

**LOUISIANA COASTAL AREA (LCA), LA – ECOSYSTEM RESTORATION:
COMPREHENSIVE COASTWIDE ECOSYSTEM
RESTORATION STUDY**

APPENDIX H

Cultural Resources Report

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APPENDIX H

Cultural Resources Report

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LOUISIANA COASTAL AREA, LA – ECOSYSTEM RESTORATION: COMPREHENSIVE COASTWIDE ECOSYSTEM RESTORATION STUDY

APPENDIX H

Cultural Resources Report

BACKGROUND

Over three thousand archeological and historical sites have been recorded for the twenty parishes in the LCA river basins. In addition to these sites, more than two hundred historic properties are listed on the National Register of Historic Places. These archaeological sites and historic properties span the human occupation sequence of the state and represent Louisiana's long cultural heritage.

HISTORIC CONDITIONS

Prehistoric and historic settlement within the study area has been closely associated with the geomorphology of the region. Elevated natural levees along past and present distributary channels provided elevated dry ground for settlement and temporary subsistence use. The major landforms associated with cultural resources in the study area are existing and subsided natural levees, shorelines of lakes and relict beach ridges of previous geomorphic formations known as cheniers. Changing patterns of littoral deposition and erosion that accompanied periodic shifts in the Mississippi River sub deltas created these relict ridges. The linear, elevated cheniers were ideal settings for village-level habitation by prehistoric Indians that drew upon the abundant natural resources of the rich marsh. These landforms represent significant topographic relief in the coastal marsh and surrounding areas. It is for this reason that large numbers of cultural resources are located on these landforms. Additional sites such as campsites, associated with food procurement and processing are located in the outlying marsh.

Native American Period

It is believed that the first human inhabitants of North America were Mongoloid hunters from Siberia that crossed over into Alaska over a land bridge during the Pleistocene Period or Ice Age. When the glaciers advanced sea level would drop as much as 450 feet, which exposed a land bridge that stretched over 1,300 miles wide between the two continents. Geologic evidence indicates that this happened several times during the Pleistocene Period. It was during these periods of glacial advance that hunters from Siberia crossed into the New World following megafauna such as the mammoth, giant ground sloth, bison, horse, tapir and saber tooth tiger. As the glaciers retreated and the climate warmed early man moved further into the interior of North America. These early inhabitants of North America are referred to as Paleo Indians.

Archaeological remains found in Louisiana indicate that early man entered Louisiana around 10,000 B.C. There are only a handful of sites associated with the Paleo-Indian Period (10,000 – 6,000 B.C.) in Louisiana. Only one, the Avery Island or Petit Anse site, located in a salt

dome in Iberia Parish is within the LCA Study area. Evidence of spilt cane basketry, stone axes, and a rope of bark were reportedly found lying below Pleistocene fauna in the 1860s. These artifactual remains were not found in situ but were recovered during salt mining operations. Later sub-surface testing by geologists did not find any diagnostic Paleo Indian artifacts in situ with fossil Pleistocene mammal bones. The artifacts that were recovered are types that continued on into the following Archaic Period and may be associated with that time period. The controversy of the possible Paleo-Indian designation of the Avery Island site remains unresolved, but all agree that the remains found at the site are some of the earliest in the coastal area. Evidence of Paleo Indian occupation is scarce and may be deeply buried or presently offshore now under water. Since the end of the Pleistocene Period, ice caps melted and Gulf of Mexico water elevations have risen approximately 200 feet.

Major environmental changes associated with climate change killed off the Pleistocene megafauna that Paleo Indians depended on and resulted in a shift to hunting smaller game. This period in the culture history of North America is referred to as the Archaic period (6,000 B.C. to 1,500 B.C.). During the Archaic Period Native Americans lived in small groups that followed a seasonal round of gathering seeds, nuts, fruits, and roots; hunting amphibians, birds, and mammals; and fishing. As time progressed however they became more sedentary moving only within a small area. Clams, fish and deer were available year round in coastal Louisiana. The higher natural levees along the rivers and bayous provided ideal sites for camping. In the spring and summer they would collect young plants and fruits and in the winter gather acorns, pecans, and walnuts.

