

Coastal Markers



NEWSLETTER OF THE MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

Volume 9, Issue 2

Fall 2005

DMR offices rebound after Hurricane Katrina

Although the Mississippi Department of Marine Resources (DMR) offices, located in the Eldon Langston Bolton State Office Building on Biloxi's Back Bay, were filled with 12 feet of water as Hurricane Katrina made landfall in Mississippi on Aug. 29, the DMR is fully operational and continues to manage the state's marine resources. The state agency has temporarily moved its headquarters to mobile buildings located in the upper parking lot of the Bolton Building at 1141 Bayview Avenue.

The DMR's Boat and Water Safety office on Oak Street in Biloxi was lost as a result of Hurricane Katrina, as well as the three oyster check stations located in Orange Grove, Bay St. Louis and Pass Christian.

The first floor of the Bolton Building, which housed DMR's licensing, fisheries, coastal ecology and public affairs, sustained most of the damages. But, efforts are under way to restore the building to its pre-Katrina condition.

The building is being cleaned, chillers are being hooked up to cool the building, a new water pump is being installed to provide a water supply to the building's ten-



Photo courtesy of NASA/Jeff Schmaltz

This satellite image shows Hurricane Katrina churning in the Gulf of Mexico before making landfall Aug. 29 in Louisiana and Mississippi.

ants and flooring and sheetrock are being replaced. The DMR plans to move back into the building after Jan. 1, 2006.



The storm surge from Hurricane Katrina flooded the licensing area of the DMR.



The DMR Marine Patrol assisted other law enforcement agencies with search and rescue efforts along the Gulf Coast during the storm and in its aftermath.

NOAA helps DMR replace equipment

DMR Senior Systems Analyst Alan McArthur unloads computer equipment donated to the DMR by NOAA's Coastal Data Development Center. The equipment will help replace that which was lost as a result of Hurricane Katrina.

See page 3 for full story.



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Coastal Markers is a publication of the

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of Marine Resources**

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**Coastal Markers is produced by
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This publication was funded through a federal grant from the National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act of 1972, as amended.

Director's Notes

Dr. William Walker



By now you have heard all the cliches that might be used to describe the tragedy of a hurricane such as Katrina. You have seen media coverage of the tremendous damage caused by this storm and perhaps even suffered personal loss as a result. Nothing, however, will prepare you for that first drive down U.S. Highway 90 past where once familiar landmarks may have stood and where mountains of rubble now stand. Suffice it to say that the damage to the state's marine resources—the seafood industry, the charter boat fishery and the natural resource base on which

they depend—was crippling.

Still, as Gulf Coast communities have done over and over again, they will recover. Coastians are a resilient lot who just wouldn't have it any other way.

The Mississippi Gulf Coast is faced with recovering from the greatest natural disaster in this nation's history. Such a daunting challenge also presents unprecedented opportunities. It is in the best interest of the region, and indeed the nation, that this recovery be expedited. In its present state with weakened natural buffers, the Coast is at risk of even greater damages from future hurricanes, and more will inevitably be on their way. It is incumbent upon us as wise stewards of our coastal resources to strive towards minimizing these risks by bolstering Coastal Mississippi's natural buffers—our barrier islands and coastal marsh ecosystems.

We at the Mississippi Department of Marine Resources are proud and privileged to be able to join hands with our neighbors to help in this recovery. We know it will be lengthy and laborious, but also most rewarding, process.

Executive Director



The DMR headquarters is temporarily located in mobile buildings on the property of the Bolton State Office Building in Biloxi. Plans are under way to move back into the building after the first of the year.

Thanks to those DMR employees who contributed to this issue of Coastal Markers: Roxanne Russell, Pat Daughdrill, Wesley Devers, Eric Porche, Mike Buchanan, Mike Brainard, Traci Floyd, Fred Deegen, Marcia Garcia, Jennifer Buchanan, Kerwin Cuevas, Jeff Davis, Ruth Posadas, Josh Rowell, Jeff Clark, Scott Gordon, Bradley Randall, Bradley Ennis.

