



# The River's Edge

The official publication of the Yazoo-Mississippi Delta Levee District WINTER 2011 Vol. 5, Number 1

## The Great Flood of 2011

*In the test of danger, the Mississippi Flood Control System worked exactly as planned*

The greatest test of the Mississippi Rivers & Tributaries Project (MR&T) since the Mississippi River Flood of 1927 came in May with the Great Flood of 2011. The staff and crew of the Yazoo-Mississippi Delta Levee Board worked around the clock to ensure the stability of the levees and the safety of the citizens represented in its district. Three of the Levee Board's 10 counties were greatly impacted—DeSoto, Tunica and Coahoma — and Yazoo, Humphreys, Holmes and Quitman were also affected.

"We have the best flood control system in the world, and it worked just like it was supposed to," said Kelly Greenwood, Levee Board CEO. "Not one acre on the landside of our levees flooded. We were all so fortunate."

Without the MR&T project, more counties would have been under water. The project, designed by the U.S. Army Corps of Engineers, was designed to save billions of dollars and the lives of people, and it has over the years.

Unfortunately, the MR&T, which is 85-percent complete, was not sufficiently funded this past year or this year. "Flood control navigation is critical to America's future," said Sykes Sturdivant, Levee Board president. "Without the MR&T project, more people would have suffered during the Great Flood of 2011. Congress needs to make flood control a top prior-



Backwater flooding of the Yazoo River at Satartia in Yazoo County.

ity—think of all it would have cost them if the levees had not held."

The Levee Board was heavily involved in the flood fight on the mainline and backwater levees from April 27 to June 10, with cleanup lasting until October 13. Crews monitored the levees 24 hours a day, and worked to lay sand blankets and build water berms to combat boils and seepage.

The backwater levee near Satartia in Yazoo County, built as a result of the horrific backwater flood of 1973, faced its greatest test and held well. Water gauges in Helena read 56.48 feet, compared to 60.21 in 1937. However, more water passed through in 2011 because of channel improvements to the Mississippi River—2.13 million cubic feet in 2011, compared to 1.9 million in 1937.

"The last levee breach in our district was in 1897, and funding for the maintenance and improvements on the levees are critical for us to continue our excellent record," Greenwood said. "We will continue to work to ensure the safety of the residents in each of the 10 counties that we serve and represent."

### INSIDE

The Great Flood of 2011.....	1
Contact Information and Board Members.....	2
YMDLB District Map.....	2
YMDLB Honored at International Conference.....	3
The Great Flood of 2011 in Pictures.....	4-7
Animals Displaced in the Great Flood.....	7
Mississippi River Workshop.....	8
YMDLB Visits Washington.....	9
President Receives Honors.....	9
YMDLB Focusing on Emergency Preparedness.....	9
YMDLB Web Site and Facebook.....	10

Photo by Mississippi Levee Board

COMMISSIONERS

B. Sykes Sturdivant, *President*  
Tallahatchie County

Bishop David Cotton, *Vice President*  
Holmes County

Ted Winters Sr.  
Coahoma County

Robert P. Sayle Jr.  
DeSoto County

N. Craig Brewer III  
Leflore County

Bobby Rushing  
Sunflower County

David Williams Jr.  
Tunica County

Willie Gregory  
Coahoma County

Ralph Sewell  
Humphreys County

Fred Robinzine Jr.  
Quitman County

Clarence M. Cariker Jr.  
Tunica County

William H. Dodd Jr.  
Yazoo County

Kelly Greenwood  
*Chief Executive Officer*  
*Chief Engineer*



INQUIRIES TO:

The Office of the Chief Engineer  
c/o Kimberly B. Easley  
Secretary, Executive Assistant

TELEPHONE: 662-624-4397

FAX: 662-624-2450

POSTAL ADDRESS: P.O. Box 610  
Clarksdale, MS 38614

SHIPPING ADDRESS: 140 Delta Avenue  
Clarksdale, MS 38614

E-MAIL: [ymdl@bellsouth.net](mailto:ymdl@bellsouth.net)

WEB SITE: [www.leveeboard.org](http://www.leveeboard.org)

MAP OF  
YAZOO - MISSISSIPPI DELTA  
LEVEE DISTRICT

Composed of all of  
Tunica, Coahoma, Quitman, Leflore  
and Sunflower Counties  
and parts of  
DeSoto, Tallahatchie, Humphreys,  
Yazoo and Holmes Counties  
Mississippi

