UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

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Baton Rouge, LA 70803

August 12, 2005

Brigette Firmin
Fish & Wildlife Biologist
Lafayette Field Office
Ecological Services
United States Fish and Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, LA 70506

Dear Ms. Firmin:

The National Oceanic and Atmospheric Administration (NOAA), in cooperation with the United States Department of the Interior represented by the U.S. Fish and Wildlife Service, the Louisiana Oil Spill Coordinator's Office/Office of the Governor, the Louisiana Department of Natural Resources, the Louisiana Department of Environmental Quality, and the Louisiana Department of Wildlife and Fisheries have prepared the attached draft final Regional Restoration Plan (RRP) for Region 2 to facilitate restoration of natural resources injured by oil spills in southeastern Louisiana. The draft final RRP for Region 2 is the first of nine regional plans developed under the statewide Louisiana Regional Restoration Planning Program. The draft final RRP for Region 2 identifies trust resources and services in the region that are likely to be or anticipated to be injured by an oil spill, appropriate restoration types for each of the potentially injured trust resources and services, and potentially available restoration projects for each of the restoration types identified in the RRP.

The projects listed in the draft final RRP for Region 2 are potentially available for implementation and none are currently proposed for construction; however, NOAA has prepared the attached Programmatic Biological Assessment (PBA) to address all potential restoration activities described in Section 3.0 of the PBA – *Description of the Proposed Action*. Proposed activities resulting from the draft final RRP for Region 2 *likely would not affect* the blue whale, finback whale, sei whale, humpback whale, northern right, or sperm whale, even indirectly, nor will it affect habitat used by those species. Thus, the draft final RRP for Region 2 would have *no effect* on those species. The draft final RRP for Region 2 *is not likely to adversely affect* bald eagle, brown pelican, piping plover, Louisiana black bear, West Indian manatee, Gulf sturgeon, pallid sturgeon, green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle. In addition, the draft final RRP for Region 2 *is not likely to adversely affect* designated critical habitat for Gulf sturgeon and piping plover.

If the U.S. Fish and Wildlife Service disagrees with the determination in the PBA, and/or recommends conservation measures, please inform this office within 30 days. Please do not hesitate to contact me if you need additional information.

Thank you for your attention to this request.

Sincerely,

John Rapp
Marine Resource Habitat Specialist
NOAA Fisheries
Office of Habitat Conservation
Restoration Center

Attachments

CC: Troy Baker
Linda Burlington
Ron Gouguet
Administrative Record

Programmatic Biological Assessment for the Louisiana Regional Restoration Planning Program, Draft Final Regional Restoration Plan for Region 2

August 12, 2005

Contact Person: John Rapp, NOAA Restoration Center Phone Number: 225-578-7924

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1.0 Introduction

Potential effects to threatened and endangered species and their designated critical habitat from implementation of the Draft Region 2 Regional Restoration Plan (RRP) (Appendix A) were evaluated in this programmatic biological assessment. The Draft Region 2 RRP was designed to assist natural resource Trustees with their Natural Resource Damage Assessment (NRDA) responsibilities for discharges or substantial threats of discharges of oil. The Draft Region 2 RRP was the first of nine plans under the Louisiana Regional Restoration Planning Program to be fully developed (NOAA *et al.* 2003a). The Draft Region 2 RRP identified trust resources and services that could be affected by an oil spill and types of restoration/enhancement (hereafter referred to as "restoration") projects that were available for implementation.

2.0 Threatened, Endangered, Proposed Threatened or Proposed Endangered Species

In 2003, informal consultations between the National Oceanic and Atmospheric Administration (NOAA) and United States Fish and Wildlife Service (USFWS) pertaining to the Louisiana Regional Restoration Planning Program Draft Programmatic Environmental Impact Statement (DPEIS) (NOAA *et al.* 2003b) indicated 19 threatened or endangered species may occur within the geographic boundaries identified in the Draft Region 2 RRP. Of those 19 species, the USFWS has designated critical habitat for one bird and one anadromous fish species. At that time, proposed threatened or proposed endangered species were not identified by the USFWS within geographic boundaries identified in the Draft Region 2 RRP.

Restoration actions within geographic boundaries of the Draft Region 2 RRP would not affect six mammal species or their designated critical habitat: the blue whale (*Balaneoptera musculus*); finback whale (*Balaenoptera physalus*); sei whale (*Balaenoptera borealis*); humpback whale (*Megaptera novaeangliae*); northern right (*Eubalaena glacialis*); and the sperm whale (*Physeter macrocepahlus*). All six of these mammals occupy deepwater marine habitats and would be located outside the geographic boundaries identified in the Draft Region 2 RRP. Therefore, detailed species descriptions for those species were not included in this programmatic biological assessment.

In 1977, the USFWS downlisted the American alligator (*Alligator mississippensis*) from endangered to threatened in part of its range, including Florida and certain coastal areas of Georgia, South Carolina, Louisiana, and Texas (42 FR 2071). In 1987, the USFWS downlisted the American alligator throughout the remainder of its range to "threatened due to similarity of appearance" (52 FR 21059). This classification reflects a complete recovery of the alligator, but is intended to facilitate necessary protections for the American crocodile (*Crocodylus acutus*) in the United States and foreign countries, and other endangered crocodilians in foreign countries, whose products are difficult to distinguish from those of the American alligator. This species is found in waterbodies throughout fresh to brackish areas within geographic boundaries of the Draft Region 2 RRP. In Louisiana, the population has risen well above a level of concern (46 FR 40664) and effects of restoration activities likely would be temporary and occur on a small spatial scale relative to total available habitat. Thus none of the restoration actions likely would

have adverse effects to the alligator population. Therefore, the American alligator was not discussed further in this programmatic biological assessment.

The 12 remaining threatened or endangered species with the potential to occur in the geographic boundaries of the Draft Region 2 RRP include three bird, two fish, two mammal, and five reptile species (Table 1).

Table 1. Federally-listed threatened and endangered species with the potential to occur in the geographic boundaries identified in the Draft Region 2 RRP.

Species Name	Federal Status
bald eagle (*Haliaeetus leucocephalus)*	Threatened
brown pelican (*Pelecanus occidentalis)*	Endangered
piping plover (*Charadrius melodus*)	Threatened
Gulf sturgeon (*Acipenser oxyrhynchus desotoi*)	Threatened
pallid sturgeon (*Scaphirhynchus albus)*	Endangered
Louisiana black bear (*Ursus americanus luteolus)*	Threatened
West Indian manatee (*Trichechus manatus)*	Endangered
green sea turtle (*Chelonia mydas*)	Threatened
hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
leatherback sea turtle (*Dermochelys coriacea*)	Endangered
loggerhead sea turtle (*Caretta caretta*)	Threatened

2.1 Critical Habitat in Region 2 for Threatened and Endangered Species

2.1.1 Gulf Sturgeon

On March 19, 2003, the USFWS and National Marine Fisheries Service (NMFS) designated fourteen geographic areas (units) among Gulf of Mexico rivers and tributaries as critical habitat for threatened Gulf sturgeon (68 FR 13370). Potential actions associated with the Region 2 RRP may affect one of fourteen geographic areas designated as critical habitat; Unit 8 encompasses Lake Pontchartrain, Lake St. Catherine, The Rigolets, Little Lake, Lake Borgne, and Mississippi Sound in Jefferson, Orleans, St. Tammany, and St. Bernard Parish, Louisiana (68 FR 13394). The unit provides juvenile, sub-adult and adult feeding, resting, and passage habitat for Gulf sturgeon from the Pascagoula and the Pearl River subpopulations (68 FR 13394).