NOAA donation helps replace lost equipment

The National Oceanic and Atmospheric Administration (NOAA) recently gave the DMR \$200,000 in computing equipment to help replace equipment lost in Hurricane Katrina.

The initiative was led by NOAA's Coastal Data Development Center (NCDDC) located at Stennis Space Center. Working with the DMR staff, NCDDC procured desktop computers, field survey laptops, hardware accessories, printers and projectors to help meet the agency's needs.

The Department of Marine Resources is a NOAA stakeholder and provides valuable marine ecosystem data, reports, and services addressing ecosystem-based management as outlined in the federal agency's Strategic Plan and in support of its Ecosystem Goal Team.

DMR suffered substantial destruction of its personnel's computing and records systems as a result of Hurricane Katrina's severe storm surge, severely impacting post-Katrina resource assessments and remediation efforts associated with the agency's mission.

"We appreciate Russ Beard and the NCDDC providing this essential equip-



NOAA representatives delivered the computing equipment to the DMR's temporary office facilities on Oct. 25. (Front row, from left: DMR Executive Director William Walker; NOAA's Coastal Data Development Center's Sherry Goynes, Susan Starke, Amanda Waltman and Mary O'Chery; and DMR Public Relations Director Lauren Thompson. Back row, from left: NOAA's Coastal Data Development Center's Russ Beard and Brad Nunn; DMR Marine Fisheries Assistant Director Joe Jewell; and Stennis Space Center Radiance Technologies' Tom Strange.)

ment," said DMR Executive Director Bill Walker. "This equipment will help bring DMR back to a normal level of operations and allow us to better help the residents of Coastal Mississippi to recover from this destructive storm. This is yet another

example of Mississippians working together in a time of crisis to provide maximum assistance to residents affected by this devastating storm, and we genuinely appreciate NOAA's efforts."

Boat launches, piers swept away during Katrina

Anglers, boaters beware of unsafe fishing piers, marine debris hazards in waterways

Hurricane Katrina has devastated much of the infrastructure of the Mississippi recreational and commercial fishing industry.

All public fishing piers have been either swept away or made unsafe for use by the storm. About 9,000 feet of public piers were destroyed. The estimated cost of replacing these public piers is \$9 million.

Ramps on the front beach have received most of the damage and are not accessible to the general public. Launching ramps located in the bays and rivers on the coast remain usable. However, caution should be used in launching because many of the ramps are covered with mud and traction could be a problem. Also, anyone launching should be aware that debris is everywhere, and running a boat on coastal waters is hazardous.

Commercial and recreational marinas also were heavily damaged, and many remain unusable. No live bait camps are currently open, and many were completely destroyed.



Hurricane Katrina destroyed what once was the Point Cadet Marina Pier. Located next to the Scott Aquarium in Biloxi, the pier was a favorite fishing spot among local recreational anglers and visitors to the Mississippi Gulf Coast.

Mississippi seafood industry hit hard by Katrina

The following report contains preliminary information with finalized data to be released at a later date. The information was gathered through a survey of a small portion of Mississippi's licensed harvesters and seafood dealers. The total number of commercial shrimp, oyster, crab and finfish vessels beached, sunk, damaged or lost is still being determined.

Hurricane Katrina caused catastrophic losses to the Mississippi seafood industry. Surveyed fishermen and seafood dealers have reported massive damages in all fisheries.

Oysters

About 35 percent of the oyster fleet was lost in Hurricane Katrina, and about 90 percent to 95 percent oyster mortality occurred on the major commercial reefs. During the 2004-2005 oyster season 180 commercial dredging licenses, 60 commercial tonging licenses and 44 recreational oyster licenses were sold; 56 non-resident tonging licenses and 32 non-resident dredging licenses were sold.

A 12-month average catch based on landings from 2000 through 2004 was 2.59 million pounds of meat. Value of this catch was \$5.6 million dollars. Total economic output (includes harvesting, processing and distribution) for oysters is approximately \$34 million per year.

