

Building a Partnership for the Old Fort Bayou Watershed



2007 Action Plan

Jackson County, Mississippi

Old Fort Bayou Watershed Action Plan
Sponsored by the Land Trust for the Mississippi Coastal Plain



Funding assistance from EPA, Region IV

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Pascagoula River Basin Team



Mississippi Department of Environmental Quality
Office of Pollution Control

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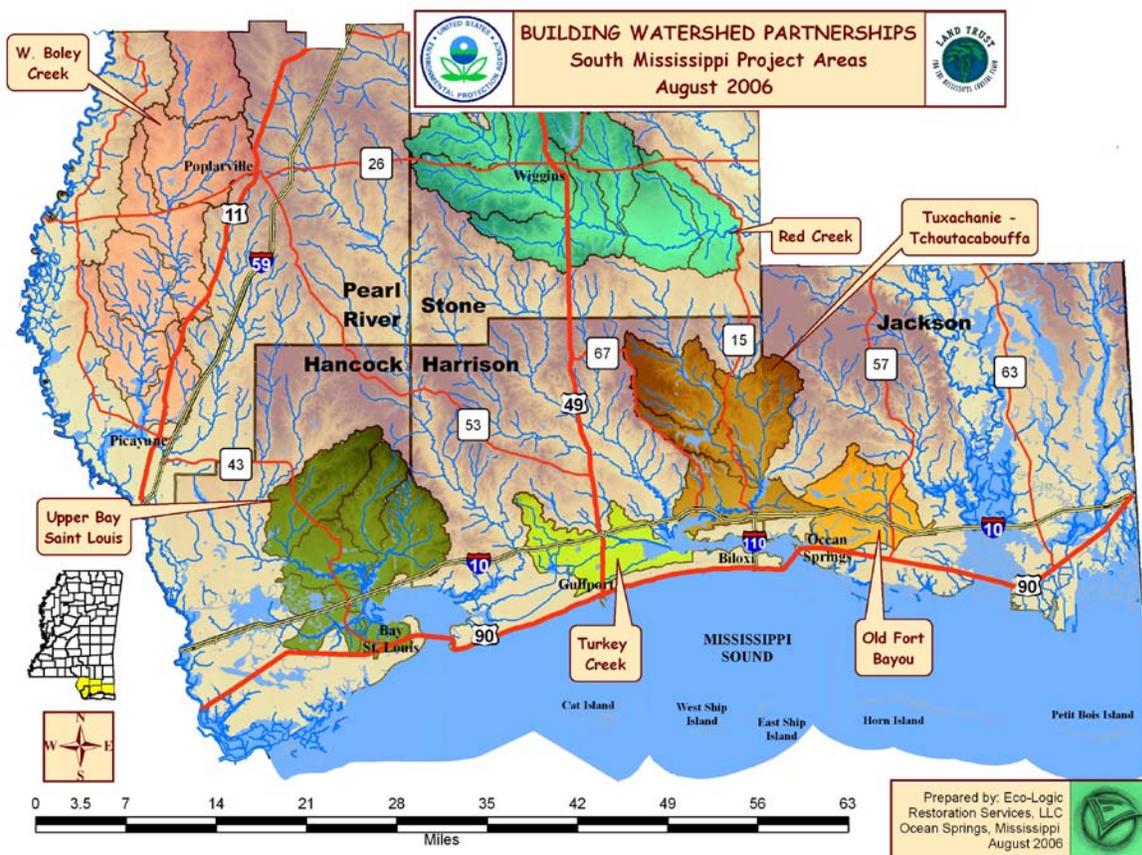
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BACKGROUND

Before Hurricane Katrina, the Land Trust for the Mississippi Coastal Plain (Land Trust) was awarded a grant from EPA Region IV to build watershed partnerships in six watersheds in south Mississippi. Criteria for selecting watershed partnership areas included: (1) watersheds that represented south Mississippi both geographically and ecologically; (2) watersheds where the Land Trust owned and managed lands; and (3) watersheds where there was a demonstrated need for restoration and protection. The six watersheds that were chosen included Turkey Creek in Harrison County, Red Creek (stream sections flowing through Stone County), Old Fort Bayou in Jackson County, West Hobolochitto Creek in Pearl River County, Tchoutacabouffa River (stream sections flowing through Harrison County) and Upper Bay of St. Louis (identified streams in Hancock County).



One of the goals of the watershed partnership was to develop and implement a solution-oriented, action plan. We have two primary objectives: (1) Research, identify and implement watershed protection and associated education strategies for Old Fort Bayou; (2) Research, design and implement watershed restoration and associated education strategies for Old Fort Bayou. Protection is defined as defending the existing natural and cultural resources of the Watershed from further degradation caused by encroachment, abuse or

neglect. Restoration is defined as actively initiating or accelerating the recovery of the ecological and cultural health, integrity and sustainability of the watershed that has been degraded, damaged or destroyed.

INTRODUCTION

The Land Trust's efforts to build a partnership for Old Fort Bayou began in August of 2006 with Donna Brown and Gary Young agreeing to co-host the first forum. The first community forum was held at Christus Victor Lutheran Church on October 26, 2006. We especially thank Christine Olsenius and the Southeast Watershed Forum for their contributions to this project and for presenting the Economic Value of Habit Protection at the first forum. The second forum was a roundtable discussion at the Gulf Hills Hotel on March 20, 2007. We have learned much from the participants and are very appreciative of their participation; we especially thank Leah Bray, Donna Brown, Gary Young, Mary Marr Beckman, Shannon Moran, Anne Marie Moreton, Mike Murphy and Melanie Lane for their interests and time to meet and discuss the best ways to shape our direction.