Office CLARKSDALE - MISSISSIPPI

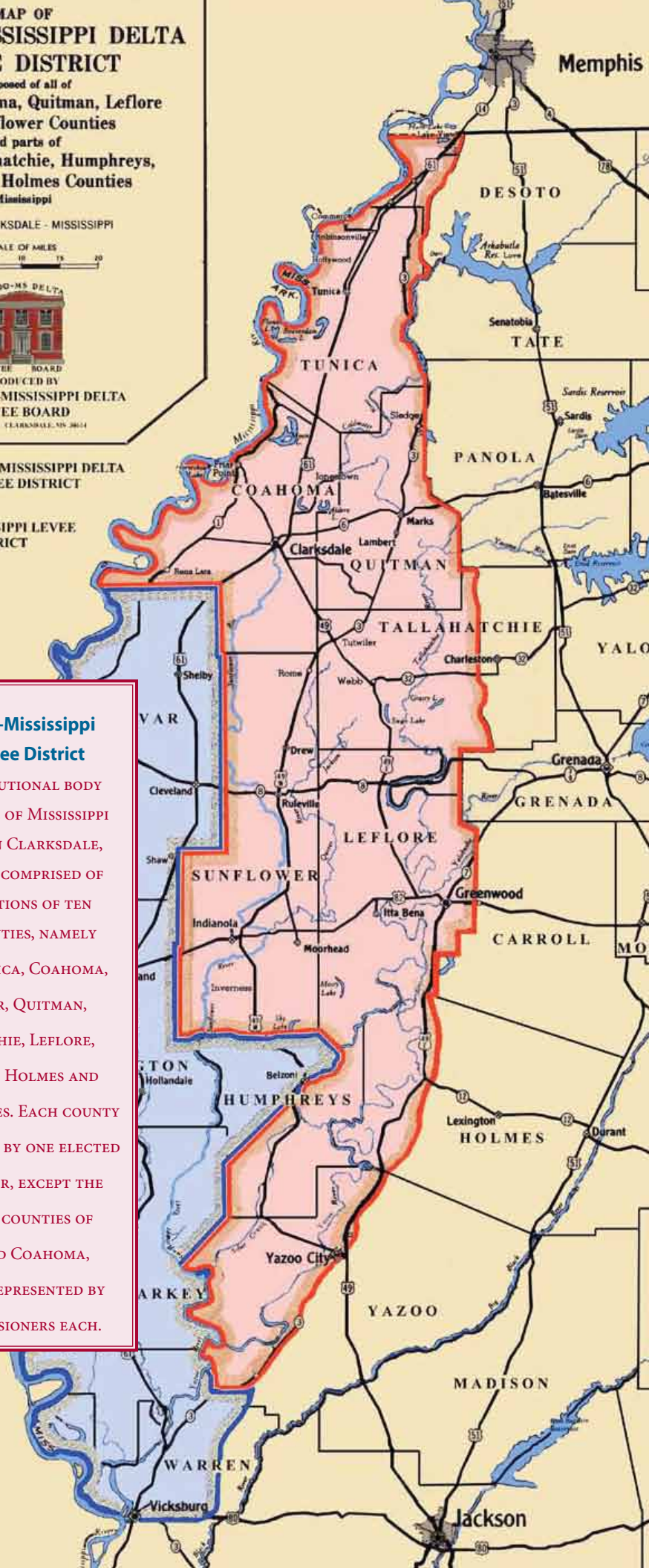


LEVEE BOARD  
PRODUCED BY  
THE YAZOO-MISSISSIPPI DELTA  
LEVEE BOARD

P.O. BOX 610, CLARKSDALE, MS 38614

-  THE YAZOO-MISSISSIPPI DELTA LEVEE DISTRICT
-  THE MISSISSIPPI LEVEE DISTRICT

**The Yazoo-Mississippi Delta Levee District**  
IS A CONSTITUTIONAL BODY OF THE STATE OF MISSISSIPPI DOMICILED IN CLARKSDALE, MISS., AND IS COMPRISED OF ALL OR PORTIONS OF TEN DELTA COUNTIES, NAMELY DE SOTO, TUNICA, COAHOMA, SUNFLOWER, QUITMAN, TALLAHATCHIE, LEFLORE, HUMPHREYS, HOLMES AND YAZOO COUNTIES. EACH COUNTY IS REPRESENTED BY ONE ELECTED COMMISSIONER, EXCEPT THE FRONT-LINE COUNTIES OF TUNICA AND COAHOMA, WHICH ARE REPRESENTED BY TWO COMMISSIONERS EACH.





