ENVIRONMENTAL ASSESSMENT

SOUTH WHITE LAKE SHORELINE PROTECTION PROJECT (ME-22) VERMILION PARISH, LOUISIANA

EA #390

INTRODUCTION

The U.S. Army Corps of Engineers (USACE), New Orleans District (MVN), has prepared this Environmental Assessment #390 (EA #390) to evaluate proposed alternatives for shoreline protection and marsh accretion for approximately 61,500-foot length along the southern shore of White & Bear Lakes. The proposed action, which is cost-shared with the Louisiana Department of Natural Resources, is located approximately 35 miles southwest of Abbeville, and just north of Pecan Island, Vermilion Parish, Louisiana (see figure 1). EA #390 has been prepared in accordance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation, ER 200-2-2.

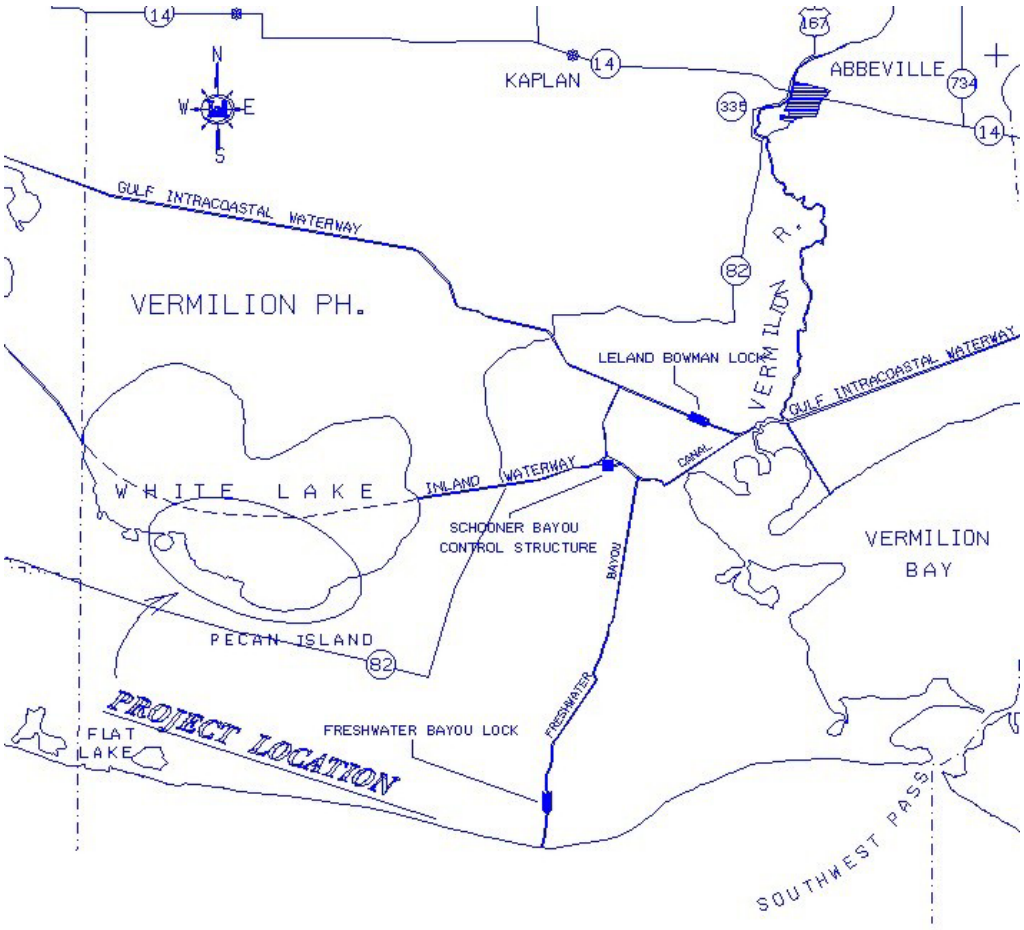

Figure 1. South White Lake project location, Vermilion Parish, Louisiana.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action would be to stop shoreline erosion and promote the creation of fresh marsh along an approximately 61,500-foot length (approximately 11.6 miles) of the southern shoreline of White Lake. The need for the proposed action is the result of ongoing wind-induced wave energy that is eroding the shoreline in the project area at the rate of about 15 feet per year. At this rate of erosion, it is likely that nearby low marsh management levees would be further breached, increasing interior marsh loss rates in this area.

AUTHORITY FOR THE PROPOSED ACTION

The proposed action was authorized by the Coastal Wetland Planning Protection and Restoration Act of 1990 (also known as the Breaux Act) (PL101-646). The Act directed the U.S. Army Corps of Engineers to establish a Task Force composed of representatives of five Federal agencies (U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Department of Agriculture - Natural Resource Conservation Service, and National Oceanic and Atmospheric Administration - National Marine Fisheries Service) and the State of Louisiana to develop a comprehensive approach to preventing the loss of and restoring coastal wetlands in Louisiana. The Task Force was required to prepare a comprehensive Coastal Restoration Plan for Louisiana by the end of 1993, which provides the basis for selecting priority projects for implementation. This Task Force must annually prepare and transmit to Congress a priority list of Louisiana wetland restoration projects. The Act created the Coastal Wetlands Trust Fund, which is supported by a tax on small engines and equipment. Of the amount appropriated, 70 percent (not to exceed $70 million annually) is to be available (as 85 percent/15 percent Federal/State matching grants) to fund wetland restoration projects and associated activities in Louisiana. A coastal wetland restoration grant program for other States is funded by 15 percent of the Coastal Wetlands Trust Fund (not to exceed $15 million annually).

PRIOR REPORTS

The following reports are relevant to the proposed project and are incorporated herein by reference:

- U.S. Army Corps of Engineers (2004). Draft Environmental Assessment, EA #380: Grand Lake Shoreline Protection, Cameron Parish, Louisiana. This EA considers the construction of a rock dike along the southern shore of Grand Lake between Tebo Point and the Superior Canal. When constructed, the project proposes to protect the shoreline from further erosion and protect and/or create approximately 495 acres of freshwater marsh.
- Grand-White Lakes Land Bridge Protection Project EA (PME-18/ME-19), Cameron Parish, LA (1/2003). The US Fish & Wildlife Service in coordination with the CWPPRA Task Force agencies prepared this report. The EA evaluates alternatives to stop or slow shoreline erosion along the southeastern shoreline of Grand Lake and the northern and western shorelines of Collicon Lake. The preferred alternative would halt shoreline erosion and create marsh in that portion of the Grand-White Lakes Land Bridge, which is currently less than 500 feet wide and in danger of breeching. This project is currently under construction.
- Mermentau River Disposal Area Containment Dikes & Flotation Canal Lower Mud Lake EA #311. This report evaluates impacts attributed to the construction of containment dikes and associated flotation canals in conjunction with routine maintenance dredging of the Mermentau River downstream of Grand Lake and the Catfish Point Control Structure. A Finding of No Significant Impact (FONSI) was signed on 27 April 2000.
- Grand & White Lakes Flood Control Project, Technical Report #HL-93-11 (8/1993).

The Mermentau River is the primary tributary to the Grand and White Lakes area of southwest Louisiana, which provides fresh water for local agriculture, livestock, and wildlife productivity. Hydraulic control structures within the system prevent higher salinities from intruding into sensitive areas. These features also restrict the passage of flood flows from the lower Mermentau River basin to the Gulf of Mexico.