A new hunting weapon, the atlatl, was developed during this time period, which proved quite successful in hunting deer. An atlatl, is a flat two-foot long piece of wood with a hook on one end and a handgrip carved into the other end. A spear is placed on top of the atlatl, and acts as an extension of the arm giving extra force and accuracy in the throw. The projectile points attached to the spears are somewhat crude and are made from chert found within the region. Other artifacts include bone needles, fishhooks, awls, beads, shell rattles and shell ornaments. Archaic Indians also made baskets to gather seeds and nuts and had specially shaped stones for grinding these to a paste. As with the preceding Paleo-Indian Period, Archaic habitation sites are rare in the coastal zone. The lack of sites may be the result of a smaller human population with fewer campsites and/or of the dynamic coastal geomorphology. Site locations are related to the character of landforms and neighboring habitats at the time of occupations. It was not until the Woodland Period that we begin to see a gradual increase in the number of sites. The Louisiana deltaic area stabilized and prehistoric man became more sedentary, occupying two major areas in coastal Louisiana. One cluster of sites is found around the shores of Lake Pontchartrain and the second concentration is found around Calcasieu, Grand and White Lakes and around Vermilion Bay in Southwestern Louisiana. A major innovation at this time was pottery making. Clay was used to make clay-cooking balls to heat food at sites that had no wood or stones near by. The clay cooking balls functioned like charcoal briquettes. Later, clay was used to construct pots to hold water and food.

The Early Woodland/Neo-Indian Period is characterized by the Poverty Point Culture, which flourished in Louisiana and the surrounding Gulf Coast from around 2000 B.C. to around 600 B.C. The Poverty Point Culture is named after the type-site in northeast Louisiana. This large site is more than a square mile in size and has earthen mounds and earthworks. This site served as the ceremonial/political/trading center of the culture. Intermediate regional sites existed as well as

smaller villages or hamlets. These sites were usually located near major rivers, junctions of lakes and rivers or in coastal marshes.

Like previous cultures, the Poverty Point people relied on hunting, fishing, and gathering of plants. Their tools were similar to the Archaic Period except for the addition of oval shaped plummets that were used as weights on bolas or nets. Bolas were used to wrap the legs of wild game, and weighted nets were used to trap fish and small game. Stone, such as steatite, was imported to use as storage bowls or food processing bowls. During this period, they began experimenting making pottery vessels probably modeled after the stone vessels. In addition to these utilitarian tools and goods, the Poverty Point Culture had elaborate ornamental objects such as carved beads and pendants and clay figurines used in ceremonies. For some unknown reason the Poverty Point Culture began to decline and virtually disappeared around 600 B.C. The reason for this decline is unknown. There is no evidence of warfare with another group of Indians. Some change or conflict in the political or religious system may have caused the decline or they may have exhausted the carrying capacity of key resources with a large population. Whatever the reason, people began to live in smaller, more scattered settlements.

Poverty Point sites have been found in the coastal zone. One example is the Bayou Jasmine site in St. John the Baptist Parish. At this site stone beads, Poverty Point clay balls, stone bowls, and other objects have been found in deeply buried deposits. The site was uncovered when building a highway along the edge of Lake Pontchartrain. Many more sites may exist but are now subsided into the marsh. Poverty Point sites exist along the Pearl River, Lake Pontchartrain and coastal Louisiana. Many of these sites also have archaeological evidence of the following Tchefuncte Culture as well.

The Tchefuncte Culture (approximately 600 B.C. to A.D. 200) continued the hunting, fishing, and gathering tradition. It, like the preceding Archaic Culture, concentrated in small sedentary groups. Most of the Tchefuncte people appeared to live in the coastal area. They would camp on the high, better-drained natural levees, cheniers, salt domes, terraces and ridges. Evidence has been found of their temporary circular structures made of palmetto leaves and thatch. They ate wild game and fish as well as gathered plants from the surrounding marsh. They collected large numbers of brackish water clams and oysters that resulted in the large number of shells found at their archaeological sites, commonly referred to as shell middens.