Shrimp

Mississippi issued 673 resident and 262 non-resident commercial shrimp licenses in 2004-2005. The dockside value of the shrimp fishery in Mississippi in 2004 was \$26.5 million. A five-year annual average of \$30.3 million makes it number one in value of all seafood harvested. Mississippi landings in 2004 were 18.1 million pounds with a five-year average of 16.6 million pounds. Total economic output (includes harvesting, processing and distribution) for the shrimp industry is about \$437 million per year.

Prior to Hurricane Katrina, shrimp prices



Shrimp vessels collided during the winds and storm surge of Hurricane Katrina on Aug. 29. The number of vessels damaged or destroyed is still being determined.

were low due to the increased volume of imported shrimp sold domestically. At the same time, the shrimp fishermen were dealing with rising fuel prices and operating costs.

The DMR conducted surveys of shrimp fishermen in order to assess the hurricane damage to the industry.

Although many shrimpers were able to move their boats to locations anticipated to be out of harm's way, it is estimated that about 10 percent to 20 percent of Mississippi's shrimping fleet was wiped out, with another 40 percent to 50 percent receiving various types of damage. Pieces of destroyed boats and those washed aground by the storm may be seen all along the Coast. All of Mississippi's shrimp dealers and processing facilities received damage, ranging from water damage that destroyed refrigeration units and other necessary machinery to complete demolition.

Since the day of the hurricane only a few shrimpers interviewed have trawled the coast waters due to vessel and equipment damage. Adding to the devastation is the fact that most of the infrastructure, including docks, ice-houses, fuel depots, and processing facilities that support this business, are severely damaged. Much concern surrounds the future of the shrimp businesses due to the tremendous amount of rebuilding of the infrastructure needed, as well as the individual costs endured by the

shrimpers in an already difficult time.

Crabs

The DMR issued 189 resident and 22 non-resident commercial crab licenses annually in 2004-2005. Mississippi crab harvesters landed 865,000 pounds of blue crabs with a dockside value of \$705,000 in 2004, with a five-year average of 797,000 pounds and \$642,000. Total economic output (includes harvesting, processing and distribution) for crabs is about \$5 million per year.

Several of the fishermen who were interviewed were able to remove their traps from the

water prior to the storm, only to lose them to the tidal surge. Preliminary estimates of trap loss range between 75 percent to 85 percent. Preliminary assessment of crab vessel damages are similar to those in the shrimp fishery with 10 percent to 20 percent destroyed and another 40 percent to 50 percent damaged to various degrees.

Finfish

A 12-month annual average catch based on landings from 2000 to 2004 was 3.64 million pounds. The value of this catch was \$1.2 million. Total economic output (including harvesting, processing and distribution) for edible finfish is approximately \$46 million per year.

Menhaden

A 12-month annual average catch based on landings from 2000 to 2004 was 185 million pounds. The value of this catch was \$11.5 million annually. The Omega Protein menhaden plant in Jackson County operating prior to the hurricane was severely impacted by Hurricane Katrina. This plant was flooded with several feet of water.

During a 12-month period, production losses in revenue is estimated to be \$24.5 million for the Moss Point facility at current retail value. The price per net is approximately \$28,000 with eight fishing vessels each using approximately three nets per year.

Seafood processors will rebuild



A view of the west side of the Ole Biloxi Oyster & Shrimp Co., located on Biloxi's Back Bay, is an example of the devastation Hurricane Katrina inflicted upon Mississippi's seafood processors.

Hurricane Katrina damaged many seafood facilities leaving 32 of them unable to operate due to major damage or total loss. Owners of those facilities plan to rebuild. In spite of all the damage, 16 facilities are capable of operating within the next 30 days.

Due to the damage that was caused to the seafood industry, quarterly inspections could not be conducted, but DMR seafood officers are providing technical assistance by instructing facility owners with proper cleaning and sanitizing techniques and assisting dealers who wish to relocate temporarily or permanently.

All facilities affected by Hurricane Katrina must be inspected for sanitation. Water samples will be taken and analyzed for contaminants, all seafood processing facilities will need to be recertified before processing.