This document is written to provide a strategic approach to watershed planning with particular focus on private sector participation in the process. We want to provide context and a brief overview of the ecological, cultural and scenic significance of Old Fort Bayou. This is a record of our planning efforts and an accounting of actions identified to address watershed concerns. The hope of participants is to foster better stewardship of the natural resources of the watershed.

Forum participants were asked, "What characteristics of Old Fort Bayou are important to preserve?" They responded with consensus:

1. Marsh areas, streamside buffers and green space
2. Natural springs (City of Ocean Springs' namesake)
3. Rural character of northern watershed
4. Beauty of the bayou, view from the water toward
5. Public access to the bayou and navigability – canoes/kayaks as well as motor boat traffic

From the impacts of storm debris and tree loss to the threats of high-rise developments at the waters edge and accelerated erosion, participants clearly want to see their watershed restored and protected and the community educated about watershed issues. Forum participants are concerned about loss of green space and marsh, loss of rural character in the northern watershed, increased boat traffic and loss of scenic quality. There is a great need to educate the local citizenry and to develop pride in place so that littering and dumping can be minimized, streamside management can be better understood and implemented, and appropriate public policy can be implemented as the population grows.

PURPOSE

Our goal is to build a watershed partnership that will develop and implement a solution-oriented action plan. We have two primary objectives: (1) create a safe and beautiful blueway for residents and visitors, (2) restore geomorphic stability thus decreasing upstream bank erosion and sediment loading in downstream inchannel environs.

After reviewing literature about the Old Fort Bayou Watershed and developing maps for use in community discussions, the Land Trust for the Mississippi Coastal Plain (LTMCP) hosted an evening forum and noon roundtable discussion with private landowners. These meetings were the first formal discussions with landowners and the foundation of building a long-term partnership to address the health of the Old Fort Bayou Watershed.

The mission of the LTMCP is to conserve, promote and protect the open spaces and green places that have ecological, cultural or scenic significance in the counties of the Mississippi Coastal Plain. Riparian corridors, or streamside management zones, have great ecological, cultural and scenic significance and are a primary focus of the LTMCP. Healthy riparian corridors are also essential elements for maintaining clean water. The mission of EPA is to protect human health and to safeguard the natural environment - air, water and land - upon which life depends. The foundation for building a watershed partnership for Old Fort Bayou is funded through a grant from EPA Region IV to the LTMCP.

LTMCP is committed to achieving its mission in the Old Fort Bayou Watershed and is grateful for the EPA watershed grant that funded the exploration and initiation of this watershed partnership. LTMCP is committed to working with stakeholders –private landowners, local government and natural resource agencies, to implement the following education, protection and restoration strategies for the Old Fort Bayou Watershed.

Teams to Serve the Old Fort Bayou Watershed Partnership

Steering committee

Judy Steckler, LTMCP
Donna Brown, Manager, Gulf Hills Hotel
Gary Young, landowner
Mary Marr Beckman, City of OS Planning Commission
Shannon Moran, landowner
Anne Marie Moreton, landowner
Melanie Lane, landowner
Michael Murphy, The Nature Conservancy - landowner

Technical Advisory team

Southeast Watershed Forum, Christine Olsenius
MDEQ, Coastal Basin Team Coordinator, Larry Estes
South Mississippi RC&D Council, Patty Rogers
MS Department of Wildlife Fisheries & Parks, Scenic Streams Program, Andrew Whitehurst
Mississippi Department of Marine Resources, Coastal Resource Management & Planning
Mississippi Department of Marine Resources, Coastal Preserve Program
Mississippi Gulf Coast Heritage Program
Mississippi Sandhill Crane NWR
MS Soil and Water Conservation, Jackson County SWCD
Natural Resource Conservation Service
Jackson County Utility Authority, Brad Bradford
EPA, Gulf of Mexico Program (Habitat restoration team)
EPA, Region 4, Watershed program

Education and Recreation Advisory team

LTMCP – Staff and Volunteers
City of Ocean Springs – Planning and Recreation Departments
Rivers, Trails and Conservation Assistance Program, National Park Service, Liz Incer-Smith
Jackson County Planning Commission
MS Department of Marine Resources – Boating Safety coordinator
MSU Extension Service
South MS Environment and Agricultural Coordination Organization (SMEACO)
MS Canoe and Kayak Club
MS Gulf Coast Community College, Outdoor recreation program, Wayne Taylor
Watershed Harmony Puppet Show
Jackson County and Ocean Springs School Districts

Description of the Old Fort Bayou Watershed

The Old Fort Bayou Watershed lies solely in Jackson County. The watershed includes a fast-growing business corridor along Interstate 10. It also includes a rural landscape that is quickly converting into a more suburban landscape with residential homes and subdivisions.

Old Fort Bayou is a tidal creek navigable by canoe from Old Fort Bayou Road to the Biloxi Bay. It runs in a horseshoe shape: beginning in Latimer north of Interstate 10, it runs east toward highway 57, turns south into Ocean Springs then runs back to the west and its confluence with Biloxi Bay.

The bayou runs through many important natural areas: Mississippi Sandhill Crane National Wildlife Refuge, The Nature Conservancy's Old Fort Bayou mitigation property, Land Trust and Coastal Preserve's Twelve Oaks Conservation Park and Mississippi's Old Fort Bayou Coastal Preserve. The bayou is a birdwatchers paradise: it is earth's last home for the Mississippi Sandhill Crane. Also, Jackson County's waste-water lagoons and the bayou's tidal marsh wetlands host hundreds of shorebirds and waterfowl.

The upper watershed remains rural in nature with horse and cattle farms and rural estates; however, since Hurricane Katrina, the rural nature is quickly converting into a more suburban landscape with smaller-lot residential homes and subdivisions. The lower watershed is bordered by the St. Martin community to the north and the City of Ocean Springs to the south. Subdivisions are quickly becoming a primary source of non-point source pollution and creating added pressure along the bayou's waterfront.

