

Appendix A

BIOLOGICAL ASSESSMENT

APPENDIX A

BIOLOGICAL ASSESSMENT

AMITE RIVER DIVERSION CANAL MODIFICATION PROJECT, LIVINGSTON AND ASCENSION PARISHES, LOUISIANA

1.0 PURPOSE

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended, requires that, “*Each Federal agency shall, in consultation with and with the assistance of the secretary, insure that any action authorized, funded, or carried, out by such agency.... Is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species...*”.

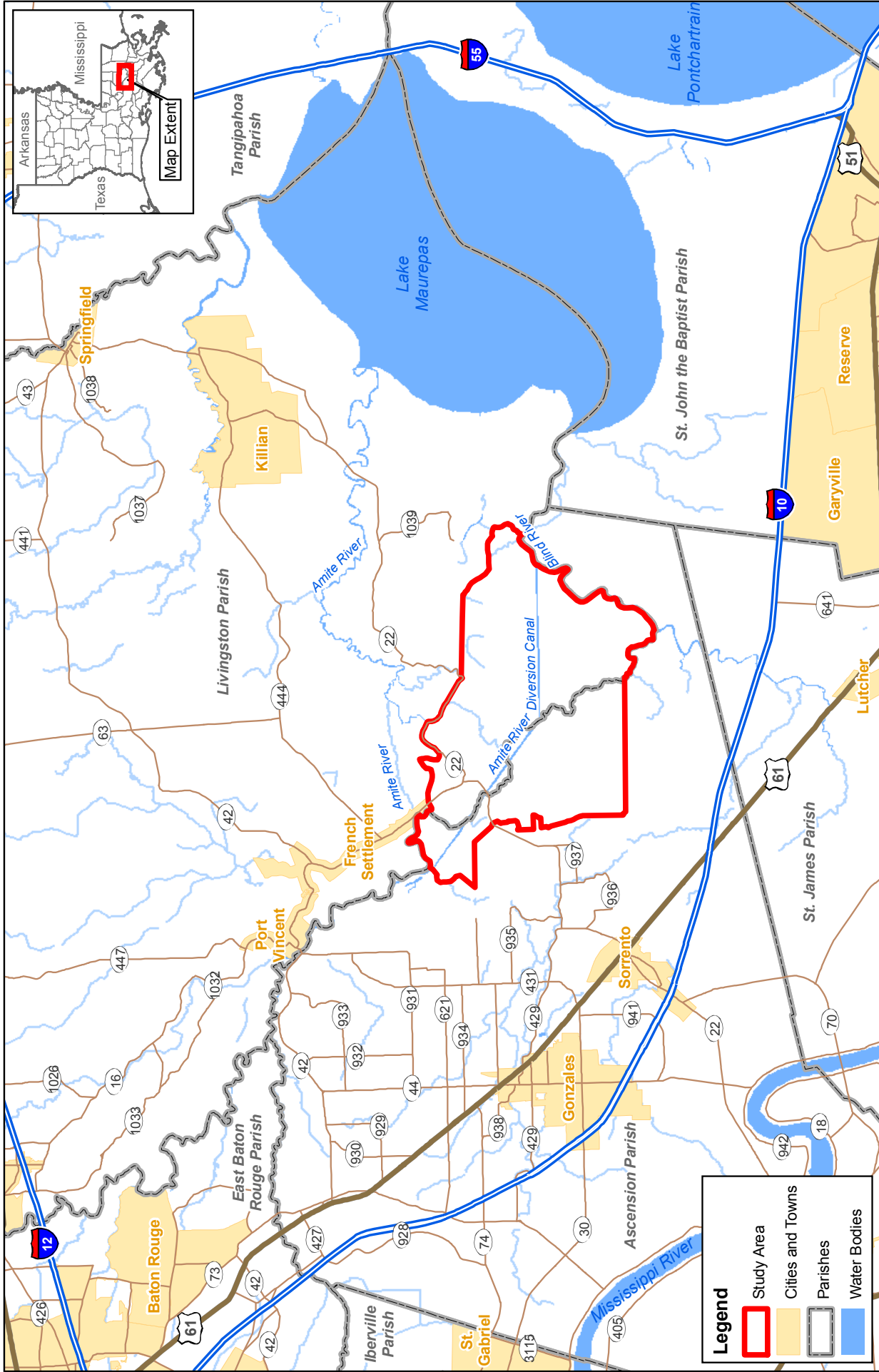
This Biological Assessment provides the information required pursuant to the ESA and implementing regulation (50 CFR 402.14), to comply with the ESA. Additional jurisprudence includes the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. section 4321, *et seq.*; the Fish and Wildlife Conservation Act of 1958 (PL 85-624; 16 U.S.C. 661 *et seq.*); the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.