DMR's Seafood Technology Bureau is assisting with an economic impact survey on the Mississippi seafood industry. The purpose is to gather actual data to determine the level of damage sustained as a result of Hurricanes Katrina and Rita. All seafood officers will be assisting seafood dealers with filling out survey forms for the study. This study is a collaborative effort of the Mississippi State University Coastal Research and Extension Center and the DMR. An accurate assessment is needed to ensure federal funds are both adequate and allocated to the appropriate sectors and recipients.

Mississippi seafood industry members can call DMR's Seafood Technology Bureau at (228) 374-5037 or (228) 374-5043 for assistance with training and education regarding seafood safety and Hazard Analysis and Critical Control Point (HACCP) principles.



Hurricane Katrina left Suarez Seafood, located in Biloxi, in a shambles. About 32 seafood processing facilities were left inoperable by the storm.

SPEC recovers from Katrina's wrath

Despite the fact that the hatchery and rearing facilities at the Gulf Coast Research Laboratory in Ocean Springs were totally destroyed in Hurricane Katrina, the Sea trout Population Enhancement Cooperative (SPEC) is back up and running. The rekindled project is now housed in facilities at the Cedar Point campus near the Gulf Islands National Seashore headquarters where SPEC will ultimately have its permanent home.

Both male and female replacement brood stock were recently captured from nearby Davis Bayou and are currently being held in makeshift quarantine tanks at the Cedar Point facility. Replacement ozonation, filtration, and temperature control systems for a spawning system equivalent to that which was lost also are on order and should be in place soon.

The lost fish served the project well. The juveniles spawned from Texas fish demonstrated that GCRL's hatchery and larval rearing systems worked. Thus, new facilities at Cedar Point will be similar to those that were lost. Also, examination of the lost fish from the original local brood stock indicated they were perhaps only days from spawning when the storm struck. The same time and temperature manipulation that proved successful with these fish also should serve to induce spawning in the newly captured fish.

This project, which should help ensure the long-term vitality of Mississippi's spotted sea trout stocks, is back on track and will hopefully be producing fish for stocking in the very near future.

Visit the DMR online



www.dmr.state.ms.us

DMR puts Mississippi oyster harvesters to work

The DMR offered a program to the Mississippi oyster harvesters to assist with the mapping and assessment of the Mississippi commercial oyster reefs, which were seriously impacted by Hurricane Katrina. The program began Oct. 24.

All major oyster harvest areas have been sampled by the DMR and preliminary reports indicate a significant mortality on the major commercial oyster reefs. The goal of the program is to employ Mississippi oyster harvesters as soon as possible, to assess the resource for future harvest and to identify suitable substrate for cultch planting.

“This is a unique program that combines the manpower and experience of Mississippi commercial oyster fishermen with the resources of the DMR,” said DMR Shellfish Biological Program Coordinator Bradley Randall. “By working side by side with the fishermen, we will be able to rehabilitate the losses suffered by Hurricane Katrina more quickly than by ourselves. Plus, we will be able to put some money in their pockets that otherwise they wouldn’t have. So far we have had a lot of positive feedback about the program from the fishermen.”

About 70 oyster harvesters are recording data, working in pairs, using cane poles to assess the bottom type of each reef as a live oyster bottom (thick), scattered live oysters, shells/shell hash, firm mud, buried shells/oysters, sand or too deep/unknown. Harvesters report to the Pass Christian harbor master to obtain a work pass and mooring space.

The DMR is paying a daily wage per boat for an eight-hour day and the boats are paid on a weekly basis.



An oyster fisherman uses a cane pole to assess the bottom type of an oyster reef.



About 70 oyster harvesters are participating in the DMR’s mapping and assessment program.

About 70 oyster harvesters attend a meeting held recently in D’Iberville to learn about a new program initiated by the DMR that will pay oyster harvesters to assist the DMR with the mapping and assessment of Mississippi commercial oyster reefs, which were seriously impacted by Hurricane Katrina. DMR Shellfish Biological Program Coordinator Bradley Randall explains the details of the program to the fishermen.