Pictured are, left to right: Subramanian Swaminathan, Education and Projects Coordinator, Center for Interdisciplinary Geospatial Information Technologies, Delta State University; Bill Sheppard, Assistant Chief Engineer, Yazoo-Mississippi Delta Levee Board; Jack Dangermond, President, Environmental Systems Research Institute; Talbot Brooks, Director, Center for Interdisciplinary Geospatial Information Technologies, Delta State University; and Mike Maloney, U.S. National Grid Project Coordinator, Center for Interdisciplinary Geospatial Information Technologies, Delta State University.

## Yazoo-Mississippi Delta Levee Board Honored at International Conference

The Yazoo-Mississippi Delta Levee Board was recently honored with a Special Achievement in Geographic Information System (GIS) Award at the 2011 Environmental Systems Research Institute (ESRI) International User Conference. YMDLB was one of only 83 award recipients from across the country and one of just over 100 from around the world. More than 10,000 people attended the conference, held in San Diego, California.

In 2006, the YMDLB began working with Delta State University's Center for Interdisciplinary Geospatial Information Technologies to conduct a needs assessment and draft an implementation plan that included a training program and the rollout of ArcGIS (mapping and geospatial analytics), an ArcGIS server, and several extensions and products from ESRI business partners such as TerraGo Technologies. The YMDLB started with a room full of dusty maps dating all the

way back to 1884 and has now emerged with a Flex-based web site, an organized atlas collection in GeoPDF format, a comprehensive data library and staff who have completed multiple GIS courses.

The system was put to the test as the waters of the Great Flood of 2011 began to rise. The YMDLB's 3-D Analyst was quickly used in combination with Light Detection and Ranging (LIDAR) data to find low spots on existing backwater levees in need of improvement and to create special evacuation-route elevation profiles and visualizations for local emergency managers and responders. Data was used to "Select by Location" homes and businesses in need of additional protective actions. ArcGIS was used to integrate data and services in near real time as they became available from a host of sources and then used as a decision tool for managing resources. The ArcGIS also provided the foundation toolset for creating special-

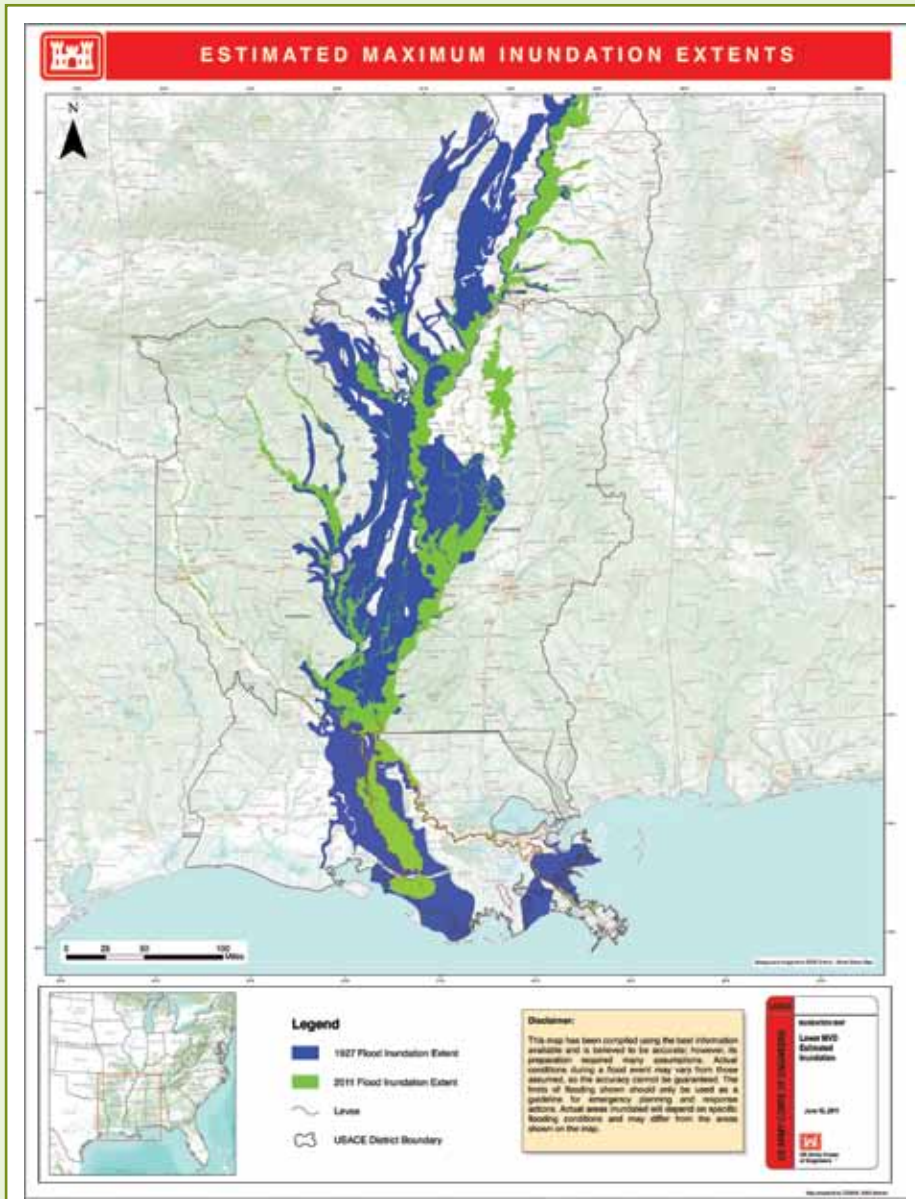
ized print products needed by field crews to respond to boils that occurred along the levee. The ArcGIS server was used to disseminate internal YMDLB data to other stakeholders and responders such as Federal Emergency Management Agency, Mississippi Emergency Management Agency, United States Geological Survey, local governments and others.