This Biological Assessment (BA) evaluates the potential impacts of the Tentatively Selected Plan (TSP) described in the Integrated Feasibility Report and Environmental Impact Statement for the Amite River Diversion Canal (ARDC) Modification project on Federally-listed threatened and endangered species, and their critical habitat. This evaluation is presented to the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to achieve compliance with the requirements of Section 7 of the ESA for consultation with USFWS and NMFS.

2.0 LOCATION AND GENERAL DESCRIPTION OF THE STUDY AREA

The Louisiana Coastal Area (LCA) program study area (LCA ARDC) (Figures 1 and 2) is situated along the ARDC in Ascension and Livingston parishes, in the vicinity of Head of Island, Louisiana. The study area is bounded to the north by the old channel of the Amite River, Old River, Chinquapin Canal and Bayou Chene Blanc; to the east by the Blind River; to the south by the Petite Amite River and the New River Canal; and to the west by the Sevario Canal, Ascension Parish flood protection levees, and the Laurel Ridge Canal; and is located in the following sections:

- Township 9 South, Range 4 East, Sections 9-16, 22-27, and 34-36;
- Township 9 South, Range 5 East, Sections 7, 14-36;
- Township 9 South, Range 6 East, Section 30;



Legend

- Study Area
- Cities and Towns
- Parishes
- Water Bodies

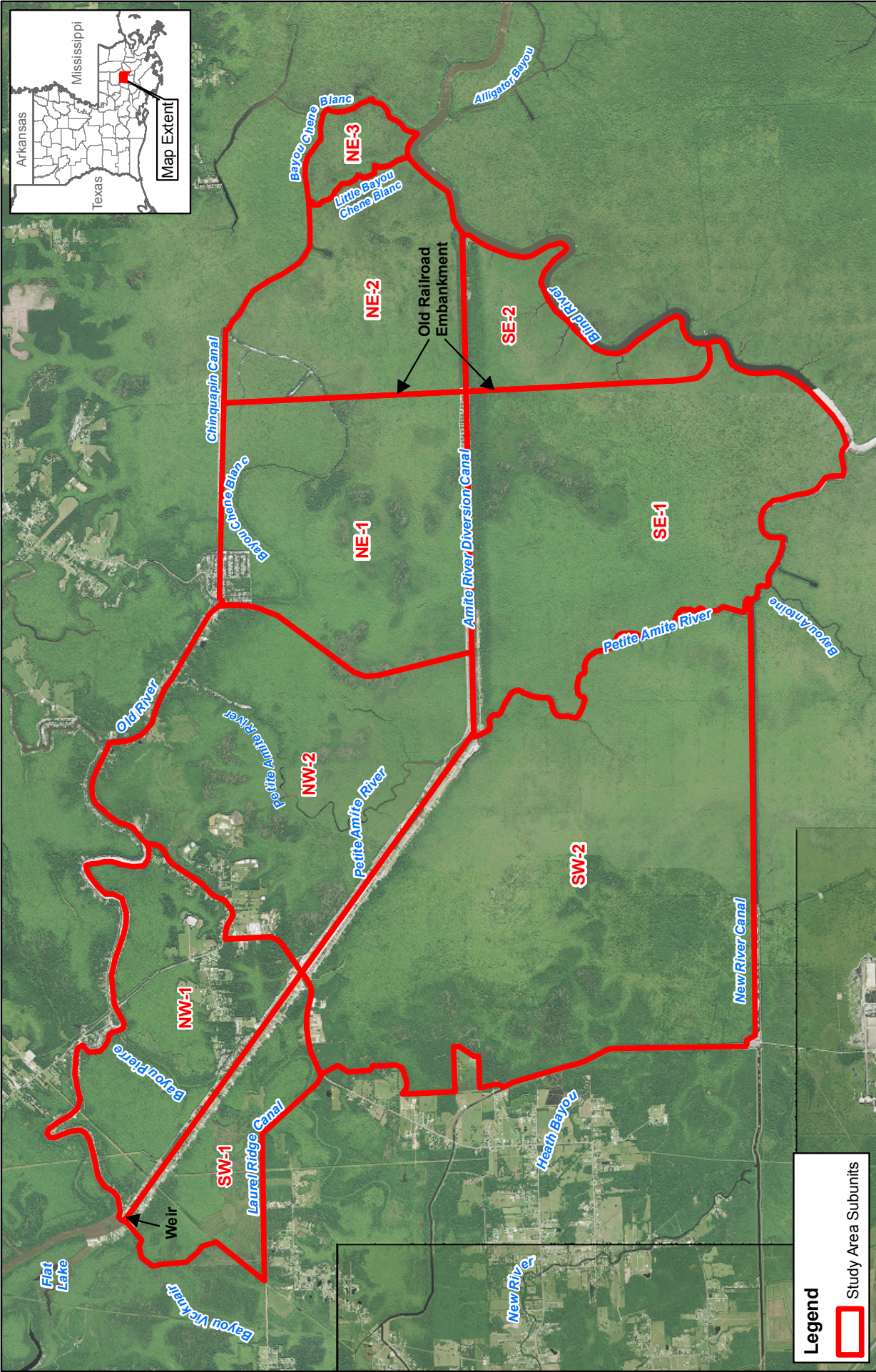



STUDY AREA REGION

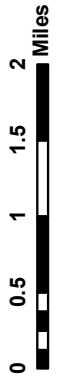
Amite River Diversion Canal Modification
Ascension and Livingston Parishes, Louisiana