Old Fort Bayou was historically used by tourists; steamships came up from Biloxi Bay and visitors to the springs frequently canoed the bayou. Fishing, boating and bird watching are the primary recreational uses on the bayou. City and county boat launches, unique dining, lodging and golfing are available to visitors and residents; this along with significant conservation areas makes the bayou an attractive waterway for locating a canoe and kayak trail.

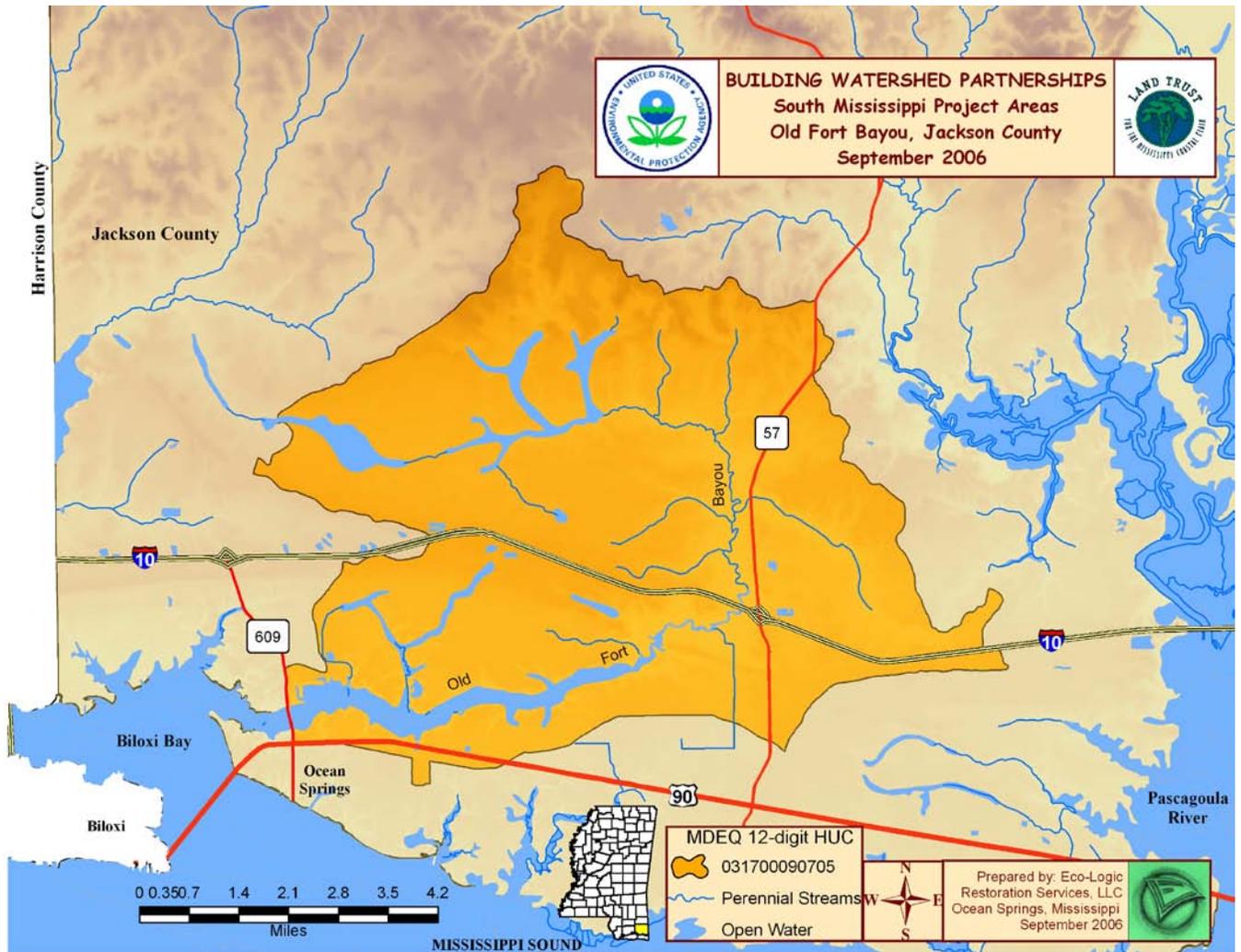


Figure 1: Map of Old Fort Bayou

Stakeholder interests: Results from Community Forum and Roundtable Discussion

What do you want for future of the Old Fort Bayou watershed?

- Protect it "as is"
- Protect current condition from degrading
- Reduce silt - bayou is forming new sandbars, they are creating a dam in the bayou
- Need public access areas
- Blueway with facilities to allow for public use
- More imaginative development, Promote conservation design of developments
- Develop a defined greenway
- Keep condos out of the marsh, develop buffers and setback zones
- Develop buffer ordinances that address setbacks and species composition
- Need more education - especially education for decision-makers/elected officials about land use
- Dredging - when dredging, keep channels open
- City/county should require a certain percentage of green space within developments
- Create and protect habitat buffers
- Planning commission's proposed county comprehensive plan needs to be coordinated with watershed planning and local city planning
- Encourage planning commission to read the Plan
- Integrate with utility authority: wastewater, potable water and storm water
- County needs a tree protection strategy
- Work with landowners to establish conservation easements for bayou buffers
- Need funding programs, especially state funding programs
- Problem: cost is high for some wetlands, etc - not affordable for conservation
- Work with developers to find options
- Natural area packaging, (see Audubon's coastal birding trail or SouthernBlueways.com)
- Source water protection needs to be addressed in the watershed plan and in the county's plan
- No more bridges over bayou
- Existing bridges redesigned with less impact
- Protect the *Waterview Preservation Use District* in Ocean Springs
- Return to height ordinance at or below tree lines, no high condos

Rate the current condition of the bayou

Fair to Good

What characteristics of Old Fort Bayou are important to preserve?