2.1.2 Piping Plover

On July 10, 2001, the USFWS designated 137 geographic areas (units) along the coasts of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas as critical habitat for threatened populations of wintering piping plover (66 FR 36038). Seven areas were designated as critical habitat in Louisiana. Potential actions associated with the Region 2 RRP may affect three units (Unit 5, Unit 6 and Unit 7) in Plaquemines, St. Bernard, Lafourche,

and Jefferson Parish, Louisiana (66 FR 36074). The three units include areas where primary constituent habitat elements occur, including Timbalier Island east to Grand Terre Island, the Mississippi River Delta, Breton Islands, and the Chandeleur Island Chain (66 FR 36074). The primary constituent elements for piping plover critical habitat (wintering) are found in geologically dynamic coastal areas that contain intertidal beaches and sand and/or mud flats (between annual low tide and annual high tide), associated dune systems, and sand and/or mud flats above annual high tide. Roosting areas may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather (66 FR 36038).

3.0 Description of the Proposed Action

The proposed action is use of the Region 2 RRP after it has been finalized by the natural resource Trustees identified in the Louisiana Regional Restoration Planning Program DPEIS (NOAA *et al.* 2003b). The natural resource Trustees include two federal and four state agencies: U.S. Department of Commerce, represented by the NOAA; U.S. Department of the Interior, represented by the USFWS; Louisiana Oil Spill Coordinator's Office, Office of the Governor; Louisiana Department of Natural Resources; Louisiana Department of Environmental Quality; and Louisiana Department of Wildlife and Fisheries (collectively, the "Trustees"). The objective of the Louisiana Regional Restoration Planning Program and region-specific RRPs is to establish an institutional framework and set of procedures that enable Trustees to select and implement projects that compensate the public and environment for losses of natural resources and services from oil spills in an efficient and predictable manner. RRPs are designed to help expedite natural resource damage assessments, legal settlements, and restoration implementation while potentially minimizing costs.

3.1 Action Area

The geographic boundaries identified in the Draft Region 2 RRP (hereafter referred to as "Region 2") include the Breton Sound and Barataria hydrologic basins and the lower Mississippi River basin, delta plain and Birdsfoot delta (Figure 1). Bordered to the north by the headwaters of Bayou Lafourche and the Mississippi River, Region 2 extends south to the Caminada-Moraeu Headland, Plaquemines barrier system, and Birdsfoot delta, and from Bayou Lafourche along its western border to the Mississippi River and Mississippi River Gulf Outlet along its eastern border. The following parishes are located either partly or completely within Region 2: Ascension, Assumption, Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, and St. John the Baptist.

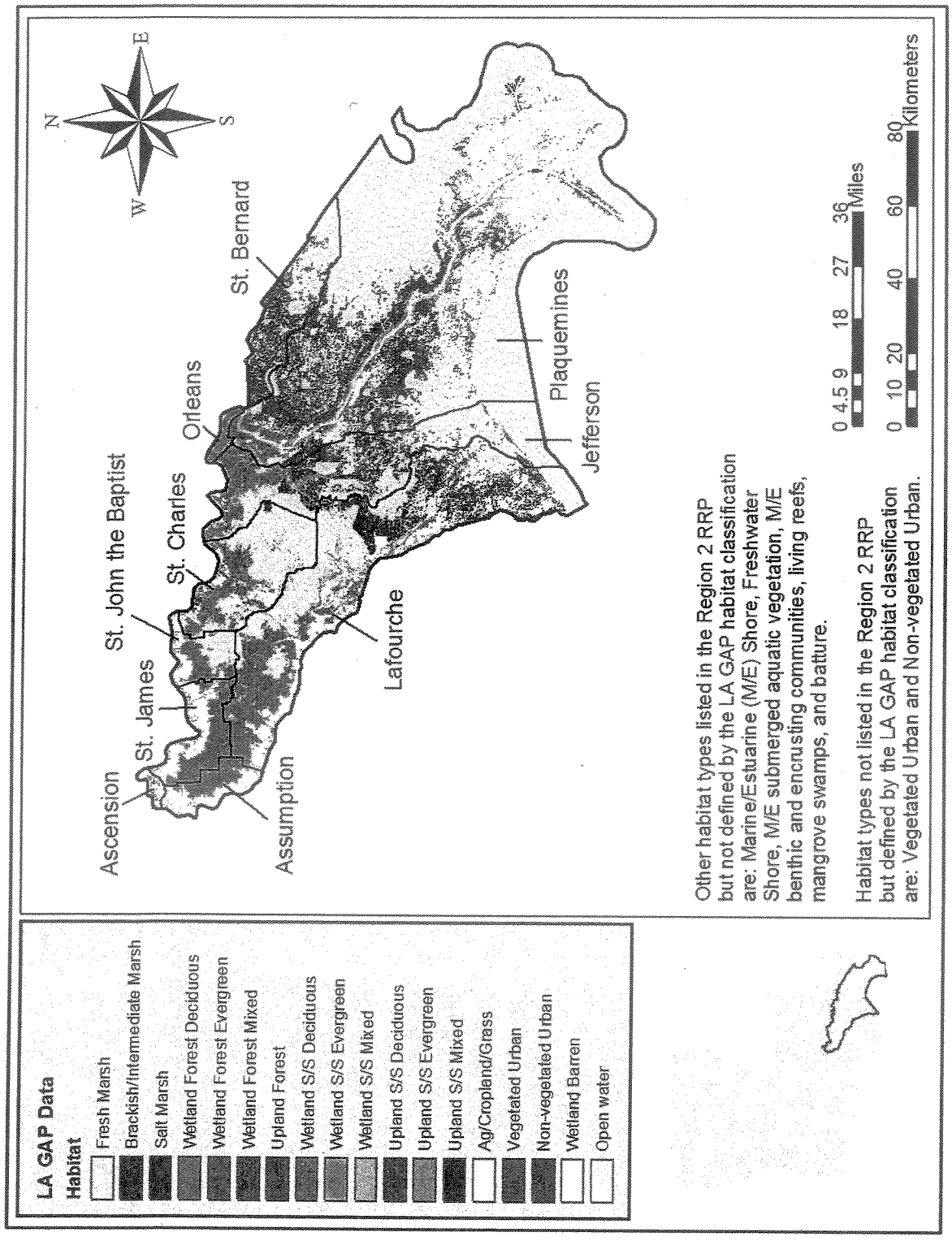

Figure 1. Map of parishes and habitat types included in the geographic boundary of the Draft Region 2 RRP (adapted from Hartley *et al.* 2000)

3.2 Summary of Conceptual Restoration Projects Identified in the Draft Region 2 RRP

3.2.1 Vegetative Planting

Vegetative planting projects typically have involved planting nursery stock, planting rooted cuttings, or broadcasting seed of species found adjacent to the action area. Vegetative plantings have been used to restore coastal herbaceous wetlands, forested wetlands, beaches, shorelines, and streambeds. This type of project often has supplemented other restoration activities, such as dredge and fill, hydrologic restoration, sediment diversion, and shoreline protection projects.