- Grand & White Lakes Water Management Study (9/1983). This report presents the results of an initial evaluation of water resources related problems in the Grand and White Lakes area in western coastal Louisiana. The study was intensively surveyed to obtain agricultural data and information on water resources problems being experienced by local residents. Four major problems were identified: restricted lake access to juvenile marine and estuarine organisms, increasing severity of flooding, saltwater intrusion in irrigation water supplies, and wildlife productivity. Eleven alternative plans were developed, and in the final analysis, some of the plans were combined to form a comprehensive plan of improvement addressing all the problems.
- Mermentau River Basin, Final Environmental Impact Statement (EIS) Operation and Maintenance of Four Projects. Filed with the U.S. Environmental Protection Agency (EPA) on 26 March 1982.
- Mermentau River-Gulf of Mexico Navigation Channel, Louisiana. Final EIS filed with the EPA on 10 October 1978.

PUBLIC CONCERNS

There is considerable local, regional, and national concern about the loss of shoreline, and associated wetlands, along Louisiana's coastlines and lakes. Louisiana has approximately 40 percent of the nation's coastal wetlands. These wetlands directly support 28 percent of the national fisheries harvest, the largest fur harvest in the U.S., a majority of the marine recreational fishing landings, and an extensive variety of wildlife (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority [LCWCRTF and WCRA], 1998). Additionally, significant oil industry infrastructure supporting offshore oil production operations in the Gulf of Mexico are located along much of this coastline. This loss of shoreline is adversely impacting the livelihood and recreational pursuits of local residents, commercial fisheries, the oil industry and the natural resources in these shoreline areas. Additionally, the loss of shoreline increases the risk of flooding to communities located adjacent to, and inland of, these shoreline areas. Therefore, the public is very supportive of projects that stop this loss and promote rebuilding or restoring of former wetland areas. The seriousness of this public concern has promoted Congress to appropriate considerable long-term funding for projects that stop shoreline erosion and promote the creation of new shoreline (wetland creation and barrier island protection/creation) along the Louisiana coast.

While the public is supportive of these types of programs, they do have project-specific concerns about the location of the breakwater, the configuration and design of the breakwater, its effectiveness in capturing sediments and promoting accretion, the cost of the project, and the use of the sediments from the dredged flotation channel.

DESCRIPTION OF THE PROPOSED ACTION

The construction design consists of approximately 61,500 linear feet (approximately 11.6 miles) of stone breakwater stretching from Will's Point to the western edge of Bear Lake along the southern shoreline of White Lake (figure 2). The breakwater would be situated along the -

1.5 foot North American Vertical Datum 1988[1] contour in approximately 2.0 to 3.0 feet of water. The dike crown would be 4.0 feet wide and would be set at an elevation of +3.5 feet with a +/- 0.5-foot tolerance. The breakwater would have front and back side-slopes of 1.0-foot vertical on 1.5-foot horizontal. Gaps for fish access would be built at approximately 1,000-foot intervals, with a top width of 50 feet, an approximate 35-foot bottom width, and would be lined completely with a single layer of rock. The total length of the dike, including lining of gaps, would require approximately 266,000 tons of 15-24 inch stone. The stones would be placed on a geotextile fabric base. A flotation channel would be dredged parallel to, and lake-ward of the rock dike. At no time would the contractor excavate closer than 50-feet from the centerline of the dike. Maximum allowable dredging depth for the flotation channel would be El. -6 feet. Material dredged from the floatation channel would be placed or cast landward of the rock dike where practicable. Placement of all dredged material would be held a minimum of ten feet from the landside toe of the rock dike and a minimum of 50 feet from the top of bank. Additional off-site access dredging is not anticipated but may become necessary in localized areas in order to facilitate rock transport through the Gulf Intracoastal Waterway (GIWW), Schooner Bayou Canal and White Lake. Should this access dredging become necessary, controlling dredge depth would also be El. -6 feet. This material may be placed adjacent to the required dredge location in such a way as to avoid stacking and the creation of a hazard to navigation. During construction phase, approximately 247 acres (breakwater construction footprint of 61,500 feet long by 175 feet wide) of non-vegetated mud bottom would be disturbed. Approximately 42 acres of non-vegetated water bottom would be lost under the footprint of the actual breakwater (61,500 feet long by 30 feet wide). Approximately 157 acres of emergent marsh would be created between the breakwater and existing shoreline through the beneficial used of dredged material. Shoreline loss would be prevented and marsh would be created south of the breakwater. Stabilizing the shoreline and allowing sediment to settle out would create and/or protect approximately 702 acres of marsh over the 20-year project life.

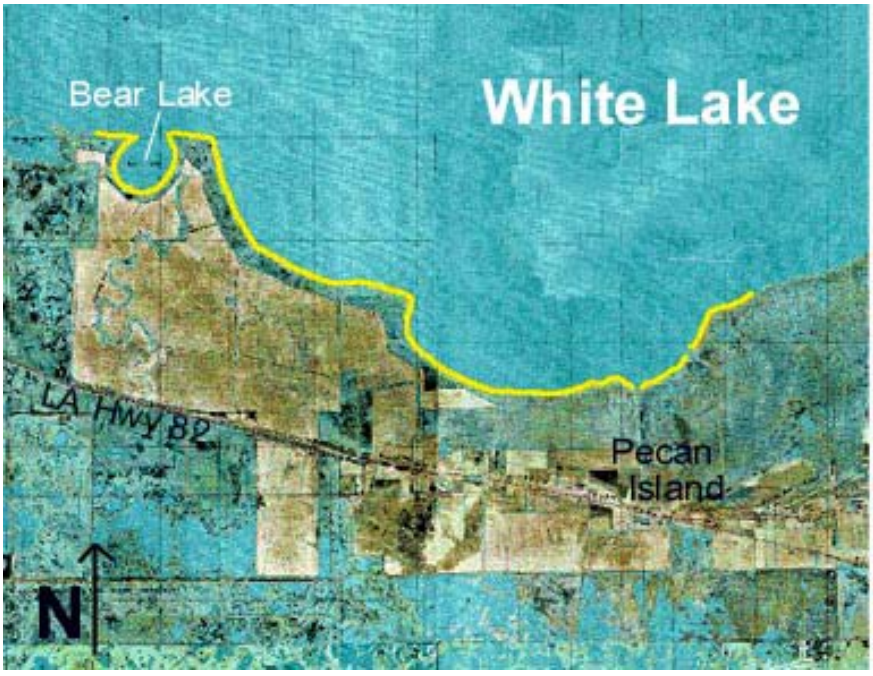

Figure 2. Location of breakwater on White and Bear Lakes.

1 All elevations refer to feet NAVD 88 unless otherwise specified.

ALTERNATIVES TO THE PROPOSED ACTION

Six alternatives to the proposed action were considered. These alternatives were:

1. No-action.
2. A rock dike (breakwater) along the southern shoreline of White Lake, between Will's Point and the west shoreline of Bear Lake, with disposal of dredge material on the landside of the dike in open water with no connection to land.
3. A rock dike along the southern shoreline of White Lake, from Will's Point, across the opening of Bear Lake, to the western edge of Bear Lake, with earthen dikes along the shoreline of Bear Lake. To maintain benefits for the 20-year project life, the earthen dikes would need to receive maintenance on a 3-5 year cycle, with the last maintenance at year 19.
4. A rock dike along the southern shoreline of White Lake, between Will's Point and the west shoreline of Bear Lake, with disposal of dredge material in some inland areas to restore wetlands.
5. A rock dike along the southern shoreline of White Lake, from Will's Point, across the opening of Bear Lake, to the western edge of Bear Lake, with terraces on the interior of Bear Lake.
6. A rock dike along the southern shoreline of White Lake, from Will's Point, across the opening of Bear Lake, to the western edge of Bear Lake, and patching the existing interior and exterior levee breeches adjacent to Bear Lake.

Four of the alternatives were eliminated from further consideration after initial evaluation:

NO-ACTION

Under the no-action alternative, the current conditions would remain in effect. The shoreline along the southern part of White Lake would continue to erode at the rate of approximately 15 feet per year. Nearby low maintenance levees would either be breached or existing breaches would widen. This would result in further loss of fresh marsh interior to these levees. For comparison purposes this alternative will be further discussed in this document.