- Marsh areas
- Streamside buffers
- Green space

- Natural springs (City of Ocean Springs' namesake)
- Rural character of northern watershed
- Beauty of the bayou looking from the water toward land (natural state, streamside buffer zones)
- Protect public access to the bayou
- Protect navigability – canoes/kayaks as well as motor boat traffic

What are the challenges we face?

- Lack of Funding
- Lack of Education
- Need more zoning
- Need more coordination of different plans
- Need strategies to protect rural character north of I10, Post Katrina retreat policy is increasing land use pressures in north part of watershed
- Need long-term road projects planning
- Need imaginative planning and development
- Possible solution – overlay districts
- Consistent zoning throughout the watershed
- Big challenge: public apathy
- Mapping – need overlay of landowners on watershed map
- In general, there is a lack of understanding about land use and watershed protection. This results in unintended consequences that are costly to future generations.
- Continuing need for prescribed fire on the landscape – required to maintain a healthy wet pine savanna ecosystem
- Need enforcement of litter laws and more participation in coastal cleanup and bayou cleanup programs

BUILDING A PARTNERSHIP FOR OLD FORT BAYOU ACTION PLAN

After reviewing literature about the watershed and developing maps for use in community discussions, the Land Trust for the Mississippi Coastal Plain (LTMCP) hosted an evening community forum and a noon-time roundtable discussion with private landowners along Old Fort Bayou. These meetings were the first formal discussions with landowners and provided the foundation for building a long-term partnership to address the health of Old Fort Bayou Watershed.

First, we recommend an assessment at the watershed scale to determine the full extent of geomorphic changes causing accelerated erosion along the bayou. Such an assessment will identify priority areas for restoration, protection and land use planning at the watershed scale, particularly in the flood plain. Further study and partnership efforts may ultimately result in the development of a watershed implementation plan that will include prioritized action, timelines, budget estimates and measures of success. We recommend continued strategic planning efforts to improve the scope of the Old Fort Bayou Watershed Action Plan.

The initial action plan, based on concerns and needs identified by landowners during spring 2007, is noted below:

EDUCATION STRATEGIES

1. Create a webpage for Old Fort Bayou that can provide answers to questions asked by local stakeholders:
 - a. General information and map of the watershed
 - b. Watershed Action Plan
 - c. Information about natural services of wetlands
 - d. Information about economic value of blueways and greenways
 - e. Recommendations about *green infrastructure* alternatives to bulk heading for erosion control
 - f. Streamside Management and Best Management Practices (BMPs)
 - g. Links to county and city zoning maps
 - h. Links to primary collaborators and partners in the watershed and pertinent watershed information

2. Create a blueway: canoe and kayak trail from Gulf Hills to The Preserve. Develop interpretation and signage. Continue to protect and improve public access to the bayou. Provide education to community leaders about the environmental, economic and recreational values of a canoe and kayak trail and healthy, scenic waterway.

3. Design and implement environmental education programs specific to Old Fort Bayou:
 - a. Design *Find the animal in the swamp* activity page for Grades 3-5

- b. Host Watershed Harmony Puppet Show during 2007-2008 school year, use above educational materials in conjunction with performance
- 4. Educate the public about watersheds and streamside management:
 - a. Develop a roadside/streamside education campaign to include signage on private lands (willing landowners) Design and install watershed signage that will (1) educate and build pride in place along the bayou and (2) encourage watershed protection.
 - b. Host a neighborhood meeting, or series of meetings, about streamside management and best management practices. Include city and county public works employees in these discussions. Print and distribute *Old Fort Bayou Streamside Management for Landowner's Handbook*
- 4. Discuss with MSU Coastal Extension Service the possibilities of designing and hosting a landowner education program for homeowners that addresses the primary information needs for homeowners and small land owners along the bayou, especially bank stabilization, native plants and reforestation.
- 8. Develop adult education/outreach programs and materials that target city and county decision-makers, public works employees and MDOT about watershed concerns and solutions: land use changes, wetland loss, storm water management, streamside BMPs and erosion-control BMPs on construction sites. Include opportunities to educate contractors, city and county decision-makers, public works employees and MDOT
- 9. Plan and host an informational executive breakfast to begin the discussion about watershed management and watershed-scale approach to planning; this would be a good opportunity to introduce the blueway concept.

PROTECTION AND RESTORATION STRATEGIES

- 1. Promote conservation design developments – denser, tighter development that creates larger buffers and open green spaces. Work with area developers to promote green design residential developments that protect wetlands and water features with conservation easements in perpetuity. Work with supervisors, city board and planning commissions to identify and change zoning to require 'greener' practices.
- 2. Identify landowners along the stream bank. Distribute Old Fort Bayou Streamside Management Handbooks. Provide other information about conservation easements and other conservation options for private landowners. Establish programs for Old Fort Bayou landowners to encourage the implementation of conservation options and installation of BMPs

