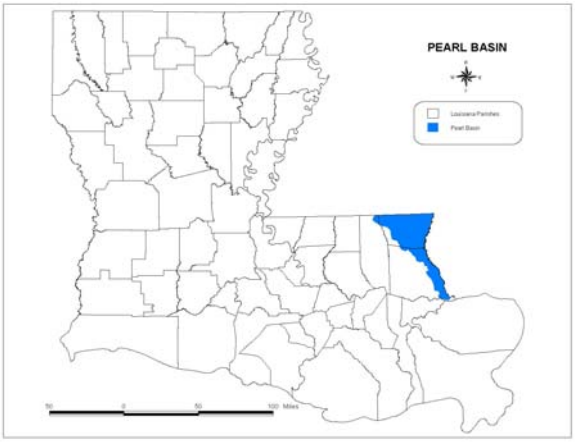
g. Pearl Basin

General Description:



The Pearl River basin's drainage area covers about 7,800 square miles (Storm 2005) and lies within two states, Mississippi and Louisiana. Land use within the basin is predominately agriculture and forestry. Urbanization is steadily increasing as residents from the metropolitan areas of New Orleans continue to emigrate into St. Tammany and Washington Parishes.

The East Pearl River system is one of Louisiana and Mississippi's principal rivers, draining an approximate area of 8,760 square miles. The river divides into distinct channels west of Picayune, Mississippi where the main stream is known as the West Pearl River. The East Pearl River is formed by a confluence of the Hobolochitto Creek and Farrs Slough, and forms the boundary between Mississippi and Louisiana. The East Pearl River drains into Lake Borgne and eventually into the Mississippi Sound.

The Pearl River Basin is the most unaffected of all the state's river basins, however future development pressures and changes in land use practices could seriously degraded the habitat in this basin. Main channel and side channel habitats throughout the basin are threatened by the operation of dams or reservoirs. Threats such as the headwater dam (Ross Barnett Reservoir) at Jackson, Mississippi have changed normal historic flow patterns in the lower Pearl Basin. Future proposals for new reservoirs south of Jackson will further compound the interruption of normal flow patterns to that portion of the river below these reservoirs. Degradation of other habitats (tributaries, backwaters, and swamps) have been less severe primarily due to a lack of accessibility to most of these areas. Erosion and sedimentation, aided by farming practices, are the prime contributors to non-point source pollution effecting habitat loss. Historic mining practices on the Pearl and Bogue Chitto Rivers have interfered with the spawning cycle of the Alabama Shad. Removal of sand and gravel has greatly reduced the available substrates necessary for this species reproduction.

The COE project "Pearl River Navigation Channel" completed in the 1950's has had a lasting impact on the habitat of the basin. The placement of 2 low water sills and 3 navigation locks on the Pearl River have altered the historic migration routes and the overall life cycles of the Gulf Sturgeon. The Alabama Shad, which has experienced significant declines in the last century, has had its spawning routes blocked by the placement of these structures. Historic Paddlefish spawning and rearing areas have been altered due to these structures. With the decline of commercial traffic in the 70's, maintenance dredging was suspended and the locks were placed in caretaker status. A

request by local business interests in Slidell and Bogalusa to reevaluate the economic and environmental feasibility of maintaining the locks and navigation channel was submitted to the COE in the 80's and dredging of the river began in 1989. However, dredging was discontinued due to environmental concerns and the project is currently awaiting concurrence from federal and state regulators before it will continue (COE 1998).

Construction of Interstate-10 has had an impact on the bottomlands located along the Pearl River north of the highway. The ground-level sections of the highway act as a dam and have altered the natural hydrology and substantially increased sedimentation in many areas within Pearl River WMA.

The Pearl Basin, along with the Pontchartrain Basin, contains some of the greatest aquatic species diversity found in Louisiana. There are roughly 108 species of freshwater fishes (W. Kelso, personal communication), 20 species of mussels (Vidrine 1993), and 15 species of crawfish (J. Walls, personal communication) found within the Pearl Basin.