Thus, YMDLB was honored for fully embracing GIS and using it effectively as a tool to avoid a repeat of one of the greatest disasters in American history—the Great Flood of 1927.

"We are honored to be recognized with so many outstanding organizations who have made significant contributions and advancements through geography," said Bill Sheppard, Levee Board Assistant Chief Engineer.

Mississippi Delta LIDAR map is available at <http://greatriver.deltastate.edu/leveeflex/index.html>.

## Comparing Two Great Floods: 1927 and 2011



Despite the work accomplished under the Flood Control Act of 1919, the 1927 flood ravaged nearly the entire Mississippi Valley (shown above in blue) except the Yazoo-Mississippi Delta Levee Board District. The loss of life and loss of property convinced the Congress of the United States that a comprehensive federal plan was the only answer to floods of the Mississippi Valley. The result was the Flood Control Act of 1928, which adopted a Corps of Engineers plan for levees, channel improvements, reservoirs and floodways—known as the Mississippi Rivers & Tributaries Project. This project was put to the greatest test ever during the Great Flood of 2011 (shown above in green). The Great Flood of 2011 did not result in a single death. Delta levees did their jobs as did the four major flood control reservoirs in Northwest Mississippi. Even though agricultural losses are estimated at \$455 million and FEMA approved a total of 1,153 applications for flood assistance by mid-June, the MR&T passed its test with flying colors.

## Satartia



Map of flooded areas in Satartia.



Photos by Mississippi Levee Board

River gauge marker  
in Desoto County



Relief well in  
Coahoma County

# Flooded Homes on the River Side of the Levee

# During & After Flooding



# Driving Conditions



# Mississippi Limestone, Coahoma County



# Sandbagging



# Levee Work



# Tunica County Casinos



# Animals of the Great Flood of 2011

## Wildlife Flees the Rising Waters and Waits Out the Event in the Sun



Photo by Jerry L. Litton



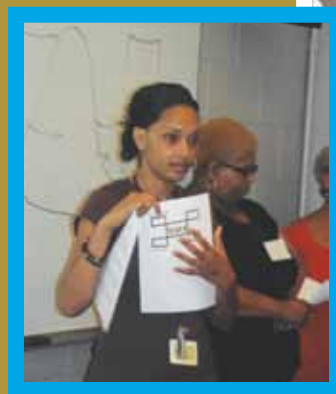
The abundant wildlife in the Mississippi Delta adapted to rising flood waters during the Great Flood of 2011. Raccoons, deer, cattle and even the endangered black bear sought higher ground or waited it out in trees as the waters rose. Minimal long-term impacts to the animal population were expected because the flood waters rose slowly, giving animals time to flee. Those photographing the flood event were able to capture snapshots of snakes, birds, turtles and alligators.

# Delta Center, YMDLB Present Mississippi River Workshop

Delta State University's Delta Center for Culture and Learning recently presented a Teachers' Workshop on the Mississippi River and the role of the Yazoo-Mississippi Delta Levee Board and the Mississippi Levee Board in controlling floods. Twenty-seven teachers participated in the three-day program, which was held at the Coahoma County Higher Education Center. The workshop explored how levees are built and maintained and how the Army Corps of Engineers builds jetties, uses dredges and revetments, and maintains the mainline levee system. The Great Flood of 1927 was also discussed. Funding was provided by the Education Committee of the YMDLB, and participants toured the Board's offices in Clarksdale as well as the seven-acre tree nursery, which the YMDLB uses in reforestation programs.