3. Identify private landowners interested in critical area plantings, specifically streamside buffers and wetlands. Establish a re-planting program to include native trees and vegetation in streamside management areas and other priority areas of the watershed.
4. Support prescribed fire education and use of prescribed fire in the watershed. Work with MS Sandhill Crane NWR, MS Department of Marine Resources, The Nature Conservancy, MS Forestry Commission and Volunteer fire departments to preserve right to burn and promote adequate resource allocation for prescribed fire on public and private lands
5. Identify willing landowners and work to install best management practices for (1) streamside management areas (2) construction areas.
6. Work with County and City planning commissions to establish “set-backs” along the banks of the bayou. Excellent opportunity to include this in City of Ocean Springs planning process for Smart Code.
7. Establish a dialogue with Jackson County Utility Authority, particularly focused on encouraging the utilization of green infrastructure for storm-water management (vegetated riparian buffers protected by conservation easements or fee simple acquisition/donation)
8. Work with Jackson County Utility Authority especially in regards to storm-water management. Support efforts of Utility to identify areas that need new sewer service or alternative decentralized waste water management systems thus reducing fecal coliform contamination from failing septic systems
9. Work with Jackson County Board of Supervisors and City of Ocean Springs to identify currently available resources that can address land-use questions such as number of wetland acres lost and number of linear feet with hardened surfaces (bulk heading and rip-rap). Look for funding sources to monitor wetland loss and natural bank loss in the future.
10. Host a facilitated Q&A session with private landowners along the bayou and DMR boating and safety officials. Look for actions that can be taken to alleviate concerns over increased number of boats, size of boats and speed of boats. Create an action plan to address any remaining boating concerns.
11. Identify sites and willing landowners. Design and fund a model passive stream restoration project. Typical passive stream restoration uses natural log materials to construct bankfull benches and log riffles (grade control) with logs and native earth materials. Post construction these littoral areas and riparian areas would be reestablished with native vegetation using native trees, shrubs, and grasses (bioengineering materials) to hold the sediments in place and to reduce the boundary velocities. Develop a public/private partnership to implement this strategy.
12. Work with state and federal partners, particularly EPA and MDEQ, to identify grant programs and primary partners to complete a watershed assessment and watershed implementation plan that will identify and prioritize (1) public and private stream and

ecosystem restoration needs in the watershed and (2) conservation and protection strategies in the watershed.

13. Work with state and federal partners, particularly EPA and MDEQ, to identify grant programs and primary partners to complete a watershed assessment and watershed implementation plan. We need to identify and prioritize (1) public and private stream and other ecosystem restoration needs, and (2) conservation and protection strategies that could be implemented in the watershed.
14. Identify funding programs to assist in private lands/bank restoration projects that benefit all, not just the private landowners.
15. Work with Coastal Clean-up Program to include bayou clean-up or create a bayou clean-up campaign: primary sponsors might be Crane Refuge, TNC, Land Trust, City and County.

ORGANIZATIONAL STRATEGIES TO ENSURE IMPLEMENTATION AND SUPPORT OF ACTION PLAN

1. Identify a local champion(s) for the watershed
2. Ask the Land Trust for Mississippi Coastal Plain Board of Directors to establish an Old Fort Bayou Partnership Committee (steering committee) that will function as a special action committee under the Land Trust's auspices until which time the partnership desires to create an independent organization. The primary purpose of the committee will be to implement the action plan. This committee will be tasked with:
 - a. Categorizing and prioritizing the Action Plan;
 - b. Creating a timeline for the Action Plan;
 - c. Developing an estimated budget and volunteer staffing program to implement the timeline;
 - d. Conducting an annual review of the watershed Action Plan.
3. Formalize the technical advisory committee and send each person a copy of the action plan so that they are better prepared to participate and provide information and assistance as needed.
4. Formalize the education, recreation resources team and send each person a copy of the action plan so that they are better prepared to participate and provide information and assistance as needed.

EVALUATION OF PROGRESS AND PLAN REVISION

Regular evaluation of the watershed action plan will ensure that the plan remains a vital tool for developing a strong watershed partnership and to guide future management efforts in the watershed. LTMCP advisory team shall appoint a small working group to review the action plan annually. **Watershed plans are living documents that must be adapted to changing conditions within the watershed.** The annual review shall include consideration of tasks completed as well as reviewing changes in the watershed, in stakeholder interests and in understanding of the Old Fort Bayou Watershed.

RESOURCES

Watershed Description:

MARIS on-line mapping for Mississippi at www.maris.state.ms.us/HTM/maps.htm

Wildlife Resources:

Mississippi Natural Heritage Inventory on-line at www.mdwfp.com/museum/html/research/general_info.asp, NatureServe Explorer database of species information on-line at www.natureserve.org/explorer/

Water Quality Standards:

Through MDEQ Basin Management water quality standards website at www.deq.state.ms.us/MDEQ.nsf/page/WMB_Water_Quality_Standards?OpenDocument

Designated Beneficial Uses: through the MDEQ Basin Management website at www.deq.state.ms.us/MDEQ.nsf/page/WMB_Basin_Management_Approach?OpenDocument

Biological Ratings: Contact MDEQ.

303(d) List and 305(b) report: MDEQ on-line at www.deq.state.ms.us/MDEQ.nsf/page/TWB_Total_Maximum_Daily_Load_Section?OpenDocument

Approved TMDLS: MDEQ TMDL website at www.deq.state.ms.us/MDEQ.nsf/page/TWB_Total_Maximum_Daily_Load_Section?OpenDocument
or through Basin Management website at www.deq.state.ms.us/MDEQ.nsf/page/WMB_Basin_Management_Approach?OpenDocument

Potential management actions:

Mississippi NRCS program website at www.ms.nrcs.usda.gov/programs/, particularly the EQIP program conservation practice, sign up, and ranking documents

Mississippi Streamside Landowner's Handbook. By Andrew Whitehurst, Scenic Streams Stewardship Program, Mississippi Museum of Natural Science, Mississippi Dept of Wildlife, Fisheries and Parks

Handbook for Developing Watershed Plans to Restore and Protect Our Waters, U.S. Environmental Protection Agency, Office of Water, Nonpoint Source Control Branch, Oct. 2005

Economic values (Natural Capital):

From Open Spaces to Wild Places, The Economic Value of Habitat protection to Your Community, a publication of the Southeast Watershed Forum.

www.southeastwaterforum.org

APPENDIX A

MISSISSIPPI NATURAL HERITAGE DATA

PLANTS AND ANIMALS FOUND IN JACKSON COUNTY

Source: Mississippi Natural Heritage Program, located in the Mississippi Museum of Natural Science, Mississippi Department of Wildlife Fisheries and Parks:
www.mdwfp.com/museum/html/research/

The Mississippi Natural Heritage Program identifies the state's most significant natural areas through a comprehensive inventory of rare plant and animal species, exemplary natural communities, special geological features, and significant natural areas. From the inventory, the Natural Heritage Database compiles information on the distribution, biology, status, and preservation needs of these species and communities. The database is updated continuously and is used to set state, national and global priorities for the preservation of natural diversity.