DMR biologist to be featured on Discovery Kids

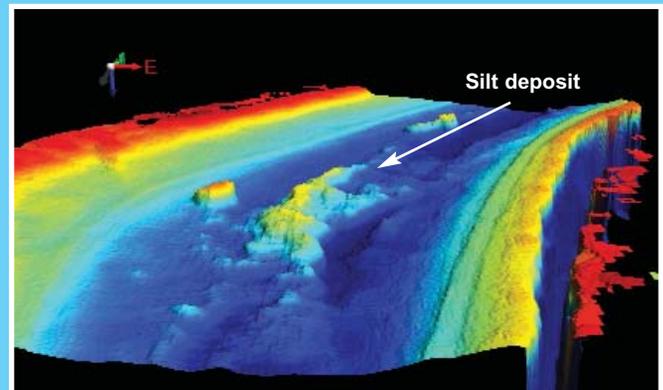
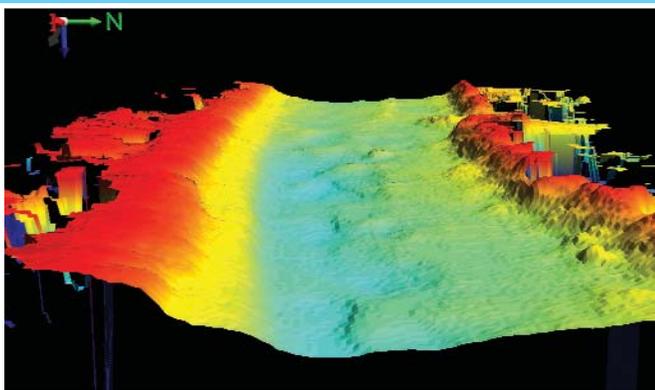


Top Photo: DMR biologist and Grand Bay National Estuarine Research Reserve's Education Coordinator Jennifer Buchanan (left) talks about the impact of Hurricane Katrina on the Coast's wetlands as Katherine Carpenter, senior producer for Bahati Productions, films a segment for Discovery Kids. Buchanan will be featured on "A Year on Earth," short film to air on the Discovery Kids Channel, April 22, 2006.

Bottom Photos: The Wolf River (left) and a majestic Live Oak tree growing along Bayou DeLisle served as the backdrop for the local program segment to air on the Discovery Kids Channel on Earth Day 2006.



DMR sees bigger picture with side-scan sonar



DMR Marine Fisheries staff used side-scan sonar to search channels and marinas for any obstructions from Hurricane Katrina. Side-scanning provides an underwater view of water bottoms to locate marine debris, sunken vessels and silt deposits. The image on the left shows a portion of the Bayou Caddy channel in Hancock County. The image reveals a clear bottom with little to no silt deposits. The image on the right shows silt deposits in the middle of the Port Bienville Channel off the Pearl River in Harrison County.

Storm scars Mississippi's Coastal Preserves

Hurricane Katrina left debris, downed trees, soil erosion in its path, leaving DMR's Coastal Preserve's Program with many challenges

The DMR Coastal Preserves Program, which is dedicated to restoring, enhancing and protecting the Mississippi Gulf Coast's most unique habitats, has been presented with some significant challenges due to Hurricane Katrina.

The bayous, beaches, dunes, marshes, pine savannas and coastal forests that make up the Coastal Preserves are home to some of the most diverse creatures in the state and, unfortunately, both the habitats and their wildlife were hit hard by the hurricane.

According to the Mississippi Fish and Wildlife Foundation, Katrina caused the largest single devastation of forests in our nation's history, and the largest single destruction of fish and wildlife habitat.

Recent reconnaissance conducted by DMR staff revealed a variety of impacts. These impacts include large areas of downed trees, ripped and torn marsh, scoured-out marsh, sediment and debris piles covering large areas, erosion of beaches and dune systems, and numerous streams and small creeks clogged with debris and fallen trees. Prior to Hurricane Katrina, there was an estimated 3,000 acres of seagrasses in Mississippi. Based on gross estimates, as much as 60 percent to 90 percent of Mississippi's seagrasses were damaged or had disappeared.