The major differences distinguishing the Tchefuncte people from earlier cultures are the use of ceramic pots and the widespread practice of building of mounds to bury the dead. Tchefuncte pottery was made of coarse temper-less or grog tempered clay that was poorly fired. The type-site for the Culture, the Tchefuncte site, is located along the north shore of Lake Pontchartrain in St. Tammany Parish. This site, like many in coastal Louisiana, consisted of shell midden mounds and ridges that are made up of the shells of *Rangia cuneata* and oysters eaten by the inhabitants. Artifacts found at the site consisted of bone, shell and stone. The site also contained the burial remains of 43 people.

Evidence is scarce, but some believe that the Tchefuncte people may have practiced limited horticulture since squash seeds were recovered from Morton Shell Mound on Week's Island. The

Tchefuncte sites in the coastal plain exhibit a coastal adaptation in the associated artifacts, while the few known sites found further inland exhibit a more upland adaptation.

The Tchefuncte people ate deer, muskrat, raccoon and opossum. They also ate bobcat, cougar, brown bear, dog, mink, squirrel, beaver, skunk, duck, alligator, and small turtles, as well as large numbers of both freshwater and saltwater fish. The remains of freshwater drum, catfish, bowfin, buffalo fish, gar, saltwater drum, sheepshead, sea catfish, and shark have been found in the archaeological remains.

Around 200 B.C. influence from the Hopewell Culture of the Ohio and Illinois River Valleys made its way to Louisiana and the blending of Hopewell and Tchefuncte cultures resulted in the Marksville Culture (200 B.C. to A.D. 400). This culture was characterized by the construction of circular burial mounds, and elaborate pottery, pipes and ornaments. The artifacts were made of copper, stone, bone, shell, pottery and rare minerals. They are believed to be associated with social status. The type-site for this culture is the Marksville site in Avoyelles Parish in central Louisiana. The majority of recorded Marksville sites are not found in the coastal zone, but further upland. The Marksville Culture on the coast remains little studied and little represented in the archaeological record. Hopewellian contact appears to have affected the religious and political life of the local Tchefuncte Indians but not daily subsistence.

Over time, the interaction of ideas from other places resulted in changes in the local Marksville Culture. A new culture emerged that is referred to archeologically as the Coles Creek Culture. The Coles Creek Culture is characterized by population explosion with numerous sites found in both upland and coastal Louisiana. The majority of the prehistoric cultural resource sites located within the LCA study area date to the Coles Creek (700 A.D.– 1200 A.D.) and/or following Plaquemine/Mississippian (1200 A.D. – 1500 A. D.) cultural periods.

Archaeological survey data suggest that the natural levees of bayous and the Chenier Plain supported a large population during the Coles Creek Period (Brown 1984). The Coles Creek settlement pattern was one of villages and mounds on the cheniers and natural levees with numerous small extractive sites dispersed throughout the surrounding marsh. Subsistence patterns centered on exploitation of marsh resources, especially the mollusk, *Rangia cuneata*. By far the majority of the Coles Creek sites in the coastal area are small shell middens located along lakes, active or relict stream channels and cheniers, which represent the remains of shellfish processing. Numerous other middens bordering open bays and the gulf have been completely eradicated or reduced to remnant beach deposits by repeated wave action.

The later Plaquemine Culture continued to exploit marsh resources in the same manner as during the Coles Creek Period, although there was increasing dependence on agriculture. Larger villages and ceremonial centers became more common. These larger village sites were usually located along major waterways. Historic Indian sites are also present in the project area. Many of the later prehistoric cultural resources found in the region have ancestral ties to the Chitimacha Indians. Another historic group, the Houma, migrated down Bayou Lafourche in the early 19th Century. Descendants of these Houma Indians remain in this area and can be found in communities along Bayou Dularge, Grand Caillou-Dulac, Lower Montegut, Lower Pointe au Chien, Champs Charles, and Bayou Lafourche.

Colonial Period— 1699-1803

European settlement in the LCA study area dates to the French colonial period (1699-1763) with the exploration of and settlement along the Mississippi River and the river's distributaries. The Mississippi River was the main means of transportation and its natural levees were the choice location for settlement. The surrounding coastal areas were gradually explored for natural resources and utilized as well. As the population along the Mississippi River increased, land along its natural levees became scarce. Settlers began to move further outward following waterways such as Bayou Lafourche, Bayou Teche, Bayou Terrebonne, the Vermillion River and other bayous and rivers in the coastal area.