BREAKWATER CONSTRUCTION AND DISPOSAL OF DREDGE MATERIAL IN SOME INLAND AREAS TO RESTORE WETLANDS

Under this alternative, all the dredge material from the flotation channel would be disposed of onshore in open water areas with the intent to elevate subsided and impounded marsh approximately 4-12 inches by thinly spraying dredge material over delineated areas. This would nourish and help sustain impounded and managed marsh this is subject to increased subsidence due to long term periodic dewatering. Several areas were initially identified for disposal of this material and it was estimated that an additional 724 acres of new marsh would be nourished, over and above the 157.5 acres identified in the second alternative (as listed above), for a total of 881 acres over the 20-year project life. Upon further evaluation of landowner issues (numerous land owners with varying interests), conservation servitude limitations, potential high cost for compensible interests, problems with plugging/clogging existing trenasses[2], and the much higher costs of the hydraulic dredging and onshore disposal, this alternative was not considered further.

BREAKWATER CONSTRUCTION ALONG THE SOUTHERN SHORE OF WHITE LAKE AND ACROSS THE OPENING OF BEAR LAKE, WITH TERRACES ON THE INTERIOR OF BEAR LAKE

The breakwater in the proposed action would cross the mouth of Bear Lake, with an opening to permit boat access to the lake, and several rows of overlapping terraces would be constructed to protect the major portion of the Bear Lake shoreline. Since Bear Lake was formerly a land-

2 Trenasse – a natural or man-made shallow and narrow (3-7 feet wide) channel cut through marsh used by fur trappers, craw fishermen, and hunters.

locked lake, the rock dike would partially restore the eroded shoreline. It was determined that the expense to construct the dike across the opening was slightly more than the expense around the existing shoreline. The historic lake rim is no longer present, and with current water depths (approximately 4 feet deep), a great deal of rock would be required to construct a dike across the opening. Furthermore, to reach design heights of average an elevation of +3.5 feet (with a 4-foot width), the footprint at the bottom would need to be fairly large.

To stabilize the shoreline within Bear Lake, construction of terraces was proposed. However, soil surveys indicated that the sediments were not conducive to stacking. The sediments in Bear Lake are very fluid making it would be difficult to stack and stabilize the dredge material to a suitable level for effective shoreline protection or marsh creation. Furthermore, since Bear Lake was a historic lake as opposed to historic marsh converted to shallow open water, filling the lake bottom with terraces is not appropriate under restoration principles. Therefore, this alternative was not considered further.

BREAKWATER CONSTRUCTION ALONG THE SHORELINE OF WHITE LAKE AND ACROSS THE OPENING OF BEAR LAKE, AND PATCHING THE EXISTING INTERIOR AND EXTERIOR LEVEE BREECHES ADJACENT TO BEAR LAKE

As in the previous alternative, this alternative would partially restore the historic shoreline of Bear Lake. The expense to construct the dike across the opening is slightly more than the expense to construct a dike around the existing shoreline, as previously discussed. Patching the existing interior and exterior levee breaches adjacent to Bear Lake would not provide any protection to the existing shoreline. The lake is large enough that wind driven waves would be able to build up fetch and would continue to erode the existing shoreline. Patching the levees would provide some short term benefits, however in the long term, these levees would give way thus exposing existing marsh that has subsided. With the consideration that in the long term, land would not be protected and land owner issues (numerous land owners with varying interests), this alternative was no longer considered.

ENVIRONMENTAL SETTING

GENERAL

The project is located on the south shore of White Lake, which is in the southeast portion of the Mermentau River Basin, Vermilion Parish, Louisiana. The lake is approximately 54,500 surface acres (~85 square miles) and about 14 miles (east to west) by nine miles (north to south) in dimension. Due to the shallowness of the lake (average of about seven feet), wind driven waves easily form. During the winter months, strong northern winds cause large waves, which continue to cause erosion on the southern shore. Coastal marsh bisected by canals completely surrounds the lake, and access to the lake is by boat from one of these canals. The coastal marshes provide important winter habitat in the southern end of the Mississippi Flyway for migratory birds. Vegetation types occurring on the shores of the lake are primarily water tolerant grasses, sedges, and shrubs.

The old White Lake rim has eroded away the exposed and more fragile marshes erode more rapidly as evidenced by the severely scalloped shoreline in the area. Erosion rates calculated by comparing 1978-79 aerial photography with 1997-98 aerial photographs showed rates averaging 15 feet per year. The shoreline protection feature of the project addresses the erosion problem. Further interior marsh loss may occur should interior levees be breached as a result of the eroding shoreline. Several areas of this marsh have subsided due to several years of gravity drainage and portions are below the White Lake water level.

CLIMATE

Vermilion Parish is located within a subtropical latitude. The climate is influenced by the many water surfaces of the nearby lakes, streams, and the Gulf of Mexico. Throughout the year, these water areas modify the relative humidity and temperature conditions, decreasing the range between the extremes. Summers are long and hot with high average humidity, with average daily temperatures of 81ºFahrenheit, and the average daily maximum of 90ºF. Winters are influenced by cold, dry polar air masses moving southward from Canada, with the average daily temperature of 53ºF, and the average daily minimum of 43ºF. The cold-front passage events that are experienced along the Louisiana coastline from October through April have major impacts on circulation, sediment resuspension, sediment transport, water level and salinity changes. Prevailing southerly winds create a strong maritime character. Annual precipitation averages 62.5 inches based over the period 1961-1990. The wettest month is July with an average monthly normal of 7.4 inches. October is the driest month averaging 3.7 inches.

The Coastal and Hydraulics Laboratory in Vicksburg, MS reconstructed wind records from 1990-1999 for various stations along the Gulf Coast. Station 106 (29.50N 92.92W, approximately 26 miles south of White Lake) shows that winds near White Lake are generally southeasterly at 11-22 miles per hour. Less frequent but stronger winds blow from the north and northwest and are frequently in the mid teens. Hurricanes in the summer and fall months and the sequential frontal passages in the winter and spring months increase water levels along the coast and provide a powerful pumping mechanism for the mobilization and transport of suspended sediments in the coastal wetland system. The storm surge associated with hurricanes can elevate sediment levels in the water column through resuspension, and transport these sediments inland several miles. Hurricane Lili (October 2003) made landfall as a category two hurricane, after being downgraded overnight from a category four, just to the east of White Lake on the western side of Vermilion Bay, with highest wind gusts reported for Intracoastal City, LA at 120 mph. Other hurricanes to make landfall near White Lake were Edith (1971) and Danny (1985) both coming on shore near Pecan Island.

GEOLOGY

White Lake and the Mermentau River Basin lie in the Chenier Plain, a series of ancient natural beaches consisting of coarse sand and crushed shells, which through the activities of nature have become isolated from the sea by strips of marshes. These sediments from the Mississippi River were deposited along the coast and periodically eroded as the river shifted its mouth during the past 3,000 years. Eroded deposits are evident as intermittent sand ridges, called *cheniers* by early French explorers and settlers because of the live oaks that grow on them (Boesch *et al*, 1994).

Soils in the project area consist of Larose and Allemands types. Both are described as very poorly drained, ponded most of the time, and are frequently flooded. Larose soils are further described as very slowly permeable, very fluid, mineral soils that formed in herbaceous plant remains. The Allemands soil type is more organic than Larose, and formed in moderately thick accumulations of decomposed herbaceous material. Both soil types are also well suited for wetland wildlife, and used for hunting, fishing, and other outdoor activities. Controlling the level of water and preventing wildfires and saltwater intrusions are the main concerns in managing the soils for wildlife habitat (Midkiff *et al*, 1995).

The soil type along the White Lake shoreline between Bear Lake and Will's Point is mainly Larose muck. The subsidence rate in this area is low (from 0 to 1 foot per century). The bottom of White lake in the vicinity is quite silty.