Twenty-seven teachers recently participated in a three-day workshop, held at the Coahoma County Higher Education Center. Above, teachers tour the Yazoo-Mississippi Delta Levee Board office in Clarksdale. Right, Sam Hobart, Yazoo-Mississippi Delta Levee Board Forester, shows participants one of the 300,000 to 400,000 hardwood seedlings harvested annually at the seven-acre nursery owned and operated by YMDLB. Below, teachers discuss and present curriculum designed for student education.





## Levee Board Visits Washington



Pictured left to right are: Bruce Cook, Yazoo-Mississippi Delta Levee Board Assistant Chief Executive Officer; Kelly Greenwood, Yazoo-Mississippi Delta Levee Board Chief Engineer; U.S. Representative Bennie Thompson; Sykes Sturdivant, Yazoo-Mississippi Delta Levee Board President; Peter Nimrod, Mississippi Levee Board Chief Engineer; Hank Burdine, Mississippi Levee Board Commissioner; and Bobby Thompson, Mississippi Levee Board Assistant Engineer.

Board members and staff of the Yazoo-Mississippi Delta Levee Board and the Mississippi Levee Board recently traveled to Washington, D.C., to meet with key congressional leaders to appeal to them on behalf of the Mississippi River & Tributaries Project, a project that unfortunately was not sufficiently funded last year or this year.



## YMDLB President Sykes Sturdivant Receives Honors

Yazoo-Mississippi Delta Levee Board President Sykes Sturdivant was recently sworn in as incoming chairman of the National Waterways Conference and will host the 2012 Annual Meeting in Tunica.



## Yazoo-Mississippi Levee Board Focusing on Emergency Preparedness

The Yazoo-Mississippi Delta Levee Board is under contract with Delta State University's Center for Interdisciplinary Geospatial Information Technology to develop a five-year plan for its current Geographic Information System (GIS) system. The Board, working with other agencies, desires to create a plan that will include a comprehensive emergency system that will encompass all of the watersheds in the region. The emergency preparedness plan will include an Evacuation Plan that will:

- Simulate breaches on the Mainline Mississippi River Levee in DeSoto, Tunica and Coahoma counties.
- Use existing GIS data and newly acquired Light Detection and Ranging data to set up an evacuation model.
- Generate evacuation route scenarios and timelines based on breach locations, time of breach, traffic capacities, timing of flood inundation, and critical infrastructure and population vulnerabilities.
- Coordinate with agencies and organizations such as Federal Emergency Management Agency, Mississippi Emergency Management Agency, fire departments, local governments, medical personnel, hospitals and others.

"We want to be proactive so we can save lives and reduce the loss of property," said Bill Sheppard, Assistant Chief Engineer, YMDLB. "The Board needs to know if there are any weaknesses to protect the public should a flood, earthquake, gas explosion or other disaster occur."

Once the framework of the plan has been developed, the YMDLB will work with county emergency managements to incorporate their needs and ideas to complete a workable plan.

Jamie Robertson serves as Emergency Management director for the YMDLB.

# For the latest YMDLB information, log onto leveeboard.org. Also, like us on Facebook for the latest updates.



During the Great Flood of 2011, the Yazoo-Mississippi Delta Levee Board posted important and timely news, including flood event updates and levee openings and closures to its web site, [www.leveeboard.org](http://www.leveeboard.org). The site also houses educational information, past editions of the newsletter, district maps and other historical information. Please visit our site or like us on Facebook for the latest news and happenings.

## LINKS & PARTNERS

Yazoo-Mississippi Delta Levee District  
[www.leveeboard.org](http://www.leveeboard.org)

Mississippi Delta LIDAR Map  
<http://greatriver.deltastate.edu/leveeflex/index.html>

U. S. Army Corps of Engineers — Vicksburg District  
[www.mvk.usace.army.mil](http://www.mvk.usace.army.mil)

U. S. Army Corps of Engineers — Memphis District  
[www.mvm.usace.army.mil](http://www.mvm.usace.army.mil)

U. S. Army Corps of Engineers — Five Day River Forecasts  
[www.mvm.usace.army.mil/hydraulics/docs/nws/msrv3.txt](http://www.mvm.usace.army.mil/hydraulics/docs/nws/msrv3.txt)

Waterways Experiment Station  
[www.erdc.usace.army.mil](http://www.erdc.usace.army.mil)

Mississippi Department of Wildlife, Fisheries, and Parks  
<http://home.mdwfp.com>

USGS National Mapping Information  
[www.nationalmap.gov](http://www.nationalmap.gov)

Mississippi Forestry Commission  
[www.mfc.state.ms.us](http://www.mfc.state.ms.us)



Yazoo-Mississippi Delta Levee District  
P.O. Box 610  
Clarksdale, MS 38614