Settlement along these bayous did not really develop until the Spanish Period (1763-1803). During the Spanish Period, Acadian immigrants sought refuge in Louisiana and settled along the Mississippi River and down Bayous Lafourche, Terrebonne, Bayou Teche and the surrounding bayous. These French settlers were predominantly farmers who established small homesteads along the natural levees of the bayous. Some of these early settlers exploited the seafood and wildlife in the area, becoming fishermen and trappers. The area was referred to as the Lafourche Settlement or Country. In the outlying areas of Bayou Terre aux Boeuf (St. Bernard Parish), Bayou Manchac (Iberville Parish), and Bayou des Familles (Jefferson Parish), the Spanish sent soldiers and their families to establish settlements for farming and to act as a buffer to the British in Baton Rouge and surrounding Indian tribes.

The American Period—1803-1900

Shortly after the Louisiana Purchase in 1803, more and more Americans moved into the coastal parishes and what was referred to as the Lafourche, Opeloussas, and Attakapas Countries, and established large sugar plantations along the natural levees of the major waterways. As the population increased new parishes were carved out of the land. In 1822, the Lafourche Country was broken up into several parishes, one of which became modern day Lafourche Parish. By 1850, there were several hundred farms and sugar plantations along Bayou Lafourche and its neighboring waterways. As sugar plantations and farms developed, the region became increasingly dependent on slave labor. By 1860, slaves made up the majority of the region's population. Most of the large sugar plantations, however, were located further up Bayou Lafourche, Bayou Baratavia, and the other coastal bayous on land that was better drained than further down towards the low marshy coast. Other crops, such as rice, also became important to the area. The historic sites from this time period, like prehistoric sites, tend to be located along the natural levees of bayous that were used as transportation routes. Types of historic sites include domestic buildings, plantation sites, farmsteads, military sites, commercial sites, industrial sites, as well as boat landings, hunting and fishing camps along the coast. In addition to terrestrial historic sites, the project area has the potential to contain historic shipwrecks. Bayou Baratavia, Bayou Lafourche, Bayou Teche, the Atchafalaya, Vermillion and Calcasieu Rivers, as well as the other bayous in the LCA have been a major means of transportation in the bayou country since prehistoric times. The smaller bayous that connect to Bayou Lafourche were also used by the local Indians as well as by trappers, hunters and fishermen. Watercraft from all time periods could be present in the study area. Most of the vessels used historically in this area were vernacular watercrafts.

The American Period 1900 – Present

In the early 1900's various subsistence activities that were initially developed prior to the twentieth century became more commercial in nature. Moss, first gathered for the making of beds and as filler in the construction of houses was commercially processed and sold for the upholstery business as stuffing for furniture and car seats. Following World War II, the moss industry declined as the result of the wide availability of foam rubber and the increase cost of gathering moss. The lumber industry that had flourished in the late 1800's continued to grow with the harvesting of cypress throughout South Louisiana. Lumber towns and sawmills dotted the landscape until the cypress forests were cut and the lumber companies moved westward.

The trapping of animals in south Louisiana began with Native Americans and continued on into the 1900's. Otter, muskrat and later nutria was trapped in the marshes and provided furs for the coast industry all over the world. Hunting camps and processing stations were located throughout the marsh. The demand for furs has declined over the years. Nutria are trapped today for food or to keep the population from expanding and destroying the marsh or causing problems in municipal canals.

Seafood, one of the most important natural resources in South Louisiana continued to become more important to the economy of Louisiana. In the middle of the nineteenth century, methods of preservation (such as drying of shrimp and canning of oysters) made it possible to export seafood. The introduction of the gasoline motor and refrigeration allowed fishermen greater access to markets in New Orleans and the larger towns up from the coast. Seafood processing camps that had been established all over the coast in the 1800's including of Manila Village, Bayou St Malo, and the Isle de Caminada were abandoned after being hit by numerous tropical storms and hurricanes. In the 1900's, many of these fishermen established new settlement and seafood processing businesses along the major waterways leading away from the coast. Fishing remains a major economic activity in South Louisiana.