3.2.2 Vegetative Protection

Vegetative protection projects typically have involved the use of materials that aid in increasing the propagule or seedling survival rates. This restoration method protects against herbivory and/or competition through the placement of tree shelters, exclusion fences, weed mats, and the application of herbicides, insecticides, fungicides, and mammal repellents, as well as other applications. Vegetative protection methods have been used most often with vegetative plantings. These types of projects have been used to restore coastal herbaceous wetlands, forested wetlands, beaches, shorelines, and streambeds.

3.2.3 Hydrologic Restoration

Hydrologic restoration projects change human-altered drainage patterns back to historically natural drainage patterns in an attempt to address the problems associated with excessive or reduced drainage. Types of restoration projects in this category have included plugging or back-filling oil and gas canals and removing or installing water control structures. Hydrologic restoration techniques have been used to restore coastal herbaceous wetlands, forested wetlands, beach, shoreline, and streambeds.

3.2.4 Marsh Management

Marsh management projects have involved manipulation of water levels, management of hunting and fishing, management of grazing animals, water quality control, and manipulation of tidal flow. Scheduled burning also has been used to manage coastal marshes. Structures used during these types of projects include dikes, natural landscape features, weirs, flap gates, and culverts. Marsh management techniques have been used to restore coastal herbaceous wetlands and forested wetlands.

3.2.5 Dredge and Fill

Dredge and fill activities have been used with vegetative plantings, vegetative protection, shoreline protection, sediment diversion, outfall management, hydrologic restoration, and nutrient and sediment trapping projects. The goal of this type of restoration is to restore marshland and adjacent habitats. This may be accomplished by filling abandoned oil and gas canals, restoring historical land elevations, constructing terraces, and repairing breached levees

or natural ridges. Dredge material typically has been obtained from adjacent waterways, but it could be obtained elsewhere if the sediment characteristics were more desirable. This technique has been used to restore coastal herbaceous wetlands, beach, shoreline, and streambeds.

3.2.6 Shoreline Protection

Upon completion, shoreline protection projects protect beaches, streambeds, and pond edges from exposure to flooding, longshore transport, or wave energy. Wave energy has been dissipated by structures such as wave mats, fences or segmented breakwaters. Flooding and wave energy have been controlled through the use of bulkheads, seawalls, revetments, riprap, or other structures directly adjacent and parallel to the shoreline. Lastly, longshore transport has been controlled through the use of jetties that run perpendicular to the shoreline and trap sediments. Shoreline protection projects have been used in conjunction with vegetative planting, vegetative protection, dredge and fill, freshwater diversion, and outfall management restoration projects.

3.2.7 Faunal Stocking

These projects stock or re-introduce fauna to target habitats. They may be used in a variety of habitat types and in the restoration of recreational and cultural areas. They have been used in conjunction with vegetative planting, vegetative protection, hydrologic restoration, and dredge and fill projects to enhance ecosystem function.

3.2.8 Sediment Diversion

A sediment diversion can be uncontrolled (water and sediment flow freely), partially controlled (directional jetties), or controlled (control structures), depending on the ecosystem characteristics and size of the restoration project. The technique used most often has been to create a cut in a levee (crevasse splay) to reconnect a disconnected wetland with its historical sediment source to build land. Sediment diversion projects typically have been used with vegetative planting, outfall management, hydrologic restoration, and nutrient and sediment trapping projects. This type of project may be used to restore coastal herbaceous wetlands, forested wetlands, beaches, shorelines, and streambeds.

3.2.9 Freshwater Diversion

Freshwater diversion projects usually create a control structure in a levee to reconnect a wetland with its historical freshwater source to maintain isohalines. They have been used with vegetative planting, outfall management and hydrologic restoration projects. Freshwater diversions have been used to restore coastal herbaceous wetlands, forested wetlands, shorelines, and streambeds.

3.2.10 Outfall Management

Outfall management projects have been used to create routes that mimic historical flow routes of major estuarine arteries. This type of restoration typically has involved structures that direct the flow of water and/or sediments through outfall areas. Outfall management projects have been

used with sediment diversions, freshwater diversions and hydrologic restoration projects. They have been used most often to restore coastal herbaceous and forested wetlands.

3.2.11 Nutrient and Sediment Trapping

Successful nutrient and sediment trapping projects have used Christmas tree fences, terraces, and vegetative buffers in target areas. They have been used with sediment diversions, dredge and fill, vegetation planting, and shoreline protection projects. This project type has been used most often to restore coastal herbaceous and forested wetlands.

4.0 Natural History and Occurrence of Threatened and Endangered Species in Region 2

Species accounts were derived from more detailed life history and habitat descriptions contained in the programmatic biological assessment for the Louisiana Coastal Area (LCA) Ecosystem Restoration Study FEIS (USACE 2004), incorporated by reference in this programmatic document. The LCA Ecosystem Restoration Study FEIS also evaluated conceptual restoration alternatives to restore Louisiana's coastal ecosystem, including restoration alternatives that may be implemented within the geographic boundary identified in the Draft Region 2 RRP.

4.1 Birds

4.1.1 Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle was officially down-listed from endangered to threatened in the lower 48 states on July 12, 1995 (60 FR 35999). Critical habitat has not been designated for the bald eagle in Louisiana. The bald eagle was state-listed as endangered on December 20, 1989.