HYDROLOGY

Before navigation channels altered hydrology in the early 1900s, drainage in the Mermentau Basin was predominantly in a north-south direction through the Mermentau River, Freshwater Bayou, Bayou Lacassine, and Rollover Bayou. The eastern portion of the basin, however, drained in an easterly direction through Belle Isle and Schooner Bayous. Sheet flow over the marsh occurred between Grand Chenier and Pecan Island ridges, as well as westerly into the Calcasieu/Sabine Basin. Navigation, flood control, agriculture, and oil and gas exploration activities have dramatically altered the hydrology of the Mermentau Basin. The net effect of those alterations is that the Lakes Sub-basin is now, for the most part, hydrologically isolated from the Chenier Sub-basin. The Lakes Sub-basin now functions more as a freshwater reservoir and less as the low-salinity estuary it once was (Gunter and Shell 1958; Morton 1973).

The most important factors influencing hydrology in the Lakes Sub-basin are the amount of Mermentau River runoff, and the water control structures operated by the USACE-MVN. Four of the structures (i.e., Catfish Point and Schooner Bayou Control Structures and the Calcasieu and Leland-Bowman Locks) regulate water levels and prevent saltwater intrusion into the Lakes Sub-basin. The Freshwater Bayou Canal Lock is more removed from the Lakes Sub-basin, and is operated to prevent saltwater intrusion from the Gulf of Mexico. The CEMVN-operated structures maintain higher-than-normal water levels. The average water levels in the Lakes Sub-basin have increased from 1.7 feet Mean Low Gulf (MLG) in 1945, to over 2.6 feet MLG by 1999 (LDNR 2000). The structures are operated to maintain water levels near or above 2.0 feet MLG for navigation and to provide sufficient fresh water for rice irrigation.

As part of its surface water quality monitoring program, the Louisiana Department of Environmental Quality (LDEQ) routinely monitors several parameters on a monthly basis at numerous sites. Although there are several long-term sites on larger water bodies throughout the state, sites are currently monitored intensively for 1 year and again on a 5-year cycle (LDEQ 2000). Based upon those data and the use of less-continuous information (e.g., fish tissue contaminants data, complaint investigations, and spill reports), LDEQ has assessed water quality fitness for the following uses: agriculture, primary contact recreation (swimming), secondary contact recreation (boating and fishing), fish and wildlife propagation, and drinking water supply (LDEQ 2000). Based on existing data and more subjective information, water quality is determined to either fully, partially, or not support those uses. Water quality in White Lake is considered by the LDEQ to fully support primary and secondary contact recreation and agricultural use, but does not support fish and wildlife propagation.

Salinity is an important factor in the Lakes Sub-basin because farmers within the area utilize the fresh water to grow rice and crawfish. Salinities in the project area are generally fresh; however, some saltwater intrusion may occur in times of drought, when locking operations allow spikes of salt water into the sub-basin and insufficient head differential exists to flush the salt water out. When water levels are low in the sub-basin, some salt water from the Gulf of Mexico and brackish water from Vermilion Bay flows into the sub-basin through the Leland-Bowman Lock and the Schooner Bayou Control Structure when the gates are opened for navigational purposes.

SIGNIFICANT RESOURCES

This section contains a description of significant resources and the impacts of the proposed action on these resources. The significant resources described in this section are those recognized by: laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public.

WETLANDS

This resource is institutionally significant because of: the Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968. Wetlands are technically significant because: they provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities. Wetlands are publicly significant because of the high value the public places on the functions and values that wetlands provide.

O'Neil classified this area as sawgrass marsh (intermediate marsh) in 1949 with the dominant vegetation of Jamaican sawgrass. Other species appearing in this marsh are cattail, bulrush, roseau cane, bulltongue, hogcane, and spike rush with yellow cutgrass near the ridges. This was considered deep marsh, with water levels ranging from 4 to 15 inches. However, by 1968 Chabreck found the species composition had changed to more fresh water with vegetation consisting of mainly Roseau cane, giant cutgrass, California bulrush, and coastal arrowhead (Chabreck *et al.,* 1968; and Chabreck and Condrey, 1979). Much of the area south of White Lake was mapped as no longer being predominately marsh in 1968 and 1978 by Chabreck *et al.* Low levees were built, and the area was drained for pasture. These levees have since been breached, and the land has converted to flooded pasture. Woody tree species have grown on the old levees, consisting mainly of willows, Chinese tallow, and some red maples.

In order to further describe wetland resources in the project area, the project area was broken down into four sub-areas – A thru D (see figure 3). Sub-area A encompasses an inshore (from 300 feet in from the shoreline) marsh area of about 4,725 acres and extends from Bear Lake eastward to where the channel running parallel to the shoreline turns due south all the way to LA Route 82. Sub-area B is the inshore marsh area just to the east of sub-area A contains about 685 acres of land and open water. Sub-area C is located just west of sub-area B and is predominantly an open water area of about 119 acres. Sub-area D includes the entire project shoreline from Bear Lake on the west to Wills point on the east, between the proposed near shore edge of the new breakwater and the existing shoreline.

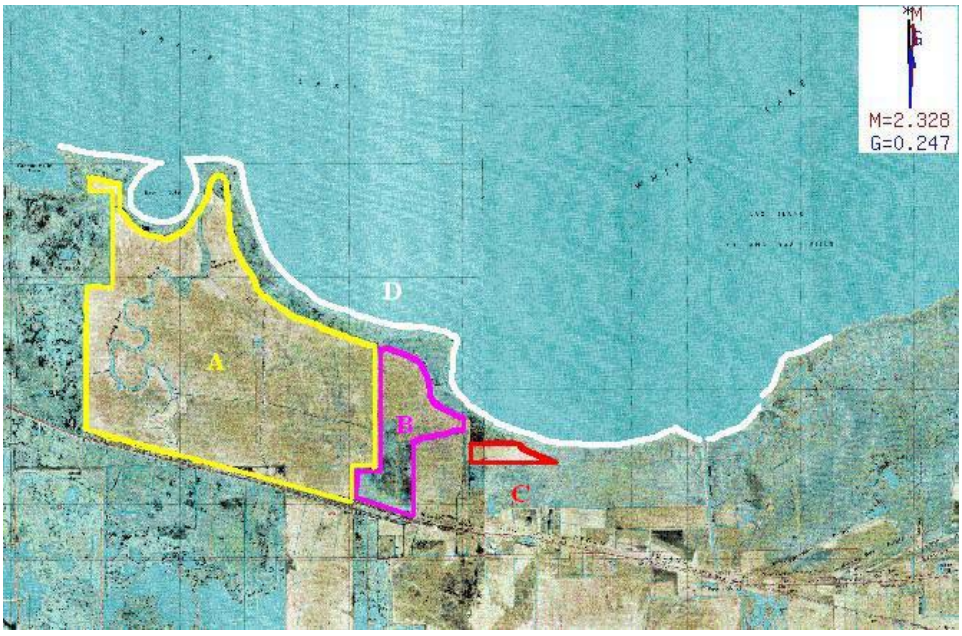

Figure 3. Southern shore of White Lake, areas considered under the Wetland Value Assessment.

Existing Conditions

Based on USACE, LDNR and US Geological Survey data from aerial and infra-red photographs, portions of this area have opened significantly since 1990. As noted in Table 2, the rate of land loss increased markedly since 1978. Prior to 1978 the rate of land loss was less than three acres per year. From 1978 to 1990 the rate of loss jumped to an average of about 83 acres per year representing a total loss of about 17 percent of the land present in 1978. During the next 10 years the rate of land loss decreased to about 30 acres per year for a total loss of about six percent of the land available in 1990. Based on field visits in April 2003 to sub-area A it is clear that the rate of land loss will increase, due to ongoing shoreline erosion, a 2-3 foot wide breach in the outer management levee on the southwest shoreline of bear lake, and the low elevation of the interior management levees in some locations (12- 18 inches above interior water levels).