Water Quality:

The 2004 Water Quality Inventory Report (LDEQ 2004) indicated that 10% of the 23 water body subsegments within the basin were fully supporting their three primary designated uses. However, 78% of the subsegments were not supporting their designated use for fish and wildlife propagation. The suspected causes for these water quality problems include: metals, nutrients, fecal coliform, organic enrichment and low concentration of dissolved oxygen, pH levels, and turbidity. The suspected sources of the water quality problems include: home sewage systems, agriculture (particularly pasturelands), silviculture, urban storm water runoff, and surface mining.

PEARL BASIN SPECIES OF CONSERVATION CONCERN (26)		
CRUSTACEANS	Silverjaw Minnow	Elephant-Ear
Ribbon Crawfish	River Redhorse	Mississippi Pigtoe
Plain Brown Crawfish	Frecklebelly Madtom	Inflated Heelsplitter
Flatwoods Digger	Crystal Darter	Southern Rainbow
	Channel Darter	
FRESHWATER FISH	Freckled Darter	**REPTILES**
Gulf Sturgeon	Pearl Darter	Alligator Snapping Turtle
Paddlefish	Gulf Logperch	Ringed Map Turtle
Alabama Shad		Pascagoula Map Turtle
Flagfin Shiner	**MUSSELS**	Mississippi Diamond-backed Terrapin
Bluenose Shiner	Rayed Creekshell	Stripe-necked Musk Turtle

Priority Species Research and Survey Needs:

Fish: Conduct surveys to determine the presence of species of conservation concern within their historic ranges in the basin.

Crustaceans: Continue surveys to update historic locality records in order to update abundance and distribution data for inclusion in the LNHP database.

Mussels: Surveys are needed to update historic occurrence records and develop new baseline data on current species population distributions and abundance.

Alligator Snapping Turtle: Baseline mark-release data were obtained during the late 1990s. New surveys are needed to obtain population trend data for this species.

Species Conservation Strategies:


Alabama Shad

1. Alabama Shad: Reintroduce species to its original Louisiana drainages.
2. Gulf Sturgeon:
   - Implement conservation actions recommended in SWG project T8 (LDWF 2005) and recovery plan (USFWS et al. 1995c).
   - Prepare "white paper" on the importance of access for sturgeon to spawning areas in the Pearl Basin. Meet with COE and USFWS to discuss fish passage issues.
3. Mussels: Implement conservation and management strategies from SWG project T10 upon completion.
4. Support and expand the fish passage study currently being conducted in the Mississippi portion of the Pearl River.
5. Develop a comprehensive survey methodology for the Pearl River and its tributaries to fill data gaps for this critical drainage basin.

Threats Affecting Basin:

The following table illustrates the threats identified for the Pearl Basin and the sources of these threats. This represents all threats and sources of threats identified for this basin.

	Threat						
Source of Threat	Altered Composition/ Structure	Altered Water Quality	Habitat Destruction or Conversion	Habitat Disturbance	Modification of Water Levels; Changes in Natural Flow Patterns	Nutrient Loading	Sedimentation
Channelization of rivers or streams	XXX	XXX	XXX	XXX	XXX		XXX
Construction of ditches, drainage or diversion systems	XXX	XXX		XXX	XXX	XXX	XXX
Construction of navigable waterways	XXX		XXX				
Incompatible forestry practices	XXX	XXX		XXX	XXX		XXX
Mining practices	XXX	XXX		XXX	XXX		XXX
Operation of dams or reservoirs	XXX	XXX	XXX	XXX	XXX		XXX
Operation of drainage or diversion systems	XXX		XXX		XXX		XXX

Basin Conservation Strategies:

1. Coordinate with COE, MDWFP, MDEQ, LDEQ, NRCS, TNC and others to develop a comprehensive management strategy for the entire Pearl River.
2. Partner with LDEQ, the Lake Pontchartrain Basin Foundation (LPBF), TNC to address water quality issues in the Pearl River Basin.
3. Develop an internal procedure to distribute information on proposed reservoirs to LDWF district biologists and incorporate their input into official LDWF comments.
4. Support establishing levee breaks or set-backs to develop or replenish backwater areas.
5. Develop programs to eliminate entanglement gear in the Pearl River and its tributaries.
6. Encourage alternative bridge design to lessen impacts to aquatic habitats (pilings vs. culverts).
7. Promote public awareness concerning soil erosion problems resulting from construction activities. Provide the public with contact information (e.g., hotline number) to report violations/problem sites.

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