Figure: 1
Date: October 2009
Scale: 1:260,000
Source: USDA/GEC
Map ID: 27850108-1781



Legend
 Study Area Subunits



STUDY AREA AND SUBUNITS
 Amite River Diversion Canal Modification
 Ascension and Livingston Parishes, Louisiana

Image: 2009 Ascension and Livingston Parishes USDA-FSA-APFO NAIP Mosaic



Figure: 2
Date: October 2009
Scale: 1:80,000
Source: USDA/GEC
Map ID: 27850108-1780

- Township 10 South, Range 4 East, Sections 1-3 and 10-12; and
- Township 10 South, Range 5 East, Sections 2-11.

For planning purposes, the study area has been divided into nine separate hydrologic subunits (Figure 2). Each subunit was developed based on hydrologic differences that exist throughout the study area due to natural and manmade hydrologic boundaries. These boundaries include natural topography such as dredged material berms and natural ridges, as well as man-made and natural canals.

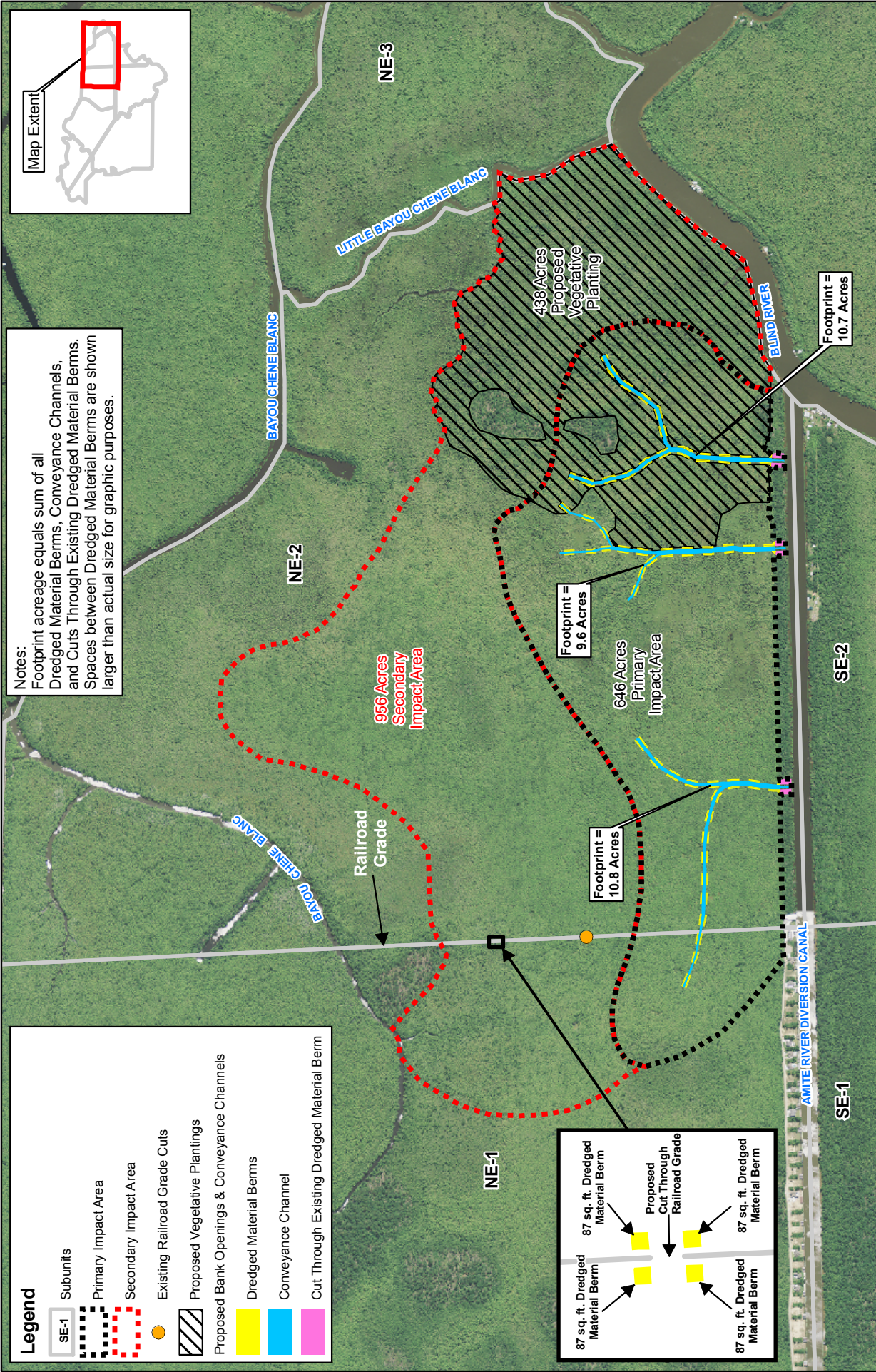
3.0 PROPOSED ACTION

Alternative 33 of the LCA ARDC Integrated Feasibility Report and Supplemental Environmental Impact Statement (SEIS) is the Tentatively Selected Plan (TSP), which is depicted in Figure 3. Features of the TSP include:

- Three dredged material bank openings and three bifurcated conveyance channels in the north bank of the ARDC in NE-2 with the westernmost channel in the north bank of the ARDC also extending through the railroad grade into NE-1 to add connectivity between NE-1, NE-2, and the ARDC.
- Dredged material (5.0 acres) from the bank openings and the conveyance channel would be sidecast on both sides of the proposed channel. Gaps will be left in the disposal berms so sheet flow is not reduced.
- One cut would be created in the railroad grade approximately 0.9 miles north of the ARDC to improve sheet flow.
- Vegetative plantings of bottomland hardwood/freshwater swamp tree species on 5.0 acres of dredged material berms.
- Vegetative plantings of freshwater swamp tree species within 438 acres of the swamp floor.

Three natural low areas or relict channels have been identified as potential bank opening and conveyance channel sites. Openings would enable impounded water to be drained from the swamp and provide hydrologic connectivity between the swamp and the ARDC. Additionally, the placement of a cut in the railroad grade would provide further hydrologic connectivity between NE-1 and NE-2. Openings would promote the introduction of freshwater, sediments, and nutrients into the swamp and allow the oxidation of sediments and removal of toxic metabolites. This alternative is anticipated to improve the degraded swamp and decrease the transition to marsh and ultimately, open water. This alternative represents the minimum effort that would meet the goals and objectives of the project. Alternative 33 would benefit approximately 1,602 acres of existing freshwater swamp, recreate 144 acres of freshwater swamp from freshwater marsh, and create 5.0 acres of upland habitat from dredged material placement.