Alternative	Erosion (acres)	Accretion (acres)	Restored (acres)	Net Gain (+) or Loss
No Action	-379	0	0	-379
Dike and Fill	0	60	0	60
Dike/Terraces and Fill	0	60	75	135

Table 1. Acres of Fresh Marsh Lost or Gained for each South White Lake Shoreline Protection Project Alternative.

Conversations with the representatives of the owners (Miller estate) of the property in sub-area A, indicate that it is unlikely that the observed breach will be repaired in the near future. Therefore, it is likely that this small breach will expand rapidly as a result of wave action. As this breach expands, the likelihood of breaching and overtopping of the inner management levees increases. The inner management levee, in the area of the breach, varies from about 12 inches to 36 inches in elevation above interior water levels. Breaching of this inner management level will result in extensive flooding of the interior marsh, which is currently below normal White Lake water elevation. Therefore, under the future without project scenario it is possible that much of the wetlands located on the land-side of the interior management levees would be lost within the next few years.

Sub-Area A

As indicated in Table 3, about 18 percent of the former land area in this sub-area was open water in 2000. This represents a loss of about 795 acres of land since 1956, most (581 acres) of which occurred between 1978 and 1990. Using the average rate of land loss between 1990 and 2000, it is estimated that an additional 50 acres of land have been lost between 2000 and 2003 for a total loss of 845 acres of land.

With the exception of the 1956-1978 period, when most of the land was converted to agricultural use, emergent wetlands comprised about 95 percent of the land in this sub-area. The amount of emergent wetlands present as of 2003 is estimated at 3,630 acres.

The project will benefit this area since the shoreline protection will prevent further breaching of interior levees and this sub-area was included in the Wetland Value Assessment (WVA) carried out by the CWPPRA Environmental Work Group.

Sub-Area B

This sub-area has also experienced a significant loss of land, particularly since 1978. Prior to 1978 there was no apparent loss of land. However, between 1978 and 1990 over 315 acres or

about 46 percent of the land was converted to open water. Between 1990 and 2000 another 41 percent of the remaining land was converted to open water. Given these estimated land losses, about 63 percent of the land in this sub-area has been converted to water since 1978. Based on the average rate of land loss from 1990 to 2000, it is estimated that an additional 36 acres of land has been lost from 2000 to 2003. The total estimated loss of land in this sub-area from 1956 to 2003 is 466 acres.

Emergent wetlands comprised about 98 percent of the land area during the period from 1956-1990. Since about 68 percent of this sub-area is already water, benefits accrued as a result of the proposed project are expected to be minimal and it was not included in the WVA completed by the CWPPRA Environmental Work Group.

Sub-Area C

This 119-acre area was converted to open water sometime between 1978 and 1988. Prior to 1978 this area was primarily fresh marsh. Since 1988 only about 5 acres of land (a loss of about 97 percent) remains in this area, most of which is fresh marsh. No benefits will accrue to this sub-area and it was not included in the WVA for this project.

Sub-Area D

This sub-area is a 300-foot wide strip (15 feet erosion per year times 20 years) of shoreline along the entire 61,500 feet of the project study area, about 441 acres. Comparisons of 1978-1979 and 1997-1998 aerials photographs indicated that the shoreline in the project area has eroded at an average rate of 15 feet per year. Based on the shoreline erosion rate of 15 feet/year, the shoreline was about 660 feet (15 feet/year times 44 years) further offshore than in the year 2000. Using these assumptions the amount of land lost between 1956 and 2000 was about 833 acres, most of which was fresh marsh. Given this estimated erosion rate of 15 feet/year, another 57 acres will have been lost during the 2000-2003 period, for a total loss of 890 acres from 1956 to 2003.

The breakwater will prevent the further loss of shoreline and protect a total of about 7,980 acres of marsh south of the lake, which was included in the WVA for this project.

Table 2. Estimated Land Losses (in acres) in the South White Lake Project Area, 1956-2003[a].															
Time Period	Sub-Area A			Sub-Area B			Sub-Area C			Sub-Area D[b]			Totals		
	Acres	% Loss	% Loss/year	Acres	% Loss	% Loss/year	Acres	% Loss	% Loss/year	Acres	% Loss	% Loss/year	Acres	% Loss	% Loss/year
1956	4,669			680			119			1,212			6,680		
1978	4,624	1.0	0.05	684	0.0	0.00	119	0.0	0.00	795	34.4	1.56	6,222	6.9	0.31
1990	4,043	12.6	1.05	366	46.5	3.88	5	95.8	7.98	568	28.6	2.38	4,982	19.9	1.66
1993	4,010	0.8	0.27	421	0.0	0.00	11	0.0	0.00	511	10.0	3.33	4,953	0.6	0.20
2000	3,874	3.4	0.49	250	40.6	5.80	10	9.1	1.30	379	25.8	3.69	4,513	8.9	1.27
2003[c]	3,823	1.3	0.44	214	14.4	4.80	10	0.0	0.00	322	15.0	5.00	4,369	3.2	1.07
Loss Rates			Weighted %			Weighted %			Weighted %			Weighted %			Weighted %
1956 – 1990	626	13.4	0.40	314	46.2	1.37	114	95.8	2.82	2	0.5	0.12	1,698	25.4	0.79
1978 – 1990	581	12.6	1.05	318	46.5	3.88	114	95.8	7.98	0	0.0	0.00	1,240	19.9	1.66
1990 – 1993	33	0.8	0.27	0	0.0	0.00	0	0.0	0.00	27	6.3	2.10	29	0.6	0.20
1956 – 2000	795	17.0	0.40	430	63.2	1.98	109	91.6	2.38	21	4.8	0.24	2,167	32.4	0.83
1978 – 2000	750	16.2	0.76	434	63.5	3.96	109	91.6	0.76	3	0.7	0.29	1,709	27.5	1.34

[a] Landlosses based on aerial photography analysis by the Corps of Engineers, Louisiana Department of Natural Resources, and US Geological Services
[b] Extrapolated using estimated average shoreline erosion rate of 15 feet/year for the 1978 to 1998 period.
[c] Extrapolated using loss rate from 1990 to 2000.

Future Conditions with No Action

When the average erosion rate of 15 feet per year was applied to the approximate 61,500 feet of shoreline in this over 20 years, a total of about 423 acres[3] of wetland would be lost. This averages to about 21 acres per year[4]. In addition to this loss of shoreline, current management practices and periodic flooding of the interior marsh as a result of high water events is expected to contribute to land loss. The rate of interior marsh loss was estimated at about 1.1 percent (weighted average) per year from 1978 to 2000 for all sub-areas. The combination of the shoreline loss and interior fresh marsh loss is estimated at 1.35% for Project Years (PY) 1-11. The interior management levee is expected to have large-scale breaching in PY12 resulting in an instantaneous loss of 20 percent of the existing fresh marsh. From PY12 to the end of the project (PY20) it is estimated that the average land loss rate will increase to about 2.7 percent per year.

Sub-Area A

Under the no action alternative, the wetland losses due to shoreline erosion and interior marsh losses, are expected to average about 1.35% during PY1-11 and 2.70% during PY12-20. Based on the 2000 aerial photographs and adjustments for additional losses from 2000 to 2003 using average land loss rate from 1990 to 2000, about 3,630 acres of emergent wetland occur in this sub-area. Assuming that the project will be constructed in 2004, projected losses from PY0 (2004) to PY20 are shown in Table 3.

Project Year	Acres of Wetland	Acres Lost/year	Annual Rate of Loss in percent
0	3,630	Baseline	Baseline
1	3,580	50	1.35
11	3,125	46	1.35
12	2,500	625	20.0
20	2,008	62	2.70
Average Loss		81	2.23
Total Loss	**1,622**		

Table 3. Projected Future Emergent Marsh Losses without Construction of the Project for Sub-area A.