Natural History and Occurrence in Region 2

Louisiana is an important nesting and wintering area for the bald eagle. In southeastern Louisiana, nests are often built in large bald cypress trees that are located near fresh to intermediate marshes or open water, and infrequently in large pine trees near large lakes in central and northern Louisiana. Most nests are located in the upper 30 feet of the tree with canopy cover above and a clear view of open water. Nesting activities generally begin in early September with egg laying beginning as early as late October and peaking in the latter part of December (USFWS 1989). Bald eagles may range for long distances, but will return to within 100 miles of where they were raised to build a large nest, which they often use over successive years (USFWS 1989). Bald eagles are predominantly piscivorous, but they are also opportunistic and will supplement their diets with birds, small mammals, reptiles, amphibians, and carrion. Bald eagle foraging habitat is not a limiting factor in this region (USACE 2004). In Louisiana, 36 occupied breeding areas were documented during the 1987-1988 nesting season and 234 were found during the 2003-2004 nesting season. The young per active nest averaged 1.34, which was identical to 2002-2003 results (Hess, pers. Comm. 2005). As of December 2004, bald eagles have been tracked by the Louisiana Natural Heritage Program (LNHP) in all parishes contained within Region 2 (LNHP 2005).

4.1.2 Brown Pelican (*Pelecanus occidentalis*)

The brown pelican was originally listed as endangered throughout its range on October 13, 1970 (35 FR 31632). The species was delisted in Alabama, Florida, Georgia, North Carolina, South Carolina, and points northward along the Atlantic coast on February 4, 1985 because evidence indicated that populations were at or above historical breeding levels and had stable population numbers and productivity (50 FR 4938). The brown pelican remains endangered throughout the remainder of its range, which includes Louisiana, Mississippi, Texas, California, Mexico, Central and South America, and the West Indies. Critical habitat has not been designated for the brown pelican in Louisiana. The brown pelican was state-listed as endangered on December 20, 1989.

Natural History and Occurrence in Region 2

Brown pelicans have been successfully reintroduced to coastal Louisiana since the late 1960s. Brown pelicans have been observed loafing, feeding, or nesting throughout coastal Louisiana, including but not limited to the Delta NWR, Breton NWR, Chandeleur Sound, and Barataria Bay in Region 2 (Wiggonton 1990). As of December 2004, brown pelicans have been tracked by the LNHP in four parishes contained within Region 2 (Jefferson, Lafourche, Plaquemines, and St. Bernard) (LNHP 2004). Current population estimates for Louisiana are estimated to be near 50,000 birds (USACE 2004).

Brown pelicans spend their entire life cycle in or near marine and estuarine waters, seldom venturing more than 20 miles out to sea (50 FR 4938). They feed mainly on fish they capture by plunge diving. Their breeding activity in Louisiana can occur from February to September. Preferred nesting sites are small coastal islands that provide protection from mammalian predators and have sufficient elevation to prevent widespread flooding of nests (50 FR 4938). Nests are usually built in available vegetation but ground nesting may also occur. Ground nests vary from practically nothing to well built nests of sticks, reeds, straw, palmetto leaves, and grasses. Tree nests are made of similar materials, only they are more firmly constructed. Sand spits and offshore sand bars are used extensively as daily loafing and nocturnal roost areas. Nesting islands are often chosen near channels where shipping and shrimping operations make fish easily available to nesting pairs. The brown pelican is extremely susceptible to disturbance and habitat alteration in nesting areas.

4.1.3 Piping Plover (*Charadrius melodus*)

Three breeding populations were recognized and treated separately in the Final Rule (50 FR 50726) listing the piping plover across its range: the American Atlantic and Northern Great Plains populations were classified as threatened and the Great Lakes population as endangered. Piping plovers from all three breeding populations have the potential to winter in Louisiana. Critical habitat was designated for all three populations of piping plovers on the wintering grounds on July 10, 2001 (66 FR 36038); that designation included 137 habitat conservation units along the coast of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas that provide sufficient wintering habitat to support the piping plover at the

population level and geographic distribution necessary for recovery of the species. Seven areas were designated as critical habitat in Louisiana. Potential actions associated with the Region 2 RRP may affect three units (Unit 5, Unit 6 and Unit 7) in Plaquemines, St. Bernard, Lafourche, and Jefferson Parish, Louisiana (66 FR 36074). The three units include areas where primary constituent habitat elements occur, including Timbalier Island east to Grand Terre Island, the Mississippi River Delta, Breton Islands, and the Chandeleur Island Chain (66 FR 36074). As of December 2004, piping plover have been tracked by the LNHP in four parishes contained within Region 2 (Jefferson, Lafourche, Plaquemines, and St. Bernard) (LNHP 2004). The piping plover was state-listed as threatened/endangered on December 20, 1989.

The following habitat conservation units have been designated critical habitat in Region 2: (1) Timbalier Island to East Grand Terre Island in Terrebonne, Lafourche, Jefferson, and Plaquemines Parishes; (2) Mississippi River Delta in Plaquemines Parish, and (3) Breton Islands and Chandeleur Island Chain in Plaquemines and St. Bernard Parishes (50 CFR 36127). The primary constituent elements for piping plover critical habitat (wintering) are found in geologically dynamic coastal areas that contain intertidal beaches and sand and/or mud flats (between annual low tide and annual high tide), associated dune systems, and sand and/or mud flats above annual high tide. Roosting areas may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather (66 FR 36038).

Natural History and Occurrence in Region 2

Louisiana is an important wintering area for the Great Lakes and U.S. and Canadian Great Plains subpopulations of piping plover. Piping plovers spend 55 to 80 percent of their annual cycle associated with wintering areas, thus factors that affect their well being on the wintering grounds can substantially affect their survival and recovery (USFWS 1996). Southward migration to the wintering grounds along the southern Atlantic coast and Gulf of Mexico shoreline extends from late July to September (66 FR 36039). Individuals can be found on their wintering grounds throughout the year but sightings are rare in May, June, and early July (66 FR 36039). Wintering piping plovers are dependant on a mosaic of sites distributed through the landscape, as the suitability of a particular site for foraging or roosting is dependent on local weather and tidal conditions (66 FR 36038). Northward migration to the breeding grounds occurs in late February, March and April (66 FR 36039). Surveys completed in 2001 in the United States reported 72 adults from the Great Lakes subpopulation and 2,953 adults from the Northern Great Plains subpopulation (Ferland and Haig 2002).

4.2 Fish

4.2.1 Gulf Sturgeon (*Acipenser oxyrhynchus desotoi*)

On September 30, 1991, the Gulf sturgeon was listed as a threatened species under the Endangered Species Act (ESA) (56 FR 49653). Approximately two years later on March 19, 2003, the USFWS and National Marine Fisheries Service (NMFS) designated fourteen geographic areas (units) among Gulf of Mexico rivers and tributaries as critical habitat for threatened Gulf sturgeon (68 FR 13370). The Gulf sturgeon was state-listed as threatened on August 20, 1992. In Region 2, Gulf sturgeon critical habitat includes Lake Pontchartrain, Lake

St. Catherine, The Rigolets, Little Lake, Lake Borgne, and Mississippi Sound in Jefferson, Orleans, St. Tammany, and St. Bernard Parish, Louisiana (68 FR 13394). As of December 2004, Gulf sturgeon have been tracked by the LNHP in two parishes contained within Region 2 (Orleans and St. Bernard) (LNHP 2004).