All excavation through the dredged material berms, as well as the conveyance channels through the swamp, would be based on four design cross-sections. These cross-sections were developed in an effort to mimic natural, existing cuts within the study area, which have been determined to be self-maintaining. Several existing channels were surveyed for depth, dimension, and profile. These channels have existed for quite some time without any maintenance. The cross-sections include a 70-foot wide cut section with benches through dredged material berm, a 70-foot wide cut section, a 50-foot wide cut section and a 30-foot wide cut section. The 70-foot cut section with benches was designed to allow increased amounts of flow to pass beyond the existing dredged material berm during high-water events. The material dredged from the existing berms would be placed along the swamp-side of the excavated cut as new bottomland hardwood habitat. All material dredged during construction of the conveyance channels would be placed along the channels, with gaps included, to allow sufficient sheet flow to be conveyed from the swamp.



Notes:
 Footprint acreage equals sum of all Dredged Material Berms, Conveyance Channels, and Cuts Through Existing Dredged Material Berms. Spaces between Dredged Material Berms are shown larger than actual size for graphic purposes.

Legend

- SE-1 Subunits
- Primary Impact Area
- Secondary Impact Area
- Existing Railroad Grade Cuts
- Proposed Vegetative Plantings
- Proposed Bank Openings & Conveyance Channels
- Dredged Material Berms
- Conveyance Channel
- Cut Through Existing Dredged Material Berm

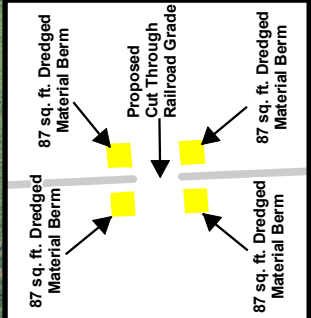


	Figure: 3
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ALTERNATIVE 33
 Amite River Diversion Canal Modification
 Ascension and Livingston Parishes, Louisiana

Image: 2009 Livingston Parish USDA-FSA-A-PFO NAIP MrSID Mosaic

0 1,000 2,000 3,000 Feet

4.0 SPECIES DESCRIPTIONS

Two endangered species have been identified as potentially occurring within the boundaries of the study area. Therefore, the proposed action could possibly impact the Gulf sturgeon (*Acipenser oxyrinchus desotoi*) and the West Indian manatee (*Trichechus manatus*).

The American alligator (*Alligator mississippiensis*), a common inhabitant of the study area, is classified by USFWS as “Similarity of Appearance to a Threatened Taxon.” (The species to which it is similar is the American crocodile (*Crocodylus acutus*), a threatened species.)