Under the Future Without Project conditions, approximately 45 percent of the fresh marsh could be lost during the 20-year project lifetime. This estimated loss of wetlands appears to be conservative since it assumes a breach in the levee system in PY12. As pointed out previous, a small breach already exists in the outer management levees at Bear Lake. It is likely that the instantaneous loss of 20 percent of wetland and followed by the doubling of the rate of loss is likely to occur much sooner than PY20. Therefore, the loss of wetlands in this sub-area is likely to be higher than estimated in Table 3.

Sub-Area D

Under the no action alternative, the rate of wetland loss in this sub-area will be a function of the estimated rate of shoreline erosion, 15 feet/year. In addition to the estimated 833 acres of fresh marsh that has been lost from 1956 to 2003, an additional 379 acres of fresh marsh would be lost over a 20-year period. A instantaneous increase in land loss in PY12 is not assumed for this sub-area, since erosion is the primary cause of the loss of wetlands.

Future with Proposed Action

With implementation of the proposed action, there would be a temporary disturbance during construction, but once completed, the southern lake edge would stabilize allowing sediment to settle out. The proposed action is assumed to prevent the loss of 423 acres (61,500 feet x 300

3 (15 feet per year)(20 years)(61,500 feet)=18,450,000ft^2 = 423.5 acres
4 (15 feet per year)(1 year)(61,500 feet)=922,500 ft^2 = 21.2 acres

feet) of marsh by preventing further shoreline Since the waves will be stilled, and the height of the breakwater is +3.5 feet, some overtopping will occur and accretion should slowly build land behind the breakwater. Data from monitoring of similar projects indicates an accretion rates from 1.4 to over 11 feet per year. The 2.3 feet per year accretion rate that occurred at the nearby intermediate marshes along Freshwater Bayou will be assumed to occur along the south shore of White Lake. This will add to the material dredged for the flotation channel, which will be deposited on the landward side of the breakwater, resulting in the creation and accretion of 157 acres of marsh.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

With scheduled maintenance of the earthen dikes along the shoreline of Bear Lake, the future with this proposal is the same as the preferred plan. Some emergent marsh would be created by the earthen dikes; however, since they would need to be maintained, this marsh would not be able to reach maturity. Without maintenance, the dikes would eventually give way, allowing shoreline erosion from storm driven wave action to once again commence thus threatening the marshes south of Bear Lake.

NON-WETLAND RESOURCES/UPLAND RESOURCES

Existing Conditions

These resources are institutionally significant because of the Food Security Act of 1985, as amended; the Farmland Protection Policy Act of 1981; and the Fish and Wildlife Coordination Act of 1958, as amended. These resources are technically significant because of the habitat provided for both open and forest-dwelling wildlife, and the provision or potential for provision of forest products and human and livestock food products. These resources are publicly significant because of their present economic value or potential for future economic value.

The land adjacent to the project area is predominantly fresh marsh, however, there are small pockets of upland shrub/scrub, upland forest, upland barrens and agriculture/pasture land in the 5,902-acre project site. In total these areas make up about 0.75 percent of the total project area. None of these upland resources are known to be significant, prime, or unique and in general have been degraded as a result of water management practices in the project area.

Future Conditions with No Action

The few remaining acres of farmland and upland forest and scrub/shrub would probably be lost over the next few years under the no action alternative. While most of these lands are located behind levees, it is likely that these levees would be breached. This would allow White Lake water to flood most of the project area, converting it to open water. This loss is not expected to have any significant adverse impacts, since it does not appear that the remaining farmland and upland forest and scrub/shrub are of significant economic value, and the habitat provided by this resource is not limiting.

Future with Proposed Action.

With the proposed action, the remaining uplands would be protected from erosion by wind driven storm surges.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

The future with this proposal is expected to be the same as the future with the Proposed Action.

FISHERIES

Existing Conditions

This resource is institutionally significant because of the Fish and Wildlife Coordination Act of 1958, as amended. Fisheries resources are technically significant because: they are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of various freshwater and marine habitats; and many species are important commercial resources. Fisheries resources are publicly significant because of the high priority that the public places on their esthetic, recreational, and commercial value.

The fresh marshes adjacent to White Lake supports recreationally and commercially important freshwater fish including largemouth bass; bluegill; warmouth; crappie; gars; bowfin; blue, channel, and flathead catfish; and freshwater drum. Those marshes and associated shallow waters also provide limited-value nursery habitat for some estuarine-dependent species tolerant of near-freshwater conditions, such as Gulf menhaden, Atlantic croaker, striped mullet, white shrimp, and blue crab. Other estuarine-dependent fish species found in the area, but which are less abundant, include red drum, black drum, southern flounder, and brown shrimp.

Future Conditions with No Action

Without implementation of the proposed action, nursery habitat for freshwater and estuarine species would continue to be lost as the lake continues to encroach into the surrounding marsh and wetlands. Approximately 441 acres of fresh marsh would be converted to shallow, turbid open water areas, which would have little to no submergent or emergent vegetation. Although shallow unvegetated open water areas can function as nursery habitat for freshwater and estuarine-dependent fish species, the productivity of those waters is substantially less than marsh ponds or marsh that is subject to periodic prolonged inundation.

Future with Proposed Action

With implementation of the proposed action, the lake shoreline would be protected, thus protecting the marsh edge and saving valuable habitat for larval fish and shellfish.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

The future with this proposal is expected to be the same as the future with the Proposed Action.

WILDLIFE

Existing Conditions

This resource is institutionally significant because of the Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918. Wildlife are technically significant because: they are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources. Wildlife are publicly significant because of the high priority that the public places on their esthetic, recreational, and commercial value.

Reptiles and amphibian species are diverse and abundant in fresh marsh habitats. Common species the project area include American alligator; western cottonmouth; red-eared, common snapping, and softshell turtles; tree, bull and pig frogs.

The project-area wetlands provide habitat for numerous species of puddle ducks and diving ducks. Puddle ducks such as mallard, gadwall, American widgeon, pintail, northern shoveler, green-winged teal, and blue-winged teal utilize fresh marsh habitat within that area. Diving ducks such as lesser scaup, ring-necked duck, and several species of mergansers utilize large

ponds and open water areas. The project area also provides feeding habitat for wading birds such as American coot, rails, gallinules, bitterns, little blue heron, great blue heron, green-backed heron, yellow-crowned night heron, black-crowned heron, great egret, snowy egret, white-faced ibis and white ibis. Other non-game birds such as the boat-tailed grackle, red-winged blackbird, cormorants, anhinga, northern harrier, belted kingfisher and white pelican also use fresh marshes within the project area. The surrounding marshes and chenier ridges provide important resting and over wintering habitat for migratory birds on the Mississippi flyway. Mammals that utilize the area include nutria, muskrat, raccoon, river otter, swamp rabbit, and white-tailed deer.

Future Conditions with No Action

The continued loss of marsh and submerged aquatic vegetation to shoreline erosion would reduce habitat values for a variety of wildlife species. The many ducks and other wetland-associated birds that utilize the marsh and submerged aquatic vegetation for food and cover would be negatively impacted, as would game mammals, fur animals, reptiles and amphibians. This loss is viewed as especially significant from the standpoint of waterfowl wintering habitat, in light of the major importance of the Mermentau Basin marshes to puddle ducks.

Future with Proposed Action

With implementation of the proposed action, future conditions would be expected to remain similar to existing conditions. As the shoreline becomes stabilized and marsh begins to fill in behind the breakwater, additional marsh habitat is expected to be created, thus providing more habitat for resident as well as migratory wildlife.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

The future with this proposal is expected to be the same as the future with the Proposed Action.

ESSENTIAL FISH HABITAT

Existing Conditions

This resource is institutionally significant because of the Magnuson-Stevens Fishery Conservation and Management Act. Essential Fish Habitat (EFH) is technically significant because, as the Act states, EFH is “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." EFH is publicly significant because of the high value that the public places on the seafood and the recreational and commercial opportunities EFH provides.