Natural History and Occurrence in Region 2

Gulf sturgeon are anadromous fish that inhabit Louisiana coastal rivers during spring and summer, and the estuaries, bays, and marine environments of the Gulf of Mexico during fall and winter (USFWS 1995a). Immature and mature fish may undertake freshwater migrations. Generally, larval and sub-adult Gulf sturgeon remain in riverine or estuarine habitats near to spawning sites for two years (USFWS 1995a). Adults prefer habitats on the bottom in the middle and lower reaches of large coastal rivers with access to velocity and thermal refuge areas (68 FR 13372). They spawn during spring and usually occupy rivers during April-October until water temperatures decline below preferred levels (68 FR 13372). Gulf sturgeon are long-lived and have a long inter-spawning period, with females spawning at intervals ranging from every 3 to 5 years, and males every 1 to 5 years (68 FR 13371). During spawning, they are typically found on sandbars and sand shoals over rippled bottom and in shallow, relatively open, unstructured areas (68 FR 13372). Gulf sturgeon eggs are demersal and adhesive. The majority of recent Gulf sturgeon sightings in Louisiana have been in the Pearl River drainage, which is north and east of Region 2. The summer population size in 1996, estimated by mark–recapture methods, was 292 individuals that were age 2 or older (Morrow *et al.* 1998).

When river temperatures drop in the fall, adult Gulf sturgeon return to the coastal shelf areas of the Gulf of Mexico. In estuaries and bays, adult and sub-adult sturgeon are associated with unvegetated habitats that have a preponderance of sandy substrates that support prey species, such as crustaceans, ghost shrimp, small crabs, worms, and mollusks (68 FR 13371). Along the Mississippi Sound barrier islands, sub-adult Gulf sturgeon have been found in habitats with sandy substrates and an average depth less than 20 feet (68 FR 13372).

4.2.2 Pallid Sturgeon (*Scaphirhynchus albus*)

The pallid sturgeon was listed as endangered on October 9, 1990 (55 FR 36641). Critical habitat has not been designated for the pallid sturgeon in Louisiana. The pallid sturgeon was state-listed as endangered on August 20, 1992.

Natural History and Occurrence in Region 2

Pallid sturgeon evolved in the diverse environments of the Missouri and Mississippi Rivers and are well adapted to life on the bottom in swift water of large rivers (Gilbraith *et al.* 1988). Floodplains, backwaters, chutes, sloughs, islands, sandbars, and main channel waters provide habitat for this species (Bramblett 1996; Constant *et al.* 1997; Sheehan *et al.* 1998). Pallid sturgeon have been observed in the Mississippi and Atchafalaya Rivers in Region 2 (USFWS 2000). As of December 2004, pallid sturgeon have been tracked by the LNHP in three parishes contained within Region 2 (Orleans, St. Charles, and St. Bernard) (LNHP 2004).

The pallid sturgeon appears nearly extirpated from large segments of its former range (USFWS 1993). Stabilized banks, jetties, dikes, levees and revetments, and main channel reaches of the Mississippi River from the Missouri River confluence to the Gulf of Mexico still provide habitat usable by pallid sturgeon for certain life stages. Spawning is thought to occur over hard substrates of gravel or cobble with moderate flow in the Mississippi River (USFWS 2000). Keenlyne and Jenkins (1993) estimate that spawning probably begins in March in the lower Mississippi and Atchafalaya Rivers. Larval pallid sturgeon may drift in the water column for a distance of 40 to over 400 miles (USFWS 2000). Constant *et al.* 1997 estimated the pallid sturgeon population in the Atchafalaya River to range from 2,750 to 4,100 fish. In recent years, pallid sturgeon populations have been augmented by release of hatchery reared fish (USFWS 2000).

4.3 Mammals

4.3.1 Louisiana Black Bear (*Ursus americanus luteolus*)

The Louisiana black bear was listed as threatened on January 7, 1992 (57 FR 588). Simultaneously, other black bears within the historic range of the Louisiana black bear were listed as threatened due to their similarity of appearance to the Louisiana black bear. The Louisiana black bear was state-listed as threatened on August 20, 1992. The USFWS proposed to designate critical habitat for the Louisiana black bear in December 2, 1993 (58 FR 53560), but no final rule has been issued; additionally, the proposed critical habitat is outside of parishes encompassed by Region 2.

Natural History and Occurrence in Region 2

The likelihood of Louisiana black bear occurring in Region 2 is considered minimal because large blocks of flooded forest land within the Atchafalaya Floodway may block bear migrations or be unsuitable for occupancy. The key habitat requirements of black bears are food, water, cover, and denning sites, which are spatially arranged across sufficiently large, relatively remote blocks of land (USFWS 1995b). This species typically inhabits bottomland hardwood communities but other habitat types may be utilized, including marsh, upland forested areas, forested spoil areas, and agricultural fields (58 FR 53560). Throughout its range, black bear habitat is characterized by relatively inaccessible terrain, thick understory vegetation, and abundant sources of food (USFWS 1995b).

Bears are best described as opportunistic feeders, as they eat almost anything that is available; thus, they are typically omnivorous. Their diet varies seasonally, and includes primarily succulent vegetation during spring, fruits and grains in summer, and hard mast such as acorns and pecans during fall (USFWS 1995b). Bears utilize all levels of forest for feeding; they can gather foods from treetops and vines, but also grub in fallen logs for insects. Bear activity revolves mainly around the search for food, water, cover, and mates during the breeding season. Other important features of black bear habitat include dispersal corridors, protection from human-related disturbances, water, and denning sites. Corridors providing cover may facilitate the movement of bears through agricultural lands (58 FR 53560).

All three subpopulations of black bear with management importance in Louisiana occur largely outside the boundaries of Region 2: 1) Tensas River subpopulation; 2) inland Atchafalaya River Basin subpopulation; and 3) Coastal subpopulation (USFWS 1995b). Louisiana black bear are considered in this programmatic biological assessment because this species typically has large home ranges and thus have the potential to occur in habitats within Region 2. As of December 2004, Louisiana black bear have not been tracked by the LNHP in parishes within Region 2 (LNHP 2004).

4.3.2 West Indian Manatee (*Trichechus manatus*)

The West Indian manatee was listed as endangered throughout its range for both the Florida and Antillean subspecies in 1967 (32 FR 4001) and received Federal protection with the passage of the ESA in 1973. The West Indian manatee was state-listed as endangered on December 20, 1989. Critical habitat was designated in 1976 (41 FR 41914), 1994 (59 FR 24654), 1998 (63 FR 55553), 2002 (67 FR 680), and 2003 (68 FR 46870) for the Florida subspecies. As of December 2004, manatees have been tracked by the LNHP in seven parishes contained within Region 2 (Ascension, Orleans, Plaquemines, St. Charles, St. James, St. John the Baptists, and St. Bernard) (LNHP 2004).