Rice and sugar remained major cash crops across the coastal parishes. By the eve of World War II, large sugar companies had developed after bad weather, plant diseases and economic policies had almost destroyed sugar production in South Louisiana. Truck farming of vegetables and citrus to towns and cities provided fresh vegetables at local markets. Some continued to raise livestock on the cheniers and prairies of south Louisiana.

Other Industries developed in South Louisiana in the 1900's that have shaped the economy of the state. The Oil industry is a major industry that began in the early 1900's and continues to be a major industry. Large oil fields are located in the marshy areas of south Louisiana and just offshore. Pockets of sulphur and salt are located across south Louisiana. The extraction of these natural resources became major industrial activities.

All of these economic activities have contributed to the built environment of South Louisiana. In addition to the residential homes, public buildings, and commercial buildings these industries have contributed to the south Louisiana landscape and to the heritage of the area.

Historic standing structures, archaeological sites and landscape features associated with man's activities in the coastal area may be significant cultural resources.

CULTURAL RESOURCES ANALYSIS

The USACE is obligated under the National Historic Preservation Act (NHPA) as amended (16U.S.C. 470 et seq.), and National Environmental Policy Act (NEPA) to take into account the effect its undertakings have upon cultural resources within a given project area. Under these laws and regulations, the USACE assumes responsibility for the identification and evaluation of cultural resources within the areas of potential effect for each project action that is selected for construction. In addition, the USACE must afford the State Historic Preservation Officer (SHPO), and on occasion the Advisory Council on Historic Preservation (ACHP), the opportunity to review and comment upon proposed undertakings and associated cultural resource investigations.

The 20 coastal parishes of the LCA study area contain thousands of cultural resources. The Louisiana State Historic Preservation Office is charged with the responsibility of maintaining the central files of all the archaeological and historic standing structure data. All cultural resources survey reports and forms created under the NHPA are archived in their offices in Baton Rouge. The Division of Archaeology maintains information on over 12,000 archaeological sites and thousands of historic standing structures.

The coastal erosion problem in Louisiana is massive and as a result this multi agency task force is proposing larger and more numerous coastal restoration projects. USACE proposes establishing a Geographical Information System (GIS) jointly with the SHPO to address the needs of both agencies in cultural resource management activities along the coast. This GIS is one measure recommended in fulfilling the USACE responsibility in determining existing conditions. The cultural resources GIS will also be used in providing information for plan formulation and for long term management of cultural resources in the LCA. As each project plan is developed, the specific effects of these plans on historic properties will be addressed and coordinated with the SHPO as required under Section 106 of the NHPA.

The USACE and the United States Geological Service (USGS) are now working on a joint effort with the SHPO that would record archeological site file data from the Louisiana Division of Archeology and the standing structure and National Register properties data from the Division of Historic Preservation in a GIS format. The purpose of this project is to provide information that can be used by USACE archaeologists in the plan formulation stages of various proposed actions under the Louisiana Coastal Area (LCA) Comprehensive Coast-wide Ecosystem Restoration Project. The LCA Comprehensive Coast-wide study calls for numerous environmental restoration projects over its 20-parish wide study area. Given the magnitude of this project, a programmatic approach to various resources in the coastal area is needed.

As part of this proposed multi-year LCA study, existing cultural resource data is needed that can be quickly and easily accessed for the day-to-day plan formulation process required for this large multi-agency effort. GIS would enable USACE archaeologists to make more informed

determinations of the possible impacts of various proposed restoration actions on cultural resources. As proposed actions are discussed at planning meetings the archaeologist would be able to obtain data more quickly to analyze and provide preliminary recommendations on cultural resources to the LCA team, including probable impacts and avoidance/mitigation action. The USACE archaeologist would know the extent of previous terrestrial or marine surveys, the location and condition of cultural resources, the possible significance of these sites, and the need for future actions in an area. Data could also be used in developing predictive models for archaeological sites.