Specific categories of EFH include all estuarine waters and substrates (mud, sand, shell, rock, and associated biological communities), including the sub-tidal vegetation (seagrasses and algae) and adjacent inter-tidal vegetation (marshes and mangroves). The Gulf of Mexico Fishery Management Council, through the generic amendment of the Fishery Management Plans for the Gulf of Mexico, lists the following Federally managed species or species groups as being potentially found in coastal Louisiana: brown shrimp, white shrimp, red drum, gray snapper, and Spanish mackerel. In addition, coastal wetlands provide nursery and foraging habitat that supports economically important marine fishery species such as spotted seatrout, southern flounder, Atlantic croaker, gulf menhaden, striped mullet, and blue crab. These species serve as prey for Federally managed fish species such as mackerels, snappers, groupers, billfishes and sharks.

The proposed project is located in an area that has been identified as Essential Fish Habitat (EFH) for postlarval, juvenile, and sub-adult life stages of white shrimp, brown shrimp, and juvenile red drum. EFH requirements vary depending upon species and life stage (Table 4).

Categories of EFH in the project area include estuarine emergent wetlands, estuarine water column, submerged aquatic vegetation, and estuarine water bottoms. Detailed information on Federally managed fisheries and their EFH is provided in the 1998 generic amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the Gulf of Mexico Fishery Management Council. The generic amendment was prepared as required by the Magnuson-Stevens Fishery Conservation and Management Act.

Species	Life Stage	Habitat
brown shrimp	post larval/juvenile	Marsh edge, submerged aquatic vegetation, tidal creeks, inner marsh, shallow open water, nonvegetated bottom, and muddy substrates
white shrimp	post larval/juvenile and subadult	Marsh edge and ponds, submerged aquatic vegetation, inner marsh
red drum	post larval/juvenile	Submerged aquatic vegetation, estuarine mud bottoms, marsh/water interface
(Source: Gulf States Marine Fish Commission (http://www.gsmfc.org), habitat association tables for the 1998 Generic Amendment for Addressing EFH Requirements).		

Table 4. Essential Fish Habitat for Federally Managed Species in the White Lake Project Area.

In addition to being designated as EFH for white shrimp, brown shrimp, and red drum, aquatic habitats to be affected provide limited-value nursery and foraging habitats for economically important fishery species including Atlantic croaker, striped mullet, gulf menhaden, and blue crab. Those estuarine-dependent species serve as prey for other species managed under the Magnuson-Stevens Fishery Conservation and Management Act by the Gulf of Mexico Fishery Management Council (e.g., red drum, mackerels, snappers and groupers) and highly migratory species (e.g., billfishes and sharks) managed by the National Marine Fisheries Service (NMFS). Affected habitats are currently of limited-value to estuarine fisheries organisms because the USACE-operated Catfish Point and Schooner Bayou control structures limit estuarine fisheries access into Grand Lake and White Lake.

Future Conditions with No Action

Fresh marsh and submerged aquatic vegetation is considered by the NMFS to be essential fish habitat for several estuarine-dependent species. The loss of 441 acres of fresh marsh and conversion to shallow, turbid open water areas could contribute to decreased fish stocks in the project area.

Future with Proposed Action

During construction phase, approximately 247 acres (breakwater construction footprint of 61,500 feet long x 175 feet wide) of non-vegetated muddy bottom would be disturbed. Approximately 42 acres of non-vegetated muddy bottom would be lost under the footprint of the actual breakwater (30 feet wide x 61,500 feet long). With the breakwater, further shoreline loss would be prevented and marsh would be created between the breakwater and the existing shoreline. Stabilizing the shoreline and allowing sediment to settle out, would create and/or protect approximately 702 acres of marsh over the 20-year project life. Through beneficial use of flotation canal material approximately 157 acres of emergent marsh would be created between the breakwater and existing shoreline.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

The future with this proposal is expected to be the same as the future with the Proposed Action.

ENDANGERED AND THREATENED SPECIES

Existing Conditions

This resource is institutionally significant because of: the Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940. Endangered (E) or threatened (T) species are technically significant because the status of such species provides an indication of the overall health of an ecosystem. These species are publicly significant because of the desire of the public to protect them and their habitats.

Of the 29 listed Threatened or Endangered species listed in Louisiana[5], eight are listed in Vermilion Parish, with others listed as "occasional visitors." Possible listed species in the project area include the Brown Pelican (E); Piping Plover (T); Gulf Sturgeon (T); Green and Loggerhead sea turtles (both T); Leatherback, Hawksbill, and Kemp's Ridley sea turtles (all E). No Bald Eagle nests are known to occur in the White Lake area. Brown pelicans may rest or feed in the project area, but are not known to be resident. The Piping plover is not likely to inhabit the project area due to its preferred habitat of higher salinity intertidal beaches, mudflats, sandflats, algal flats, and wash-over passes with no (or very sparse) emergent vegetation. Of the listed marine species, the Manatee and the five sea turtles are predominately salt or brackish zone species and as White Lake is a fresh water lake, these animals would most likely be only occasional visitors to White Lake.

Future conditions with No Action

Without implementation of the proposed action, no threatened or endangered species would be affected. However, as the south White Lake shoreline habitat continues to erode, threatened or endangered species in adjacent areas could be negatively affected do to reduced prey species habitat.

Future with Proposed Action

With implementation of the proposed action, there would be no direct or indirect affects on threatened or endangered species. Bald eagles and brown pelicans may be occasional visitors in the project area, but the south shore of White Lake is not a known nesting or major feeding ground. Protected marine mammals, fish or turtles could conceivably swim to White Lake through the several canals interlacing the area. However, since the lake is within the upper limits of the tidal system and freshwater, these animals are not likely to be in the lake or project area. In a letter dated 11 May 2004, the U.S. Fish & Wildlife Service concurred with USACE-MVN's determination that the proposed action is not likely to adversely affect any Federally listed threatened or endangered species.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

The future with this proposal is expected to be the same as the future with the Proposed Action.

[5] U.S. Fish & Wildlife Service web page, http://ecos.fws.gov/servlet/TESSwebpage

CULTURAL/HISTORIC RESOURCES

Existing Conditions

This resource is institutionally significant because of: the National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979; as well as other statutes. Cultural resources are technically significant because of: their association or linkage to past events, to historically important persons, and to design and/or construction values; and for their ability to yield important information about prehistory and history. Cultural resources are publicly significant because preservation groups and private individuals support their protection, restoration, enhancement, or recovery.

Various cultural resources including both prehistoric and historic sites, occur throughout the Louisiana coastal zone. The Louisiana Department of Culture, Recreation and Tourism maintains catalogues of numerous cultural resource sites, but many areas remain unsurveyed and the significance of eligibility of some sites for inclusion if the National Register of Historic Places has not been determined.

Future Conditions with No Action

Future with Proposed Action

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

RECREATIONAL RESOURCES

Existing Conditions

This resource is institutionally significant because of the Federal Water Project Recreation Act of 1965, as amended, and the Land and Water Conservation Fund Act of 1965, as amended. Recreational resources are technically significant because of the high economic value of recreational activities and their contribution to local, state, and national economies. Recreational resources are publicly significant because of: the high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.

Future Conditions with No Action

Future with Proposed Action

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

AIR QUALITY

Existing Conditions

This resource is considered institutionally significant because of the Louisiana Environmental Quality Act of 1983, as amended, and the Clean Air Act of 1963, as amended. Air Quality is technically significant because of the status of regional ambient air quality in

relation to the National Ambient Air Quality Standards (NAAQS). It is publicly significant because of the desire for clean air expressed by virtually all citizens.

Vermilion Parish is currently classified in attainment of all NAAQS. This classification is the result of area-wide air quality modeling studies.