The Natural Heritage Database

The Natural Heritage Database is a continuously updated inventory of rare plant and animal species and representative natural communities in Mississippi. Today current information on the statewide status and locations of special animals, plants, and natural communities is available in a central location. By utilizing the Heritage Program, resource planners are able to save time and money. The information contained within the Program's database was compiled from a broad range of sources, including museum and herbarium collection records, publications, unpublished reports, and experts throughout the southeast.

Specific Information Available:

- Tracks the status of more than 700 species of plants and animals that are rare or imperiled at the state or global level.
- Contains more than 9,400 records of locations for rare plants, animals, and natural communities.
- State and Federal protection status of select species.
- State and global ranking of species and communities.
- Protection and management priorities and urgency.

PLANTS – Jackson County

Scientific Name	Common Name	Global Rank	State Rank
AGALINIS APHYLLA	COASTAL PLAIN FALSE-FOXGLOVE	G3G4	S2S3
AGALINIS FILICAULIS	THIN STEMMED FALSE-FOXGLOVE	G3G4	S2?
AGALINIS PSEUDAPHYLLA	SHINNERS' FALSE-FOXGLOVE	G1G2Q	S2
ANDROPOGON CAPILLIPES	CHALKY BLUESTEM	G4Q	S1?

ANDROPOGON PERANGUSTATUS	ELLIOTT'S BLUESTEM (VAR.2)	G5T3T4	S1?
ARISTIDA SPICIFORMIS	PINE BARREN THREE-AWNED GRASS	G4	S1?
ARISTIDA TUBERCULOSA	SEABEACH NEEDLEGRASS	G5	S3S4
BIDENS CORONATA	GOLDEN FLOWERED BEGGAR TICK	G5	SU
BURMANNIA BIFLORA	NORTHERN BURMANNIA	G4G5	S3S4
CALOPOGON BARBATUS	BEARDED GRASS-PINK	G4?	S2S3
CALOPOGON MULTIFLORUS	MANY-FLOWER GRASS-PINK	G2G3	S1
CANNA FLACCIDA	GOLDEN CANNA	G4?	S1
CAREX EXILIS	COAST SEDGE	G5	S2
CAREX STRIATA	WALTER'S SEDGE	G4	S1S2
CAREX VERRUCOSA	WARTYSEDGE	G3G4	SR
CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CEDAR	G4	S2
CLADIUM MARISCOIDES	TWIG RUSH	G5	S1
CLEISTES DIVARICATA	SPREADING POGONIA	G4	S3
CONRADINA CANESCENS	SEASIDE BALM	G5	S1
COREOPSIS NUDATA	GEORGIA TICKSEED	G3?	S1S2
DICHANTHELIUM ERECTIFOLIUM	ERECT-LEAF WITCHGRASS	G4	S3S4
DICHANTHELIUM FUSIFORME	A PANICUM	G?	S3S4
DICHANTHELIUM WRIGHTIANUM	WRIGHT'S WITCHGRASS	G4	S1S2
ELEOCHARIS ELONGATA	SLIM SPIKE-RUSH	G5?	S1
ELEOCHARIS EQUISETOIDES	HORSE-TAIL SPIKERUSH	G4	S3S4
ELEOCHARIS ROSTELLATA	BEAKED SPIKERUSH	G5	S1
EPIDENDRUM CONOPSEUM	GREEN-FLY ORCHID	G4	S2
ERIOCAULON TEXENSE	TEXAS PIPEWORT	G4	S2S3
EUPHORBIA INUNDATA	FLORIDA PINE SPURGE	G4G5	S2?
EUSTOMA EXALTATUM	TALL PRAIRIE-GENTAIN	G4G5	S1
GAYLUSSACIA FRONDOSA	DANGLEBERRY	G5	S2S3
GRATIOLA BREVIFOLIA	STICKY HEDGE-HYSSOP	G4	S1
HELIANTHEMUM ARENICOLA	GULF ROCKROSE	G3	S1S2
HIBISCUS COCCINEUS	BRILLANT HIBISCUS	G4?	S2
HYMENOCALLIS LIRIOSOME	TEXAS SPIDER-LILY	G4?	S3S4
HYPERICUM MYRTIFOLIUM	MYRTLE-LEAVED ST. JOHNSWORT	G4G5	S2
ILEX AMELANCHIER	JUNEBERRY HOLLY	G4	S3
ILEX CASSINE	DAHOON HOLLY	G5	S2