In addition to terrestrial data on archaeological and historic properties, data on the location of shipwrecks will be inserted in the GIS. All information on shipwrecks will be incorporated into a relational database (Microsoft Access) and incorporated into a GIS program (Arc View) that would serve as a tool for cultural resources personnel to assess and monitor shipwreck data in the LCA study area. The LCA Study has proposed borrowing materials near shore and offshore for marsh creation and barrier island nourishment. Very few submerged cultural resource surveys have been conducted in these areas. The proposed borrowing activities will increase the chance of destroying significant submerged cultural resource. The GIS and associated databases would aid in designing and guiding remote sensing activities intended to identify cultural resources.

In summary, a GIS would assist and guide us in long-term management and monitoring of cultural resources in coastal Louisiana. It would help in making sound decisions for plan formulation. The SHPO receives cultural resource survey reports almost daily that provide new information on historic standing structures and archaeological sites in study area. A GIS maintained by the Louisiana State Historic Preservation Office will allow for quick accurate data access. The SHPO is responsible for securing and protecting cultural resources and will restrict access to the GIS web site by providing passwords to cultural resource managers and legitimate researchers on a project-to-project basis. The location of cultural resources is considered sensitive information and is by law exempt from the Freedom of Information Act. The looting of archaeological sites is an ongoing problem in Louisiana and the across the United States. What about NHPA access protection? Who would have access, how would it be protected?

No-Action Alternative

Summary

Land surfaces in the area will continue to erode and cause land loss with the No-Action Alternative. Any archaeological or historical sites located in the proposed project areas may be subject to continual erosion and be adversely impacted over time. Many sites in the LCA study area have already been destroyed as a result of subsidence, erosion and the excavation of canals in the area.

Impacts Affecting Cultural Resources

Cultural resources in the study area are subject to a variety of natural and human impacts. Factors influencing archeological site preservation are presented in the following discussion. A thorough recognition of these factors is crucial in understanding archaeological site preservation.

Many of the cultural resources located within the LCA study area were reported as having been disturbed in the initial site forms on file with the Louisiana Division of Archaeology. Some of these sites were impacted by construction activities conducted prior to the implementation of regulations governing the treatment of cultural resources. Unfortunately, destruction of cultural resource sites from man-made actions continues in coastal Louisiana.

Factors that influence site preservation within the LCA study area are essentially those that influence land loss and erosion in the coastal zone. Natural influences include subsidence, saltwater intrusion, and the frequency, magnitude, and duration of storms. Subsidence, compaction and erosion accelerate the conversion of freshwater marsh to brackish marsh, of brackish marsh to saltwater marsh, and from saltwater marsh to open water. Saltwater intrusion coupled with subsidence is resulting in the landward encroachment of the gulf. These processes are deleterious to archeological sites located in proximity to various lakes, bays, sounds, canals, and other water bodies.

Other factors influencing site preservation are related to the climate and topography of the area. The climate in this area is influenced by air masses, which result in severe storms during the summer months and sporadic, high energy, disturbances during the winter months. The effects of severe wind and rain are enhanced by the low topography common throughout the area.

The actions of man are also major factors influencing site preservation in the area. Natural levees and their adjacent waterways represent important features to the region historically. Distributary channels formed important routes of transportation while the adjacent levees provided suitable landforms for settlements, fortifications and access to the areas abundant natural resources. Prehistoric settlements focused on these high ridges and natural levees. The high ground was also preferred for historic settlements. Some of the first agricultural concessions in the area were granted along the Mississippi River and the major bayous of the study area. This focus on suitable dry land adjacent to navigable watercourses continues to the present and increased commercial/industrial developments influences site preservation.

The construction of various flood and water control structures is another factor that has influenced site preservation in the coastal zone. Levees have been constructed to prevent flooding and control the flow of water in some areas. These projects affect both sediment transport and deposition in the area. They have also been known to destroy and obliterate cultural resources directly during construction. Since the passage of the National Historic Preservation Act of 1966, the National Environmental Protection Act and other national laws, Federal Agencies are required to examine and avoid impacts to significant cultural resources. In cases where the site cannot be avoided, mitigation measures are developed either to retrieve significant data on the cultural resource or to compensate for the impact.