Future Conditions with No Action

The current air quality conditions are expected to continue without the proposed action.

Future with Proposed Action

The total volatile organic compound emissions for this project during construction is anticipated to be well below the *de minimis* level of 100 tons per year. Therefore, this action conforms to the Louisiana State Implementation Plan.

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

The future with this proposal is expected to be the same as the future with the Proposed Action.

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

Existing Conditions

The NOD is obligated under Engineer Regulation 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of the proposed action. A HTRW Land Use History and a Phase I HTRW Initial Site Assessment (ISA) have been completed for the proposed action and are on file in the NOD.

The risk of encountering HTRW for the proposed action is _____, based on the ISA.

Future Conditions with No Action

Future with Proposed Action

Future with construction of a rock dike along the existing southern shoreline of White Lake and across the opening of Bear Lake with earthen dikes along the shoreline of Bear Lake.

CUMULATIVE IMPACTS

Erosion due to artificially elevated water levels is thought to be the leading cause of shoreline loss in White Lake. High water levels were maintained in the Lakes Subbasin beginning in 1951, with the installation of the Catfish Point Control Structure, through the mid 1970s. Since then, the water level has been affected by Catfish Point Control Structure, Schooner Bayou Control Structure, Leland-Bowman Lock (formerly Vermilion Lock), Calcasieu Lock, and tidal influence. Dunbar, *et al*. (1992) states that the greatest land loss in the Lake Subbasin occurred between 1956 and 1974. CEMVN has managed water at a lower level since the early 1990s, but the lake rims were badly eroded by this time. Consequently, the historical buffer from wave energy was also gone.

The proposed project serves as a barrier to prevent further erosion of the southern shoreline of White Lake. Impacts associated with construction would be limited to the footprint of the

breakwater and the flotation canal. Material from the flotation canal would be cast inside the breakwater where feasible. Shoreline loss would be prevented and some marsh would accrete on the land side of the breakwater. At the end of 20 years, 702 acres (approximately 172 AAHUs) of fresh marsh would be protected and/or created. At current erosion rate of about 15 feet per year, approximately 424 acres of valuable wetland habitat could potentially be converted to shallow open water over a 20-year period.

COORDINATION

Preparation of this EA and a draft Finding of No Significant Impact (FONSI) has been coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, are receiving copies of this EA and draft FONSI:

U.S. Department of the Interior, Fish and Wildlife Service
U.S. Environmental Protection Agency, Region VI
U.S. Department of Commerce, National Marine Fisheries Service
U.S. Natural Resources Conservation Service, State Conservationist
Advisory Council on Historic Preservation
Governor's Executive Assistant for Coastal Activities
Louisiana Department of Wildlife and Fisheries
Louisiana Department of Natural Resources, Coastal Management Division
Louisiana Department of Natural Resources, Coastal Restoration Division
Louisiana Department of Natural Resources, Coastal Engineering Division
Louisiana Department of Environmental Quality, PER-REGC
Louisiana Department of Environmental Quality, EP-SIP
Louisiana State Historic Preservation Officer

MITIGATION

The proposed action would only create minimal and insignificant impacts to benthic habitat as a result of the dredging of the flotation channel, deposition of the dredge material on the inshore side of the dike, and the construction of the dike. These impacts would be related to the temporary loss of aquatic habitat and any associated flora and fauna due to these activities. The impacted areas are shallow and subject to sedimentation and turbidity as a result of wave action, and are not conducive to supporting significant flora and fauna. Benthic flora and fauna that may be displaced or destroyed are expected to rapidly re-colonize the impacted areas, except for the dike footprint, once construction has been completed. It is also important to point out that much of this shallow water habitat, where construction activities will occur, was previously fresh marsh and the associated benthic habitat in these areas is the result of long-term shoreline erosion activities. Therefore, any impacts should be temporary and insignificant. Additionally, the proposed action is expected to create about 157 acres of wetlands on the inshore side of the dike. The benefits from this additional 157 acres of fresh marsh over the life of the project should far exceed any minor impacts created by the dike and associated dredging activities. Therefore, no mitigation is required for this project.

COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action would be achieved upon: coordination of this EA and draft Finding of No Significant Impact (FONSI) with appropriate agencies, organizations, and individuals for their review and comments; U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) confirmation that the proposed action

would not be likely to adversely affect any endangered or threatened species; Louisiana Department of Natural Resources concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program; receipt of a Water Quality Certificate from the State of Louisiana; public review of the Section 404(b)(1) Public Notice; signature of the Section 404(b)(1) Evaluation; receipt of the Louisiana State Historic Preservation Officer Determination of No Affect on cultural resources; receipt and acceptance or resolution of all USFWS Fish and Wildlife Coordination Act recommendations; receipt and acceptance or resolution of all Louisiana Department of Environmental Quality comments on the air quality impact analysis documented in the EA; and receipt and acceptance or resolution of all NMFS Essential Fish Habitat recommendations. The draft FONSI will not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described above.

CONCLUSION

The proposed action consists of the construction of a rock dike to protect 61,500 feet of the southern shore line of White Lake, the existing shoreline of Bear Lake, and to promote marsh accretion between the dike and existing shoreline**.** This office has assessed the environmental impacts of the proposed action and has determined that the proposed action would have _____ impact(s) upon cultural resources and no significant impact on ___

PREPARED BY

EA #390 and the associated draft FONSI were prepared by Elizabeth L. McCasland and W. Kenneth Derickson, Biologists, with relevant sections prepared by: Christopher Brown- HTRW; C. Baxter Mann - Cultural Resources; Richard Radford - Recreational Resources; and Melanie Goodman - Project Manager. The address of the preparers is: U.S. Army Corps of Engineers, New Orleans District; Planning, Programs, and Project Management Division, CEMVN-PM; P.O. Box 60267; New Orleans, Louisiana 70160-0267.

LITERATURE CITED

Boesch, Donald F., *et al*. 1994. Scientific Assessment of Coastal Wetland Loss, Restoration and Management in Louisiana. Journal of Coastal Research, special issue No. 20, Louisiana State University, Baton Rouge, LA.

Chabreck, R.H., T. Joanen, and A.W. Palmisano. 1968. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana Wildlife and Fisheries Commission, U.S. Army Corps of Engineers, Louisiana Cooperative Wildlife Research Unit, and Louisiana State University.

Chabreck, R.H., and G. Linscombe. 1978. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana State University and Louisiana Department of Wildlife and Fisheries.

Chabreck, R.H. and R.E. Condrey. 1979. Common vascular plants of the Louisiana Marsh. Louisiana State University, Center for Wetland Resources, Baton Rouge, LA.

Dunbar, J.B., L.D. Britsch, and E.R. Kemp III. 1992. Land loss rates. Report 3, Louisiana coastal plain. U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District, LA.

Gunter, G. and W.E. Shell. 1958. A study of an estuarine area with water-level control in the Louisiana marsh. Proceedings of the Louisiana Academy of Sciences 21:5-34

Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coast 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources, Baton Rouge, LA.

Louisiana Department of Environmental Quality. 2000. State of Louisiana Water Quality Management Plan, Water Quality Inventory, Section 305(b). Volume 5, Part B. Baton Rouge, Louisiana. 123 pp.

Midkiff, Clay, A.J. Roy, and Rick Nolde. 1995. Soil Survey of Cameron Parish, Louisiana. U.S. Department of Agriculture.

Morton, T. 1973. The ecological effects of water-control structures on an estuarine area, White Lake, Louisiana, 1972-1973. Master of Science Thesis, University of Southwestern Louisiana, Lafayette, Louisiana.

O'Neil, T. 1949. The muskrat in the Louisiana coastal marshes; a study of the ecological, geological, biological, tidal and climatic factors governing the production and management of the muskrat industry in Louisiana. Louisiana Department of Wildlife and Fisheries, New Orleans, LA.