustGeology2012_2013.pdf?OpenElement)

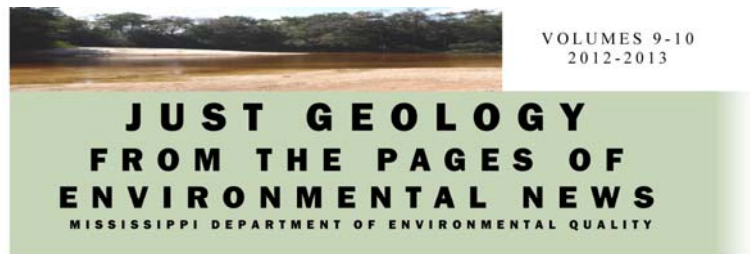


Figure 1. Left: Exposure of Glendon Limestone on the east bank of the Mississippi River beneath the Interstate 20 bridge at Vicksburg. Right: An island of Glendon Limestone in a laterally displaced and down-thrown block, rising out of the river on the south (left) end and plunging beneath the water on the north end in front of Pier E-1 of the I-20 bridge. Here the top ledge of limestone in the adjacent river bank reappears as a doubly plunging anticline. Picture on left was taken on October 15, 2012, and the picture on the right was taken on August 14, 2012.



Figure 2. Drilling rig drilling on an island capped by Glendon Limestone in the Mississippi River at Pier E-1 of the Interstate 20 bridge at Vicksburg. At left, the Glendon Limestone plunges below the river level on the south end of an anticline. At right, the vertical pipe behind the rig contains a tiltmeter that measures lateral movement below ground. Pictures were taken on October 15, 2012.



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

Newton County, Missis-
sippi

by Bill Barnett, Envi-
ronmental Permits Divi-
sion.