Excavation and maintenance dredging of canals for the extraction of mineral resources and for navigation has accelerated erosion and has dug into archeological sites. Many archaeological sites in the LCA study area have subsided and were exposed only when dredging for these canals. Others were spilt in two by canals and subsequently eroded. Another significant source of erosion of archaeological sites is vessel wakes of boats utilizing the waterways.

Study Area with proposed LCA Measures

The land in the LCA study area is eroding rapidly. The protection of these lands by some of the proposed LCA measures such as disposal of borrow material adjacent to archaeological sites may actually protect these sites in the long run by stopping or slowing down land erosion. Depending on the measure, the proposed actions could help to restore the surrounding wetlands protecting the land and whatever sites that may be located in the area.

Some construction actions presented as alternatives for the LCA study could have an adverse impact on significant cultural resources. These actions include dredging material from borrow areas, which could impact submerged cultural resources such as shipwrecks. The construction of plugs, shoreline protection devices, levees, etc. could all affect recorded and unrecorded cultural resources. Increased sediment flow may cause a direct impact on any site in the immediate area, while in some cases it could provide sediment around an area acting as a buffer to further erosion. Depositing sediment on top of a known site can change the environment in which a site has survived. This may or may not be an adverse impact. Dredging a waterway could impact any prehistoric or historic shipwreck in the area. Construction of erosion devices such as weirs or dikes, or the building or removal of canal banks can adversely impact any prehistoric or historic site in the immediate impact area. In all cases, these actions need to be examined on a project-by-project basis.

A full assessment of impacts to cultural resources can be conducted when the selection has been made on which projects will proceed. In some cases a “Phase One Cultural Resources Survey” may be required. Depending on the results of the survey, more intensive surveys or data recovery may have to be conducted. Throughout the study we will be consulting with the Louisiana State Historic Preservation Office as is required by law under Section 106, of the National Historic Preservation Act of 1966, as amended.

National Historic Preservation Act and Section 106

There are archaeological sites and historic properties located in the LCA study area that have been previously identified and determined eligible to the National Register of Historic Places. The National Register of Historic Places was established in 1966 by the NHPA. The National Register is used as a key management tool for cultural resource management. The National Register Criteria for Significance is used to examine all cultural resources in determining if a site is significant or not significant. All Federal agencies having direct or indirect jurisdiction over Federal, or Federally assisted, permitted, or licensed activities have to take into account the effects of a proposed undertaking on cultural resources.

The NHPA, as amended, was enacted to ensure that the country’s historic resources would be considered in any Federal project and Federally assisted or permitted projects. Section 106 of this act states that all Federal agencies must “take into account” how its proposed actions would affect any historic or archeological property. A Federal undertaking includes a wide variety of actions such as construction activities, rehabilitation and repair projects, permits, and demolition to name only a few. Federal agencies are required to consider alternatives to avoid, minimize, or mitigate, adverse impacts on *historic properties*-is it in glossary? (any prehistoric or historic district,

site, building, structure, or object eligible for inclusion in the National Register). The Federal agency involved in the proposed project is responsible for initiating and completing the Section 106 review process. The Federal agency confers with the State Historic Preservation Officer (an official appointed in each state to administer the National Historic Preservation Program) and the National Advisory Council on Historic Preservation.

There are four basic steps in the Section 106 review process. These are:

1. Initiate Section 106 Process,
2. Identify and Evaluate Properties;
3. Assess Adverse Effects;
4. Resolve Adverse Effects.

Step 1: Initiate the Section 106 Process. The first step in the Section 106 process is determine the nature of the project and if it is likely to affect a historic property. The State Historic Preservation Office is contacted as well as all other interested parties including the public.

Step 2: Identify and Evaluate Properties. The lead Federal agency is responsible for reviewing all available documents, maps and cultural resource databases to determine the level of cultural resource survey coverage as well as the presence or absence of prehistoric and/or historic resources in a project area. If survey coverage is non-existent or additional information is needed, the Federal agency may conduct additional work. All cultural resources located in a project area are then evaluated for significance using NRHP criteria. The Federal agency and the SHPO decide whether the properties are eligible for listing to the National Register. Following identification and evaluation of cultural resources, the Federal agency is responsible for determining the effect of its proposed action/activity on significant cultural resources. This determination of effect is made in consultation with the SHPO/THPO. If it is determined that the agency's proposed action will have no effect on cultural resources in the project area, the agency notifies the SHPO in written documentation. If the SHPO does not object, the project may proceed. If however, the agency determines that there will be an affect on a cultural resource, than the agency needs to determine if that affect will be an adverse effect or not.