ILEX MYRTIFOLIA	MYRTLE HOLLY	G5?	S3S4
IPOMOEA PES-CAPRAE	RAILROAD VINE	G5	S2S3
ISOETES LOUISIANENSIS	LOUISIANA QUILLWORT	G3	S2
JUNIPERUS SILICICOLA	SOUTHERN RED CEDAR	G5T4T5	S2
LACHNOCAULON DIGYNUM	PINELAND BOGBUTTON	G3	S2
LILAEOPSIS CAROLINENSIS	CAROLINA LILAEOPSIS	G3G5	S2S3
LINDERA SUBCORIACEA	BOG SPICE BUSH	G2	S2
LINUM MACROCARPUM	LARGE FRUITED FLAX	G2?	S2
LOBELIA BOYKINII	BOYKIN'S LOBELIA	G2G3	S1
LUDWIGIA ALATA	WINGED SEEDBOX	G4	S?
LYCIUM CAROLINIANUM	CAROLINA WOLF-BERRY	G4	S1?
LYCOPODIUM CERNUUM	NODDING CLUBMOSS	G5	S2
MACRANTHERA FLAMMEA	FLAME FLOWER	G3	S3?
MAGNOLIA TRIPETALA	UMBRELLA MAGNOLIA	G5	S1S2
MARSHALLIA TENUIFOLIA	NARROW-LEAF BARBARA'S BUTTON	G4G5Q	S3
MELANTHIUM VIRGINICUM	VIRGINIA BUNCHFLOWER	G5	S2S3
MIKANIA CORDIFOLIA	FLORIDA KEYS HEMPVINE	G5	S3S4
MITREOLA ANGUSTIFOLIUM	NARROWLEAF MITERWORT	G4G5	S1
MYRIOPHYLLUM LAXUM	LOOSE WATERMILFOIL	G3	S1
NYMPHOIDES AQUATICA	BIG FLOATING HEART	G5	S2S3
PANICUM NUDICAULE	NAKED-STEMMED PANIC GRASS	G3Q	S2
PARONYCHIA ERECTA	BEACH SAND-SQUARES	G3G4	S1S2
PELTANDRA SAGITTIFOLIA	WHITE ARUM	G3G4	S2S3
PETALOSTEMON GRACILIS	PINE BARRENS PRAIRIE CLOVER	G5T3T4	S2S3
PHASEOLUS SINUATUS	SANDHILL BEAN	G3?	S1S2
PHYSALIS ANGUSTIFOLIA	COAST GROUND-CHERRY	G3G4	S3S4
PHYSALIS ARENICOLA	CYPRESS-HEAD GROUND-CHERRY	G3?	SH
PIERIS PHILLYREIFOLIA	CLIMBING FETTER-BUSH	G3	S1
PINGUICULA PLANIFOLIA	CHAPMAN'S BUTTERWORT	G3?	S2
PINGUICULA PRIMULIFLORA	SOUTHERN BUTTERWORT	G3G4	S3
PINUS CLAUSA	SAND PINE	G4	S1
PLATANThERA BLEPHARIGLOTTIS	LARGE WHITE FRINGED ORCHID	G4G5	S2
PLATANThERA CRISTATA	CRESTED FRINGED ORCHID	G5	S3
PLATANThERA INTEGRATA	YELLOW FRINGELESS ORCHID	G3G4	S3S4

POLANISIA TENUIFOLIA	SLENDER-LEAF CLAMMY-WEED	G5	S1S2
POLYGALA CRENATA	CRENATE MILKWORT	G4?	S1?
POLYGALA HOOKERI	HOOKER'S MILKWORT	G3	S1S2
QUERCUS MINIMA	DWARF LIVE OAK	G5	S1
QUERCUS MYRTIFOLIA	MYRTLE-LEAF OAK	G5	S1?
RHAPIDOPHYLLUM HYSTRIX	NEEDLE PALM	G4	S3
RHODODENDRON AUSTRINUM	FLORIDA FLAME AZALEA	G3	S2S3
RHYNCHOSPORA CEPHALANTHA VAR ATTENUATA	CAPITATE BEAKRUSH	G5T3?	SR
RHYNCHOSPORA CURTISSII	CURTISS'S BEAKRUSH	G4	S1
RHYNCHOSPORA GLOBULARIS VAR PINETORUM	SMALL'S BEAKRUSH	G5?T3?	S1
RHYNCHOSPORA HARPERI	HARPER BEAKRUSH	G4?	S1
RHYNCHOSPORA MACRA	LARGE BEAKRUSH	G3	S3
RHYNCHOSPORA SCIRPOIDES	LONG-BEAKED BALDRUSH	G4	S3S4
RHYNCHOSPORA STENOPHYLLA	CHAPMAN BEAKRUSH	G4	S1?
RHYNCHOSPORA TRACYI	TRACY'S BEAKRUSH	G4	S1
RUELLIA NOCTIFLORA	NIGHT-FLOWERING RUELLIA	G2	S2
SAGERETIA MINUTIFLORA	TINY-LEAVED BUCKTHORN	G4	S2
SAPINDUS MARGINATUS	FLORDIA SOAPBERRY	G5	S1S2
SARRACENIA LEUCOPHYLLA	CRIMSON PITCHER-PLANT	G3	S2S3
SARRACENIA ROSEA	ROSE PITCHERPLANT	G?	S1
SCHISANDRA GLABRA	SCARLET WOODBINE	G3	S3?
SCHIZACHYRIUM MARITIMUM	GULF BLUESTEM	G3G4Q	S3?
SCHWALBEA AMERICANA	CHAFFSEED	G2	SH
SETARIA CORRUGATA	COASTAL FOX-TAIL	G5?	SU
SORGHASTRUM APALACHICOLENSE	OPEN INDIAN GRASS	G3Q	S3
SPIRANTHES BREVILABRIS VAR FLORIDANA	FLORIDA LADIES'-TRESSES	G3G4T?	S1
SPIRANTHES LONGILABRIS	GIANT SPIRAL LADIES'-TRESSES	G3	S2S3
STEWARTIA MALACODENDRON	SILKY CAMELLIA	G4	S3S4
STYLISMA AQUATICA	WATER SOUTHERN MORNING-GLORY	G4	S1
SYNGONANTHUS FLAVIDULUS	YELLOW PIPEWORT	G5	S2?
UTRICULARIA OLIVACEA	PIEDMONT BLADDERWORT	G4	S1
UTRICULARIA PURPUREA	PURPLE BLADDERWORT	G5	S2S3