The excessive buildup of downed timber and associated storm debris will create a greater potential for catastrophic wildfire and will be a hindrance to conducting normal prescribed fire activities within Coastal Preserve areas. Fires will be more intense due to the accumulation of these dry fuels. The opening of the canopy will promote excessive growth of brushy vegetation, adding to the dangerously high levels of fuel in the storm-impacted areas. In addition, the open canopy and stressed native vegetation creates an opportunity for invasive species such as the Chinese tallow tree (*Triadica sebifera*) and cogongrass (*Imperata cylindrica*) to establish and spread throughout Mississippi's coastal habitats.



Hurricane Katrina left a large debris field in the Hancock County Marsh Coastal Preserve.



The storm left a small debris field in a coastal marsh in Jackson County.



This aerial photo shows an area of scoured marsh and dunes on Cat Island.



Hurricane Katrina left severe tree damage in its path.

CRMP is rising from the rubble, rebuilding Coast

While the offices of DMR's Comprehensive Resource Management Plan (CRMP) staff were destroyed by Hurricane Katrina, your CRMP is "rising from the rubble" and joining in the coastal effort to rebuild our communities and renew our Mississippi Gulf Coast spirit.

Uniting with local experts and public officials as part of the Congress of New Urbanism for the Mississippi Renewal Forum at the Isle of Capri in Biloxi, CRMP is representing its stakeholders in brainstorming sessions and fulfilling requests for CRMP tools, such as the Storm Water Management Toolbox and the GIS Land Suitability Model. These were given to planning teams who are working in an unprecedented effort to rebuild our coastal communities.

CRMP hit the ground running in the aftermath of the hurricane working with Coastal Environments, Inc., providing a preliminary report on the condition of many of our Mississippi heritage sites, attractions and structures. This report provided a survey of the dire needs of some of our visitor attractions that focus on our culture, history and natural resources. These are three of the four cornerstones of the Mississippi Gulf Coast National Heritage Area, which was established in Federal law by the United States Congress just last year. The report was provided to the Federal Emergency Management Agency; the Mississippi Department of Archives & History; and the Tourism Commission for



The Golden Fisherman sculpture, a symbol of the Coast's heritage, was swept off its pedestal during Hurricane Katrina. The sculpture stood in Biloxi's Vieux Marche from the late 1970s until it was relocated to Biloxi's waterfront in 2003.

the rebuilding of the Mississippi Gulf Coast.

The Comprehensive Resource Management Plan is an integral part of the Governor's Commission on Tourism. The Interim Management Plan for the Mississippi Gulf Coast National Heritage Area, completed only a few months before August 29, continues to be invaluable and significant as the only document of its kind to have a complete inventory of southern Mississippi's historic places. The information contained in the two-volume document was critical in quickly determining the percentage of structures still standing, the percent damaged and the number lost.

For the past five years, CRMP and its stakeholders have fostered, generated and sustained discussions on smart growth issues and concerns. Now, as smart growth concepts and processes become even more critical, that discussion is continuing, almost daily, all along the Mississippi Gulf Coast. Currently, CRMP is actively participating in the Smart Growth Committee for

the City of Ocean Springs. "We are committed more than ever before to provide stakeholders and community leaders the vital smart growth support needed to help the coast rebuild and bring a renewed and even higher quality of life to our coastal region," said DMR CRMP Staff Officer Marcia Garcia.

"As we all know, this is a sad time when so many of our friends, relatives and fellow citizens have lost so much," Garcia said. "But it is also an exciting time when we can look to building a new future worthy of

our best dreams and highest goals. We believe the cornerstone building blocks of planning and rebuilding are us: 'We The People.'"

So, for this year's Smart Growth Conference the usual \$125.00 conference registration fee is waived. **Everyone is invited to attend free of charge.** But, everyone still needs to fill out a registration form. This will help determine how many seats and meals will be needed. A registration form will be available soon and will be available at December's CRMP meeting. For more information please call (228) 374-5022.

Rebuild the Coast!