Step 3: Assess Adverse Effects. Once the agency determines that there will be an affect on a historic property the "criteria of adverse effect" is applied.

There are two possible determinations:

- a. No adverse effect. In this case there could be an effect to a cultural resource, but the effect is not harmful. The agency obtains SHPO concurrence and submits a determination of no adverse effect. The project may proceed.
- b. Adverse effect. This is determination is made when it has been determined that the proposed action/actions could have a harmful effect on a cultural resource. If an adverse effect determination is made, or if the SHPO/THPO cannot agree on the determination, the National Advisory Council on Historic Preservation is consulted to seek ways to avoid, minimize, or mitigate the adverse effects.

Step 4: Resolve Adverse Effect. The purpose of consultation is to find acceptable ways to reduce the harm to a cultural resource so the project may proceed. This may involve such measures

as avoiding the cultural resource or mitigating the adverse effect. The Federal agency and the SHPO are the consulting parties. The Council determines their level of involvement in this step. When the consulting parties agree upon steps to avoid or mitigate harm they sign a Memorandum of Agreement (MOA). If an agreement cannot be reached, the Federal agency may submit documentation to the Advisory Council for comments. After consultation, the Federal agency submits the signed MOA to the Council for review. The Advisory Council has the option to sign the MOA, request changes or chose to issue written comments on the proposed activity. If an agreement was not reached in consultation by the SHPO and the agency, the council will submit written comments to the agency regarding the proposed action. If agreement was reached and a MOA was signed then the agency can proceed with the project.

The LCA multi-agency task force and the USACE recognize its responsibility regarding cultural resources management and the Section 106 process of the National Historic Preservation Act. The process of consultation has been initiated with the SHPO. Each project proposed under LCA will go through the Section 106 process of the NHPA as well as NEPA requirements. All necessary cultural resources investigations and surveys will be conducted well in advance of construction and the results will be presented in a draft report, which will be coordinated with the SHPO.

If cultural resources surveys are required, full assessments will not be available until data is acquired by the USACE so the data can than be used to make assessments concerning the possible impact of the various proposed actions on cultural resources. Until we have the data produced by this more detailed cultural resources survey we cannot determine all possible impacts and if they will be adverse to cultural resources. Each proposed study action must be examined on a case-by-case basis. Cultural resources evaluations are made on site specific as well as project specific information and plans.

A cultural resources evaluation of each of the proposed marsh restoration projects will be conducted as soon as these have been determined and received by the Natural/Cultural Resources Analysis Section. In some cases project designs could destroy, damage, or obscure archeological sites by construction activities. Cultural resource investigations will identify any significant cultural resources, which may be at risk and allow time for changes to the project designs to avoid adverse impacts. The site-specific nature of these resources demands this type of action. In some instances the proposed action may actually help to preserve and protect cultural resources. Coastal lands are eroding rapidly and the protection of these lands by the various marsh management projects may protect sites in the long run by stopping or slowing down land erosion.

Future with Project

Determinations of potential impacts to cultural resources cannot be determined until more precise footprints of each alternative are provided to the cultural resources manager. Significant cultural resources may exist within the footprint of each of these alternatives. Additional research will be required to make this determination. Records from the Louisiana SHPO and the USACE will be reviewed to determine the locations of any previously recorded cultural resources and the extent of cultural resources survey coverage for each alternative. In addition, preliminary archaeological and geologic data will be analyzed to determine the probability of encountering

additional significant cultural resource. Cultural resources surveys may be required to achieve compliance with the NHPA and NEPA.

Cumulative Impacts

Significant cultural resources may or may not exist within the conceptual project footprint of all the proposed arrays. The cumulative impacts of the arrays will be determined when more precise project features have been provided for assessment.

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