In addition, the study area contains a nesting pair of bald eagles (*Haliaeetus leucocephalus*). The bald eagle was removed from the endangered species list in 2007, but is currently undergoing five years of monitoring to confirm the revised status.

The two endangered species, Gulf sturgeon (*Acipenser oxyrinchus desotoi*), and West Indian manatee (*Trichechus manatus*), could potentially be found in the project area. Nevertheless, the features of the proposed action would not adversely impact either species’ critical habitat, which is not present within the study area. Manatees are rare transient foragers in the study area.

4.1 AMERICAN ALLIGATOR (*ALLIGATOR MISSISSIPPIENSIS*)

The American alligator’s range extends across the southeastern states from North Carolina to Texas (University of Florida, 1998). This reptile’s primary habitat includes freshwater swamps and marshes, but it also inhabits rivers, lakes and smaller bodies of water. Alligators are an important part of their ecosystem, and many biologists consider them a “keystone” species, performing many functions, from control of prey species to the creation of peat through their nesting activities (University of Florida, 1998). Populations of the American alligator severely declined in the early part of the 20th century, due to hunting of the animal for its skin. In 1967, this species was listed as endangered, and hunting was prohibited. As a result, the alligator has undergone a successful recovery. Alligator hunting is allowed again; however, permits are issued by lottery only during alligator hunting season.

The alligator is classified by USFWS as “Similarity of Appearance (Threatened).” The species to which it is similar is the American crocodile (*Crocodylus acutus*), a threatened species. In the United States, the American crocodile is found only in southern peninsular Florida. Because of its similarity to the crocodile, the USFWS regulates the legal trade in alligator skins, or products made from them, to protect the crocodile, whose skin is similar in appearance, but illegal in the commercial market.

4.2 BALD EAGLE (*HALIAEETUS LEUCOCEPHALUS*)

Status

The bald eagle is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The eagle was removed from the endangered species list in 2007, but is currently undergoing five years of monitoring to confirm the revised status. Its status is Federally classified as “Delisted Taxon-Recovered” in Louisiana.

Species, Habitat, and Distribution

The bald eagle is the only species of sea eagle native to North America. Adults are black with a snow-white head and tail. Sub adults are mottled brown and black and lack the distinctive white head and tail. Wingspan is 6 to 7 feet with females weighing between 10-14 lbs. and males weighing between 8-10 lbs.

Bald eagles nest in Louisiana from October through mid-May, primarily in cypress snags in swamps or near fresh to intermediate marshes or open water in the southeastern parishes. Bald eagles will often return to the same nest for a number of years; however, they may also use alternate nests within the vicinity. Shoreline trees that provide a clear view of the water to locate aquatic prey are often chosen as nest sites. Bald eagles primarily feed on fish, but are opportunistic and will eat a variety of mammals, amphibians, crustaceans, and birds. Wintering habitat used by bald eagles in Louisiana is characterized by abundant, readily available food sources. Most wintering areas are associated with open water where eagles feed on fish or waterfowl.

Management and Protection

According to The USFWS National Bald Eagle Management Guidelines, the proposed action would fall under “Category A,” which includes construction of roads, trails, canals, power lines, and other linear activities, and alteration of shorelines or wetlands. Table 1 provides the guidelines for activities in Category A.

Table 1. Closest distances activities in Category A should be conducted relative to the location of a bald eagle nest.

Visibility	If there is no similar activity within 1 mile of the nest	If there is similar activity closer than 1 mile from the nest
If the activity will be visible from the nest	660 feet. Landscape buffers are recommended	660 feet, or as close as existing tolerated activity for similar scope. Landscape buffers are recommended.
If the activity will not be visible from the nest	330 feet. Clearing, external construction, and landscaping between 330 feet and 660 feet should be done outside breeding season.	330 feet, or as close as existing tolerated activity of similar scope. Clearing, external construction, and landscaping within 660 feet should be done outside breeding season

Source, USFWS, 2007.

4.3 GULF STURGEON (*ACIPENSER OXYRHYNCHUS DESOTOI*)

Status

On September 30, 1991, the Gulf sturgeon was listed as a threatened species under the Endangered Species Act, and the USFWS designated critical habitat for this species throughout its range on February 28, 2003. In Louisiana, Gulf sturgeon critical habitat includes the Pearl River System in Washington and St. Tammany Parishes, the Bogue Chitto River, as well as Lake Pontchartrain, Lake Borgne, Lake Catherine, and the Rigolets.