XYRIS CHAPMANII	CHAPMAN'S YELLOW-EYED GRASS	G3	S2?
XYRIS DRUMMONDII	DRUMMOND'S YELLOW-EYED GRASS	G3	S2
XYRIS FLABELLIFORMIS	FAN-SHAPED YELLOW-EYED GRASS	G4	SU
XYRIS SCABRIFOLIA	HARPER'S YELLOW-EYED GRASS	G3	S1S2

ANIMALS – Jackson County

Scientific Name	Common Name	Global Rank	State Rank
ACIPENSER OXYRINCHUS DESOTOI	GULF STURGEON	G3T2	S1
AIMOPHILA AESTIVALIS	BACHMAN'S SPARROW	G3	S3?B,SZN
AMPHIUMA PHOLETER	ONE-TOED AMPHIUMA	G3	S1
AQUILA CHRYSAETOS	GOLDEN EAGLE	G5	S1N
CAMBARELLUS DIMINUTUS	LEAST CRAYFISH	G3	S2
CARETTA CARETTA	LOGGERHEAD; CABEZON	G3	S1B,SZN
CHELONIA MYDAS	GREEN TURTLE	G3	SZN
COTURNICOPS NOVEBORACENSIS	YELLOW RAIL	G4	S2N
EGRETTA RUFESCENS	REDDISH EGRET	G4	SZN
ELANOIDES FORFICATUS	SWALLOW-TAILED KITE	G5	S2B
ENNEACANTHUS GLORIOSUS	BLUESPOTTED SUNFISH	G5	S3
EUDOCIMUS ALBUS	WHITE IBIS	G5	S3B,SZN
FALCO PEREGRINUS	PEREGRINE FALCON	G4	SZN
FALLICAMBARUS BURRISI	BURRIS' BURROWING CRAWFISH	G3	S2
FALLICAMBARUS BYERSI	LAVENDER BURROWING CRAYFISH	G4	S3
FALLICAMBARUS DANIELAE	SPECKLED BURROWING CRAYFISH	G2	S2
FARANCIA ERYTROGRAMMA	RAINBOW SNAKE	G5	S2
FUNDULUS JENKINSI	SALTMARSH TOPMINNOW	G2	S3
GOPHERUS POLYPHEMUS	GOPHER TORTOISE	G3	S2
GRAPTEMYS FLAVIMACULATA	YELLOW-BLOTCHED MAP TURTLE	G2	S2
GRUS CANADENSIS PULLA	MISSISSIPPI SANDHILL CRANE	G5T1	S1
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	G4	S1B,S2N
LAMPROPELTIS CALLIGASTER RHOMBOMACULAT	MOLE KINGSSNAKE	G5T5	S3?
LATERALLUS JAMAICENSIS	BLACK RAIL	G4	S2N
LEPIDOCHELYS KEMPII	KEMP'S OR ATLANTIC RIDLEY	G1	S1N

LEPTOLUCANIA OMMATA	PYGMY KILLIFISH	G5	SH
MACROCHELYS TEMMINCKII	ALLIGATOR SNAPPING TURTLE	G3G4	S3
MALACLEMYS TERRAPIN PILEATA	MISSISSIPPI DIAMONDBACK TERRAPIN	G4T3	S2
MICRURUS FULVIUS	EASTERN CORAL SNAKE	G5	S3S4
MYOTIS LUCIFUGUS	LITTLE BROWN MYOTIS	G5	S3?B,S3?N
NERODIA CLARKII CLARKII	GULF SALT MARSH SNAKE	G4T3	S2?
NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON	G5	S3?B,SZN
OBOVARIA JACKSONIANA	SOUTHERN HICKORYNUT	G1G2	S2
OBOVARIA UNICOLOR	ALABAMA HICKORYNUT	G3	S3
PANDION HALIAETUS	OSPREY	G5	S3B,SZN
PELECANUS ERYTHORHYNCHOS	AMERICAN WHITE PELICAN	G3	S2N
PELECANUS OCCIDENTALIS	BROWN PELICAN	G4	S1N
PICOIDES BOREALIS	RED-COCKADED WOODPECKER	G3	S1
PLEUROBEMA BEADLEIANUM	MISSISSIPPI PIGTOE	G2G3	S3?
POLYGYRA SEPTEMVOLVA	FLORIDA FLATCOIL	G?	S?
PROCAMBARUS FITZPATRICKI	SPINY-TAILED CRAYFISH	G2	S2
PROCAMBARUS LECONTEI	MOBILE CRAYFISH	G3G4	S2
PSEUDEMYS POP 1	MISSISSIPPI REDBELLY TURTLE	G?	S1
PUMA CONCOLOR CORYI	FLORIDA PANTHER	G5T1	SH
RANA HECKSCHERI	RIVER FROG	G5	S1
RANA SEVOSA	DARK GOPHER FROG	G1	S1
REGINA RIGIDA SINICOLA	GULF CRAYFISH SNAKE	G5T5	S3?
RHADINAEA FLAVILATA	PINE WOODS SNAKE	G4	S3?
STERNA ANTILLARUM	LEAST TERN	G4	S3B,SZN
STERNA MAXIMA	ROYAL TERN	G5	S1B,S4N
STERNA NILOTICA	GULL-BILLED TERN	G5	S2?B,S4?N
SUCCINEA LUTEOLA	SPANISH AMBERSNAIL	G?	S?
THRYOMANES BEWICKII	BEWICK'S WREN	G5	S2S3B,SZN
TYRANNUS DOMINICENSIS	GRAY KINGBIRD	G5	S3B,S?N
URSUS AMERICANUS LUTEOLUS	LOUISIANA BLACK BEAR	G5T2	S1

Appendix B Conceptual Old Fort Bayou Canoe and Kayak Trail*

*Map developed for continued discussion with trail partners, collaborators and National Park Service Recreational Trails and Conservation Assistance Program