Natural History and Occurrence in Region 2

The West Indian manatee has been documented in coastal Louisiana waters during their migratory period. Manatees inhabit both salt and freshwater of sufficient depth (5 feet to usually less than 20 feet) throughout their range (USFWS 2001). Shallow grassbeds with ready access to deep channels are preferred feeding areas in coastal and riverine habitats (USFWS 2001). They may also be encountered in canals, rivers, estuarine habitats, saltwater bays, and have been observed as much as 3.7 miles off the Florida Gulf Coast. Between October and April, manatees concentrate in areas of warmer water (USFWS 2001). During summer months, they migrate as far north as coastal Virginia on the east coast and the Louisiana coast in the Gulf of Mexico. Manatees are primarily herbivorous, but they will occasionally feed on fish (USFWS 2001). In the early 1990s, the State of Florida initiated a statewide aerial survey for manatees during periods of severe cold weather (Ackerman 1995); the highest count of 3,276 manatees was recorded in January 2001.

4.4 Reptiles

Data on sea turtles along the Louisiana coast were sparse for most species. The assessment of sea turtles relied heavily on information from the 1995 Biological Assessment: Impacts of Navigation Channel Hopper Dredging on Threatened and Endangered Species in Louisiana (Baird 1995) and the programmatic biological assessment for the Louisiana Coastal Area (LCA) Ecosystem Restoration Study FEIS (USACE 2004).

4.4.1 Green Sea Turtle (*Chelonia mydas*)

The green sea turtle was listed as threatened, except for the Florida and Pacific coast of Mexico breeding populations, which were listed as endangered, on July 28, 1978 (43 FR 32800). On

March 23, 1999, the National Marine Fisheries Service (NMFS) designated coastal waters surrounding Culebra, Mona, and Monita Islands, Puerto Rico as critical habitat for green sea turtles (63 FR 46694). The green sea turtle was state-listed as threatened on December 20, 1989.

Natural History and Occurrence in Region 2

Green sea turtles probably occur along the Louisiana coast and may nest on the Chandeleur Islands (Dundee and Rossman 1989). Their distribution can be correlated to water temperature, grassbed distribution, location of nesting beaches, and associated ocean currents. The primary nesting sites in U.S. Atlantic waters are along the east coast of Florida, with additional sites in the U.S. Virgin Islands and Puerto Rico (NMFS and USFWS 1991a). Females deposit up to 7 clutches, and the number of nests has been estimated to be between 350 to 2,300 nests annually. Green sea turtles nest at 2-, 3-, or 4-year intervals. Long migrations have been documented between feeding and nesting grounds. Adult green sea turtles feed almost exclusively on seagrasses growing in shallow water flats, but invertebrates and carrion are also important components of their diet (Dundee and Rossman 1989).

4.4.2 Hawksbill Sea Turtle (*Eretmochelys imbricata*)

The hawksbill was listed as an endangered species in June 1970 (35 FR 8495). On March 23, 1999, the National Marine Fisheries Service (NMFS) designated coastal waters surrounding Culebra, Mona, and Monita Islands, Puerto Rico as critical habitat for Hawksbill sea turtles (63 FR 46694). The hawksbill sea turtle was state-listed as endangered on December 20, 1989.

Natural History and Occurrence in Region 2

The likelihood of encountering this species in Louisiana coastal waters is considered minimal. Nesting occurs principally in Puerto Rico and the U.S. Virgin Islands. Within the continental United States, nesting is restricted to the southeast coast of Florida and the Florida Keys. Hawksbill turtles nest at low densities in aggregations of 1 to 100 adults. Less than two nests annually have been observed in Florida and Texas (NMFS and USFWS 1993). Only one record of a hawksbill in Louisiana has been reported (Fuller *et al.* 1987). This species is an omnivore, feeding primarily on invertebrates and marine vegetation (Dundee and Rossman 1989). Florida is considered foraging habitat for those turtles, and Texas may be foraging habitat for hatchlings and juveniles (77 observations of small turtles were reported between 1972 and 1984) from the nesting sites in Mexico (NMFS and USFWS 1993).

4.4.3 Kemp's Ridley Sea Turtle (*Lepidochelys kempii*)

On December 2, 1970, the Kemp's ridley sea turtle was designated as endangered across its entire range (35 FR 18319). The Kemp's Ridley sea turtle was state-listed as endangered on December 20, 1989.

Natural History and Occurrence in Region 2

This small sea turtle is believed to be the most frequently encountered sea turtle off the Louisiana coast (Dundee and Rossman 1989). The current range for Kemp's ridley in the United States includes marine habitat of the following coastal states: Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. Inshore areas of the Gulf of Mexico appear to be important habitat for this species, as they tend to concentrate around the mouths of major rivers. This species is characteristically found in waters of low salinity and high turbidity and organic content, where shrimp are abundant (NMFS and USFWS 1992a). Kemp's ridleys have been collected in Region 2 from Lake Borgne and Barataria Bay (Dundee and Rossman 1989). Occurrence of these sea turtles in bays and estuaries along the Louisiana coast would not be unexpected, as many of their primary food items occur there.

Trends in Kemp's ridley sea turtle populations in the Gulf of Mexico are identified through monitoring of their most accessible life stages on the nesting beaches, where hatchling production and the status of adult females can be directly measured. Since the mid-1980's, the number of nests laid in a season has been increasing primarily due to nest protection efforts and implementation of regulations requiring the use of turtle excluder devices in commercial fishing trawls. During the 1999 and 2000 nesting seasons, more than 3,600 nests and 6,000 nests, respectively, were deposited on the Mexico nesting beaches (USFWS 2004). The possibility of Kemp's ridley nesting on the Louisiana coast has been suggested (Viosca 1961), but no documentation exists.

4.4.4 Leatherback Sea Turtle (*Dermochelys coriacea*)

The leatherback sea turtle was listed as an endangered species throughout its range on June 2, 1970 (35 FR 8491). Critical habitat was designated in waters adjacent to Sandy Point Beach, St. Croix, U.S. Virgin Islands (44 FR 17710). The leatherback sea turtle was state-listed as endangered on December 20, 1989.

Natural History and Occurrence in Region 2

The leatherback sea turtle occurs mostly in continental shelf waters, but will occasionally enter shallow waters and estuaries. Adults are highly migratory and they exhibit seasonal fluctuations in distribution in response to the Gulf Stream and other warm water features. Habitat requirements for juvenile and post-hatchling leatherbacks are unknown. Leatherback turtles are omnivorous but feed primarily on jellyfish and other cnidarians (NMFS and USFWS 1992b).