Species, Habitat, and Distribution

The Gulf sturgeon, also known as the Gulf of Mexico sturgeon, is an anadromous fish (i.e. a fish that breeds in freshwater after migrating from marine or estuarine environments). The Gulf sturgeon inhabits coastal rivers from Louisiana to Florida during spring and summer, and the estuaries, bays, and marine environments of the Gulf of Mexico during fall and winter. It is a nearly cylindrical, primitive fish embedded with bony plates or scutes. The head ends in a hard, extended snout; the mouth is inferior and protrusible and is preceded by four conspicuous barbels. The tail (caudal fin) is distinctly asymmetrical; the upper lobe is longer than the lower lobe (heterocercal). Adults range from 4 to 8 feet (1.2 to 2.4 meters) in length; adult females are larger than adult males.

Gulf sturgeon are long-lived, with some individuals reaching at least 42 years of age (Huff, 1975). Age at sexual maturity for females ranges from 8 to 17 years, and for males from 7 to 21 years (Huff, 1975). In the spring (from late February to mid-April), when the river surface temperatures are 63 to 70 degrees Fahrenheit (°F) (17 to 21 degrees Celsius [°C]), sexually mature males and females migrate into rivers to spawn. It is believed that Gulf sturgeon exhibit a spawning periodicity similar to Atlantic sturgeon, with females spawning at intervals ranging from every 3 to 5 years, and males every 1 to 5 years.

Gulf sturgeon eggs are demersal (i.e. they sink to the bottom), adhesive, and vary in color from gray to brown to black (Vladykov and Greeley, 1963; Huff, 1975; Parauka et al., 1991). Sturgeon require hard substrates for eggs to adhere to and to provide shelter for developing larvae. Young-of-the-year Gulf sturgeon appear to disperse widely, using extensive portions of the river as nursery habitat. They are typically found on sandbars and sand shoals over rippled bottom and in shallow, relatively open, unstructured areas.

Gulf sturgeon feeding habits in fresh water vary depending on the fish's life history stage. Young-of-the-year Gulf sturgeon remain in fresh water feeding on aquatic invertebrates and detritus approximately 10 to 12 months after spawning occurs (Mason and Clugston, 1993). Juveniles less than 11 lbs (5 kg) are believed to forage extensively and exploit scarce food resources throughout the river, including aquatic insects (e.g., mayflies and caddis flies), worms (oligochaetes), and bivalve mollusks (Huff, 1975; Mason and Clugston, 1993). Subadults (age 6 to sexual maturity) and adults (sexually mature) feed only in marine and estuarine habitats and are thought to forage opportunistically (Huff, 1975) on primarily benthic (bottom dwelling) invertebrates. Gut content analyses have indicated that, at this life stage, the Gulf sturgeon's diet is predominantly amphipods, lancelets, polychaetes, gastropods, shrimp, isopods, mollusks, and crustaceans (Huff, 1975; Mason and Clugston, 1993; Fox et al., 2000 and 2002, see <http://www.fws.gov>).

When river temperatures drop in the fall to about 63 to 72°F (17 to 22°C), Gulf sturgeon return to the coastal shelf areas of the Gulf of Mexico. Most subadult and adult Gulf sturgeon spend the cooler months (October or November through March or April) in estuarine areas, bays, or the Gulf of Mexico feeding (Odenkirk, 1989; Foster, 1993; Clugston et al., 1995; Fox et al., 2002, see <http://www.fws.gov>). Winter habitats used by Gulf sturgeon coincide with the habitats of their prey. Along the Mississippi Sound barrier islands, Gulf sturgeon habitat typically consists of sandy substrates with an average depth of 6.2 to 19.4 ft (1.9 to 5.9 m).

Historically, the Gulf sturgeon occurred from the Mississippi River east to Tampa Bay. Its present range extends from Lake Pontchartrain and the Pearl River system in Louisiana and Mississippi, east to the Suwannee River in Florida, with infrequent sightings occurring west of the Mississippi River. Gulf sturgeon numbers declined due to over fishing throughout most of the 20th century. After 1950, the decline was exacerbated by habitat loss associated with the construction of water control structures such as dams and sills (submerged ridges or vertical walls of relatively shallow depth separating two bodies of water). In several rivers throughout the species' range, dams have severely restricted sturgeon access to historic migration routes and spawning areas (Boschung, 1976; Wooley and Crateau, 1985; McDowall, 1988). Gulf sturgeon exhibit a high degree of fidelity, with over 99 percent returning to spawn in the same river system in which they were hatched (U.S. Army Corps of Engineers [USACE], 2006).

The majority of recent Gulf sturgeon sightings in the Pearl River drainage have occurred downstream of the Pools Bluff Sill near Bogalusa, Louisiana, and downstream of the Bogue Chitto Sill on the Bogue Chitto River in St. Tammany Parish, Louisiana. Between 1992 and 1996, 257 Gulf sturgeon were captured from the Pearl River system (West Middle River, Bogue Chitto River, East Pearl River, and West Pearl River). The subpopulation in that system was estimated at 292 fish, of which only 2 to 3

percent were adults (Morrow et al., 1998, see <http://www.fws.gov>). The annual mortality rate was calculated to be 25 percent.