The next CRMP meeting will be held Dec. 12 at the Mary C. O'Keefe Cultural Center for Arts & Education, 1600 Government Street, Ocean Springs at 10 a.m.

Coming up in the Winter 2006 edition of Coastal Markers:

- DMR announces winners of the 2006 DMR Marine Information Calendar art contest
- DMR and its partners make strides to rebuild after Hurricane Katrina
- Marine debris removal program employs Mississippi fishermen
- Construction to begin on new NERR facilities

Katrina impacts GBNERR: *Moving forward*

The Grand Bay National Estuarine Research Reserve (GBNERR) is located about 60 miles east of where the eye of Hurricane Katrina first made landfall in Mississippi. The reserve was impacted by an unprecedented 18 to 20-foot tidal surge of water and winds that topped over 100 mph.

“Though the reserve office site was inundated by some eight feet of water during Hurricane Katrina, we were very fortunate,” said GBNERR Manager David Ruple. “We were able to save some of our equipment, including boats and vehicles. Some of our ongoing automated monitoring was unaffected by the storm and continued working throughout. We are now focusing on the staff getting back into new temporary offices and moving forward with our facilities construction at a somewhat higher elevation.”

Environmental Impacts

When the high salinity tidal surge pushed through the reserve, many of the non-salt-tolerant species of plants were temporarily “burned” by the salty waters and dried out by the intense winds. Both our fresh and salt marshes and the adjacent pine savannas that would normally still look lush and green during early fall now look like they normally would during the winter when they are dormant and brown.

Some erosion is evident on the shell middens located farthest south in the reserve. The vegetation on most of the middens was completely washed away. The middens located further up the bayous do not appear to have eroded to the same extremes as those located further south, although much of the understory vegetation on these areas has also been washed or blown away. Many of the surviving plants have already begun to put out new green leaves and some, like smooth cordgrass and the Christmasberry, are even flowering.

The reserve’s seagrass habitats and oyster resources appear to have been only minimally impacted. The unique salt pannes within the reserve appear to be unchanged except for numerous small depressions



A wildflower blooms on a shell midden after the storm.

that appear to have been created by blue crabs, perhaps for feeding purposes, when the pannes were flooded at length after the storm. Unlike other coastal areas, no significant debris area has been found within the reserve.

Sightings of animals and their tracks (black racers, great blue herons, snowy egrets, deer, fox and raccoons) have recently been made indicating that animals are beginning to return to the area. After the storm, migrant songbirds that usually use portions of the reserve to refuel their fat stores before they migrate across the Gulf of Mexico had to find alternative

feeding grounds because most of the fruit and insect resources were destroyed. Long-legged wading bird numbers also appear to be down after the passing of the hurricane.

Dr. Mark Woodrey, the reserve’s research coordinator and Chris May, the reserve’s stewardship coordinator, collaborated on a grant with a research team from the University of South Carolina’s Baruch Institute and Arnold School of Public Health on a marsh ecology/remote sensing project. The results of this sampling event will be compared to the results of samples collected in October

of 2003 in order to see if there is any significant changes in the marsh that can be attributed to Hurricane Katrina.

This research team worked with the reserve staff to install several groundwater monitoring wells throughout the reserve in order to monitor the effects of storm surge on the movements of ground water as well as to monitor ground water salinities across the reserve. The research team will use the methodologies developed to design a sampling protocol that can be applied at our other reserves around the country after future, similar natural events.



The collaborative research team monitors the ground water wells within the reserve. The team is measuring the effects of storm surge and salinity.

rd with full staff, plans for new facility

Reserve Infrastructure

The GBNERR shares office space (a double-wide, double-long trailer) with the staff of the Grand Bay National Wildlife Refuge. These offices were raised on pilings but still had about two feet of surge water inside. The front approach ramps and the attached porch shifted position while the back porch broke away from the building and washed across the compound. The building was determined to be unsalvageable; however several pieces of equipment and furniture, and many of the staff's books were saved. Because most of the computer equipment was removed before the storm, most of the critical data and electronic files of the office were saved.