Nesting occurs from February through July at sites located from Georgia to the U.S. Virgin Islands. Nesting leatherbacks occur along beaches in Florida, Nicaragua, and islands in the West Indies; however, no nesting has been reported in Louisiana (Dundee and Rossman 1989). In Louisiana, leatherbacks are believed to occur offshore in deep waters; however, they have been collected from or sighted in Region 2, specifically Timbalier Bay and Chandeleur Sound (Dundee and Rossman 1989). Current estimates are that 20,000 to 30,000 female leatherbacks exist worldwide.

4.4.5 Loggerhead Sea Turtle (*Caretta caretta*)

The loggerhead sea turtle was listed as a threatened species on July 28, 1978 (43 FR 32800). The loggerhead sea turtle was state-listed as threatened on December 20, 1989.

Natural History and Occurrence in Region 2

Loggerheads are capable of living in a variety of environments, such as in brackish waters of coastal lagoons and river mouths. During the winter, they may remain dormant, buried in the mud at the bottom of sounds, bays, and estuaries. The major nesting beaches are located in the southeastern United States, primarily along the Atlantic coast of Florida, North Carolina, South Carolina, and Georgia (NMFS and USFWS 1991b). Loggerheads probably range all along the Louisiana coast; however, Dundee and Rossman (1989) reported specimens only from Chandeleur Sound and Barataria Bay in Region 2. The loggerhead's diet includes marine invertebrates such as mollusks, shrimp, crabs, sponges, jellyfish, squid, sea urchins, and basket stars (NMFS and USFWS 1991b). Adult loggerheads feed in waters less than 50 meters deep, while the primary foraging areas for juveniles appears to be in estuaries and bays.

Nesting on the Gulf Coast occurs between the months of April and August, with 90 percent of the nesting effort occurring on the south-central Gulf Coast of Florida (Hildebrand 1981). Although loggerheads have been documented as nesting on the Chandeleurs in 1962 and Grand Isle in the 1930s, it is doubtful whether this species currently successfully nests on the Louisiana coast (Hildebrand 1981, Dundee and Rossman 1989).

5.0 Summary of Effects and Conservation Measures of the Louisiana Regional Restoration Planning Program, Region 2 – Regional Restoration

Because the Draft Region 2 RRP contained conceptual restoration types, the specific locations and design of features of the individual restoration measures were not available. Potential effects to threatened and endangered species, and their designated critical habitat, were expressed in conceptual terms based on the major restoration types identified in Section 3.2, Summary of Conceptual Restoration Projects Identified in the Draft Region 2 RRP. More specific and in-depth analyses would be completed during individual project-level consultations once site-specific locations and designs of restoration projects were developed.

5.1 Birds

5.1.1 Bald Eagle

Although bald eagles have the potential to nest in the region, their use of the area is likely limited to occasional nesting in tall trees, fly-overs, and perching. Restoration projects near large cypress or pine trees with proximity to fresh to intermediate marshes or open water could disturb nest trees and may cause noise-related disturbance to bald eagles. Restoration activities with a land-based component have the highest potential to affect bald eagles, such as vegetative planting, vegetative protection, and water and/or sediment diversions. Other management

actions associated with restoration projects, such as marsh burning, may result in temporarily decreased habitat quantity and quality until natural recovery occurs. Marsh burning may cause adverse effects to bald eagle during a marsh burn through contact with smoke or flames or through loss of habitat. Restoration activities likely would be temporary and occur at a small spatial scale relative to this species' typical home range. Overall, bald eagles may benefit from restoration activities because the availability of coastal wetland habitats would increase, or existing wetlands would be of higher quality.

Although sites for restoration projects have yet to be determined, they likely would be located away from known nesting sites, thus the likelihood and degree of adverse effects to this species would be minimal.

Direct effects to nest trees can be avoided by circumventing the nest tree and other potential nest trees in the area. Noise disturbance to mating pairs can be avoided by conducting any work activities outside the nesting season and preventing those activities from encroaching within 1,500 feet of a nest during the nesting season. Use of equipment that minimizes such disturbances may also help to minimize adverse effects to this species. Site-specific plans and construction activities could be designed to avoid potential effects to bald eagles throughout the action area. By adhering to the primary activity exclusion zone and timing restrictions outlined in the Bald Eagle Recovery Plan (USFWS 1989), and by performing field surveys to determine the presence of undocumented eagle nests, direct effects to nest trees and eagle behavior can be avoided. Although data is not available at this time regarding effects on bald eagles from contaminants that may be associated with river and sediment diversions, consultation would be reinitiated with the USFWS, if necessary, once those data are made available.

5.1.2 Brown Pelican

Brown pelicans are present throughout the region and have the potential to be directly affected by restoration activities. Suitable brown pelican feeding and nesting habitat occurs along the barrier islands, sand spits, and mud lumps along the Louisiana Gulf coast. Pelican nest sites and the birds themselves may be affected by barrier island restoration activities or noise disturbance from work activities. The brown pelican may be extremely susceptible to disturbance in areas near coastal islands during the breeding season (February-September). Therefore, restoration types with a land-based component, such as vegetative planting, vegetative protection, and water or sediment diversions, have the highest potential to affect brown pelicans. Other management actions associated with restoration projects, such as marsh burning, may result in temporarily decreased habitat quantity and quality until natural recovery occurs. Marsh burning may cause adverse direct effects to brown pelican during the burn through contact with smoke or flames or through loss of habitat. Changes or effects in coastal open water habitats providing suitable feeding and/or loafing areas would be temporary, and there is an abundance of suitable habitat should birds be temporarily displaced. Changes in hydrology by measures to preserve existing marsh, create additional wetlands, and restore barrier islands may enhance suitable feeding and/or loafing habitat for pelicans by enhancing the stability of those areas and the aquatic life upon which pelicans feed. Brown pelicans may benefit from restoration activities in the long-term because the availability of coastal wetland habitats would increase or existing wetlands would be of higher quality.

Direct effects to nesting brown pelicans can be avoided by preventing any work activities from encroaching within 2,000 feet of a nesting area during the nesting season. Barrier island restoration activities would not be expected to permanently affect suitable pelican nesting habitat; instead these actions would likely create more nesting habitat and prolong the life of existing nesting habitat. Noise disturbance to pelicans would be temporary and would be minimized by appropriate construction activity windows during the non-breeding season. Although sites for restoration projects have yet to be determined, they likely would be located away from areas where brown pelicans are found in the highest densities or areas known to be nesting sites, thus the likelihood and degree of adverse effects to this species would be minimal.

5.1.3 Piping Plover

Piping plover winter throughout the region and thus have the potential to be directly affected by restoration projects from noise and disturbance or if unvegetated or sparsely vegetated sand, mud, or algal flats that plovers use as roosting areas were affected. Restoration types that have the highest potential to affect piping plovers include shoreline protection, nutrient and sediment trapping. Wintering plovers in Louisiana depart for the breeding grounds during late March and early April. By May, most birds have left the wintering grounds; therefore, restoration activities would likely occur in late-spring or summer when this species is less likely to be present in coastal Louisiana. Restoration types that change the hydrology and/or dynamics of the barrier island system have the highest potential to affect piping plover. Restoration actions in Region 2 would be expected to enhance and prolong the life of existing barrier islands, as well as create new barriers or structures that would function to protect the barrier islands, thus providing a direct benefit to piping plover.