In contrast, preliminary results from Pearl River captures between 1992 and 2001 suggest a stable subpopulation of 430 fish, with approximately 300 adults (Rogillio et al., 2007, see <http://www.fws.gov>). Morrow et al. (1999 see <http://www.fws.gov>) suggested that the Pearl River Gulf sturgeon population would be self-sustaining if the number of adults was at least 100, recruitment was satisfactory, and annual mortality was less than about 15 percent. Based on those criteria and from data gathered during 2000 and 2001, it appears that the population is at least self-sustaining and may even be recovering. There may be as many as 300 adults. While mortality estimates may be somewhat biased, the rate is probably about half of the 15 percent deemed to be a minimum acceptable benchmark.

Management and Protection

Life history characteristics of Gulf sturgeon may complicate and protract recovery efforts. Gulf sturgeon cannot establish a breeding population rapidly because of the amount of time it takes them to reach sexual maturity. Further, Gulf sturgeon appear to be river-specific spawners, although immature Gulf sturgeon occasionally exhibit plasticity in movement from one river to another. Therefore, natural repopulation by Gulf sturgeon migrating from other rivers may be non-existent or very low.

The take of Gulf sturgeon is prohibited in the state waters of Louisiana, Mississippi, Alabama, and Florida. Through agreements reached under Section 6(a) of the ESA, the states are authorized: 1) to conduct investigations to determine the status and requirements for survival of resident species of fish and wildlife (this may include candidate species for listing), and 2) to establish programs, including acquisition of land or aquatic habitat or interests for the conservation of fish and wildlife.

4.4 WEST INDIAN MANATEE (*TRICHECHUS MANATUS*)

Status

The West Indian manatee was listed as endangered throughout its range for both the Florida and Antillean subspecies in 1967, and received Federal protection with the passage of the ESA in 1973. Critical habitat was designated in 1976, 1994, 1998, 2002, and 2003 for the Florida subspecies.

Species and Habitat Description

The West Indian manatee is a large gray or brown aquatic mammal. Adults average approximately 10 feet (3 m) in length and weigh up to 2,200 pounds (999 kg). They have no hind limbs, and their forelimbs are modified as flippers. Manatee tails are flattened horizontally and rounded. Their body is covered with sparse hairs and their muzzles with stiff whiskers (USFWS, 2001c). The nostrils, located on the upper snout, open and close by means of muscular valves as the animal surfaces and dives (Husar, 1977; Hartman, 1979). Manatees will consume any aquatic vegetation (i.e., submerged, floating, and emergent) available to them and sometimes even shoreline vegetation. Although primarily herbivorous, they occasionally feed on fish. Manatees may spend about five hours a day feeding, and may consume four to nine percent of their body weight per day.

Observations of mating herds indicate that females mate with a number of males during their 2- to 4-week estrus period; pregnancy is estimated to last 12 to 14 months (O'Shea et al., 1992). Births occur year-round with a slight drop during winter months. Manatee cows usually bear a single calf, but 1.5 percent of births are twins. Calves reach sexual maturity at three to six years of age. Mature females may give birth every two to five years (USFWS, 2001c).

Manatees inhabit both salt and fresh water of sufficient depth (5 feet [1.5 m] to usually less than 20 feet [6.1 m]) throughout their range. Shallow grassbeds with ready access to deep channels are preferred

feeding areas in coastal and riverine habitats (USFWS, 2001c). They may also be encountered in canals, rivers, estuarine habitats, saltwater bays, and have been observed as much as 3.7 miles (6.0 km) off the Florida Gulf Coast. Between October and April, Florida manatees concentrate in areas of warmer water. Severe cold fronts have been known to kill manatees when the animals did not have access to warm water refuges. During warmer months, they appear to choose areas based on an adequate food supply, water depth, and proximity to fresh water. Manatees may not need fresh water, but they are frequently observed drinking water from hoses, sewage outfalls, and culverts.

During winter months, the United States' manatee population is confined to the coastal waters of the southern half of peninsular Florida and to springs and warm water outfalls as far north as southeast Georgia. Power plant and paper mill outfalls create most of the artificial warm water refuges utilized by manatees. During summer months, they migrate as far north as coastal Virginia on the east coast and the Louisiana coast in the Gulf of Mexico.

During summer months, manatees disperse from winter aggregation areas, and are commonly found almost anywhere in Florida where water depths and access channels are greater than 3.3 to 6.6 feet (1.0 to 2.0 m) (O'Shea, 1988). In the warmer months, manatees usually occur alone or in pairs, although interacting groups of five to ten animals are not unusual (USFWS 2001c).

In the early 1980s, scientists tried to develop procedures for estimating the overall manatee population in the southeastern United States (USFWS, 2001c). The best estimate throughout the State of Florida was 1,200 manatees (Reynolds and Wilcox, 1987). In the early 1990s, the State of Florida initiated a statewide aerial survey in potential winter habitats during periods of severe cold weather (Ackerman, 1995), and the highest count of 3,276 manatees was recorded in January 2001.