Much of the equipment in the outside shed was lost such as marine electronics, two 4-wheelers, a small boat motor and a lot of research and firefighting equipment because the surge completely covered the shed. Most of the canoes floated away over the top of the compound fence but many of them have since been located. Most of the boats suffered only minor damage and are salvageable. None of the staff's vehicles were damaged as they were moved to high ground before the storm. Trailers will be brought in soon to house the staff until the new facility can be constructed.

The boat launch and fishing pier located on Bayou Heron suffered little or no damage. However, the newly constructed pavilion (built by the Refuge but regularly used by the NERR for education programs) is now merely a skeleton. The reserve's offshore weather station was destroyed including its sensors, mounting equipment and support platform. The support pilings are the only things still intact.



GBNERR Stewardship Coordinator Chris May (left), GBNERR Research Coordinator Dr. Mark Woodrey and Mobile NEP's Lee Yokel talk about the impacts of hurricanes on coastal communities during a segment of EstuaryLive, a live Webcast on Sept. 23.

Reserve Neighbors

Every privately owned home located within the boundaries of the reserve was destroyed and washed away during Katrina. Many homes and businesses located adjacent to the reserve were flooded and are now condemned or uninhabitable. Seven of these homes are being bought out by Jackson County and the Mississippi Emergency Management Agency as part of the state's coastal hazard mitigation program. Chevron's Pascagoula Refinery, one of the largest in the nation,

was inundated even though they built large levees around it after Hurricane Georges several year ago. Mississippi Phosphates, the neighboring fertilizer plant, also flooded during the surge. It is possible that contaminants from these facilities and the flooded homesites washed into the adjacent reserve during the surge, so sampling stations have been established within the reserve to monitor for the presence of contamination.

Programmatic Impacts

EstuaryLive, a major educational event that the reserve was going to broadcast live over the Internet from the reserve, had to be reformulated and relocated due to the extensive damages to the reserve's office. This was accomplished thanks to the help of Lee Yokel of the Mobile Bay National Estuary Program (NEP) and Margaret Sedlecky of Weeks Bay NERR, who stepped in and took over the planning of the event when the Grand Bay NERR staff was trying to recover from the storm. The theme of the event was changed from invasive species to the impacts of hurricanes on coastal communities and the loca-

tion of the event was changed to Dauphin Island. The event went off at the time it was planned but it had to be relocated once again to the NEP office in Mobile because Hurricane Rita flooded Dauphin Island and made it impossible for the satellite truck to get through to the site. The reserve's Education Coordinator, Jennifer Buchanan, is currently in the process of answering the 400 questions that were received from the public during the live broadcast.

Workshops planned by the reserve's Coastal Training Program (CTP) have been postponed until next year.



The GBNERR building is unsalvageable, but the reserve plans to move forward with the construction of a new facility.



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Happy Holidays
from the Department of Marine Resources

DMR Calendar

December 12

Comprehensive Resource Management Plan Meeting, Mary C. O'Keefe Cultural Center for Arts & Education, 1600 Government Street, Ocean Springs, 10 a.m.

December 13

Mississippi Commission on Marine Resources meeting, Mississippi State University Coastal Research and Extension Center, 1815 Popp's Ferry Road, Biloxi, 9 a.m.

January 17

Mississippi Commission on Marine Resources meeting, Mississippi State University Coastal Research

and Extension Center, 1815 Popp's Ferry Road, Biloxi, 9 a.m.

DMR Capitol Day

Feb. 16, 2006

The Department of Marine Resources encourages legislators, Capitol staffers and visitors to stop by the DMR's exhibit in the rotunda.

Learn more about the DMR and its projects and programs and south Mississippi's coastal resources.

Doc's Fishing Tip



Stumps and other large debris along the front beaches pose a hazard to boaters and wadefishermen alike, but they are also attractive to fish. Find one of these objects near deeper water and you should be able to coax up a nice trout or two.

Casting a topwater bait to within inches of the object and fishing it with a slow retrieve works best in such situations, but fluttering a casting spoon or soft plastic jig near the structure's base can also produce good results.

— Fred Deegen, Ph.D., Deputy Director