Management and Protection

The most significant problem faced by manatees in Florida is death or injury from boat strikes (USFWS, 2001c). Minimum flows and levels for warm water refuges need to be established to ensure their long-term availability for manatees. Their survival will depend on maintaining the ecosystems and habitat sufficient to support a viable manatee population (USFWS, 2001c). The focus of recovery is on implementing, monitoring, and addressing the effectiveness of conservation measures to reduce or remove threats that will lead to a healthy and self-sustaining population (USFWS, 2001c).

The West Indian manatee is also protected under the Marine Mammal Protection Act (MMPA) of 1972. The MMPA establishes a national policy for the maintenance of health and stability of marine ecosystems and for obtaining and maintaining optimum sustainable populations of marine mammals. It includes a moratorium on the taking of marine mammals. The recovery planning under the ESA includes conservation planning under the MMPA (USFWS, 2001c).

5.0 DETERMINATION OF EFFECTS OF THE PROPOSED ACTION

The potential exists that the protected species in the study area may be present during proposed construction activities. However, while individuals may be affected, whole populations would not be adversely affected by implementation of the proposed action.

5.1 AMERICAN ALLIGATOR

The American alligator is a commonly encountered resident of the ARDC study area. The project is unlikely to result in any damage to individuals, who are easily capable of avoiding the construction taking place along the ARDC. The scope of activities constitutes a Not Likely to Adversely Affect determination for the species and its critical habitat.

5.2 BALD EAGLE

The design of the proposed action was amended to avoid any construction within 660 feet of the known location of a bald eagle nest. Therefore, scope of activities constitutes a Not Likely to Adversely Affect determination for the species and its critical habitat.

5.3 GULF STURGEON

The proposed action would involve activities outside the critical habitat of the Gulf sturgeon. Potential project-induced impacts, however unlikely, may result from incidental interaction with the Gulf sturgeon during the excavation for the construction of gaps in the dredged material banks of the ARDC. The scope of activities constitutes a Not Likely to Adversely Affect determination for the species and its critical habitat.

5.4 WEST INDIAN MANATEE

Sightings of the West Indian manatee in Louisiana have occurred in the Amite, Blind, Tchefuncte, and Tickfaw Rivers, Mississippi River Gulf Outlet (MRGO), and in canals within the adjacent coastal marshes of Louisiana. However, there is no known population thriving in the State. On July 9, 2001, a manatee was observed passing safely through the Inner Harbor Navigation Canal (IHNC) Lock and into the Mississippi River. Should any manatees be encountered during the proposed activities, an on-board observer would notify the proper personnel, and harmful activities (e.g., dredging) would be temporarily suspended until the animal(s) moves out of the area of operations. Any disturbance to the manatee would only be temporary during construction activities, and would result in temporary displacement. The manatees would likely move and relocate to other nearby areas for foraging or resting purposes. The scope of activities constitutes a Not Likely to Adversely Affect determination for the species and its critical habitat.

Because the West Indian manatee may occur in the project vicinity, the Contractor shall instruct all personnel associated with the project of the potential presence of manatees in the area, and the need to avoid collisions with these animals. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. The Contractor shall be held responsible for any manatee harmed, harassed, or killed as a result of construction activities not conducted in accordance with these specifications.

a. **Special Operating Conditions If Manatees Are Present in the Project Area**

(1) If a manatee(s) is sighted within 100 yards (91 m) of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 ft (15.2 m) of a manatee. If a manatee is closer than 50 ft (15.2 m) to moving equipment or the project area, the equipment will be shut down and all construction activities will cease to ensure protection of the manatee.

Construction activities will not resume until the manatee has departed and the 50-foot (15.2 m) buffer has been re-established.

(2) If a manatee(s) is sighted in the project area, all vessels associated with the project shall operate at "no wake/idle" speeds at all times while in waters where the draft of the vessel provides less than a four-foot (1.2 m) clearance from the bottom, and vessels will follow routes of deep water

whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits.

(3) If siltation barriers are used, they will be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment.

(4) Manatee Signs. Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8-1/2" x 11" (21.6 x 27.9 cm) reading, "CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA." In the absence of a vessel, a temporary 3' x 4' (0.9 x 1.2 m) sign reading "CAUTION: MANATEE AREA" will be posted adjacent to the issued construction permit. A second temporary sign measuring 8-1/2" x 11" (21.6 x 27.9 cm) reading "CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUT DOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION" will be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction.

b. Manatee Sighting Reports

Any sightings of manatees, or collisions with a manatee, will be reported immediately to the Corps of Engineers. The point of contact within the USACE will be Edward Creef, (504) 862-2521, FAX (504) 862-2317.

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