Piping plover critical habitat is designated in two areas within this region – 1) Timbalier Island to East Grand Terre Island in Terrebonne, Lafourche, Jefferson, and Plaquemines Parishes, and 2) the Mississippi River Delta in Plaquemines Parish. There is the potential for critical habitat to be directly affected by restoration projects that propose to modify these areas through vegetative plantings or other enhancements.

To avoid disturbance to piping plovers and their critical habitat, projects could be scheduled to occur outside the wintering season, or potentially disturbing activities could be phased to occur along the mainland side of the island, greater than 2000 feet from critical habitat, or both. Although sites for vegetative planting projects have yet to be determined, they likely would be located away from wintering areas known to be occupied by piping plover and areas designated as critical habitat, thus the likelihood and degree of adverse effects to this species or its critical habitat would be minimal.

5.2 Fish

5.2.1 Gulf Sturgeon

In spring and summer, Gulf sturgeon adults are typically located in large rivers and thus may not be affected by restoration activities in coastal habitats. This species may have a higher potential

to be affected by hydrologic restoration activities, river dredging, or water and/or sediment diversions in the Mississippi River. Diversions may enable wetland complexes to receive fresh water and/or sediment from the river, and the affected brackish marshes could convert to intermediate marsh as a result. Because the above-referenced habitat changes likely would only slightly alter the proportion of intermediate to brackish marsh in those areas, and since those activities would not occur near designated critical habitat, the likelihood and degree of effect to Gulf sturgeon or their critical habitat would be minimal.

Direct effects to Gulf sturgeon resulting from diversions may occur at the point of diversion in the river or in coastal habitats affected by the diversion. Adverse direct effects to adult Gulf sturgeon in riverine environments may include injury or mortality due to increased turbidity or temporary displacement during construction. In coastal habitats, sub-adult sturgeon may be affected by sudden water quality changes (e.g., salinity) or displacement. Displacement would be related to the timing and volume of freshwater input proposed. Gulf sturgeon are bottom dwellers and are not likely to be pulled into freshwater diversion structures, which typically draw water from the upper portion of the water column. Gulf sturgeon, as well as their prey species, should be able to actively avoid dredging sites. If diversions are used, the size and extent of effects likely would be minimal in relation to the size of the river system, and many areas of refuge likely would be available, if needed. Temporary habitat loss in the Mississippi River would be almost negligible because of the minimal area affected. Although sites for hydrologic restoration or diversion projects have yet to be determined, they likely would not be associated with preferred riverine habitat types for adult sturgeon, nor would these activities in the River have an impact on critical habitat, thus the likelihood and degree of adverse effect to this species and its critical habitat is expected to be minimal.

During cooler months when adult and sub-adult sturgeon could be potentially located in estuaries, bays, and coastal areas, sturgeon and designated critical habitat may be directly affected by restoration activities that affect the bottom of open-water habitats with sandy substrates and with water depths typically greater than six feet. Construction or installation of structures for hydrologic restoration or shoreline protection activities may result in temporary increases in turbidity and displacement of aquatic fauna, but these effects would be localized and occur at small spatial scales. Temporary displacement of fauna from the restoration site may result in altered feeding and movement patterns of sturgeon during restoration activities, but long-term effects to these species would not be expected because of the temporary and small-scale nature of the effects. The above referenced structures are not typically built in areas with water depths greater than three feet, therefore the potential to directly impact critical habitat is expected to be minimal.

In some cases, the preferred habitat for sub-adult sturgeon may be suitable as either a source or an area for placement of sediment for dredge and fill projects that convert open water habitat to wetlands. The conversion would increase foraging, breeding, spawning, and cover habitat for many coastal fishes and potentially increase the marsh/water interface. Short-term adverse effects to Gulf sturgeon may occur during the construction phase of these projects as a result of dredging activities. Direct effects to these species could include mortality due to burial, injury or mortality due to increased turbidity (e.g., gill abrasion, clogging of feeding apparatus), and short-term displacement associated with dredging and shoreline protection activities. Dredging and

disposal activities and the resultant increased turbidity may temporarily displace sturgeon, other fishes, and water column and benthic organisms, but this species probably would return after dredging and disposal activities were completed. Because shoreline dredging likely would occur on relatively small spatial scales and potential effects would be temporary, the likelihood of adverse effects to Gulf sturgeon would be minimal. This type of project also has the potential to directly affect Gulf sturgeon critical habitat by either removing material from the area or burying areas important for sub-adult Gulf sturgeon. All precautions, as well as consultations with the USFWS and NMFS, will be undertaken to avoid these potential impacts.

In summary, to avoid disturbance to adult Gulf sturgeon in rivers, projects could be scheduled to occur outside the primary migratory period. Eliminating or minimizing short-term effects to this species and its critical habitat from construction activities may be accomplished by choosing diversion sites or activities that do not affect velocity or thermal refuge habitat. In bays and estuaries, the effects of restoration activities can be minimized or eliminated by selecting areas that do not contain constituent factors that were used to designate critical habitat or areas that are designated as critical habitat. Overall, sites for restoration projects have yet to be determined, but because effects likely would be temporary and occur on small spatial scales, and because effects likely would not affect critical habitat, the likelihood and degree of adverse effects would be minimal.

5.2.2 Pallid Sturgeon

Potential effects to pallid sturgeon and conservation measures would be similar to those described in Section 5.2.1, Gulf sturgeon.

5.3 Mammals

5.3.1 Louisiana Black Bear

The likelihood of directly affecting Louisiana black bear with restoration activities would be minimal. The Louisiana black bear requires forest habitat that is relatively inaccessible, has thick understory vegetation, and abundant sources of food. These habitat features are unlikely to be associated with potential sites for restoration. Further, all three managed populations of Louisiana black bears occur outside of Region 2. If bears were encountered, potential effects to black bears may include destruction of den trees from construction activities (e.g., disposal of dredged material, construction of new channels, or diversions) within occupied black bear habitat and disturbance to pregnant females during the denning season.

Effects to den trees could be avoided by preventing the removal of candidate or actual den trees, which are protected under the ESA. Candidate den trees include bald cypress or tupelo gum with visible cavities, having a diameter-at-breast height of 36 inches or greater, and occurring in or along rivers, lakes, streams, bayous, sloughs, or other water bodies. Within occupied bear habitat, effects to pregnant females and/or females with cubs could be avoided by preventing construction activities during the denning season. Because bears can become attracted and accustomed to human food, keeping work areas clean and providing personnel with appropriate bear-proof trash receptacles would help to minimize the risk of disturbance and/or

confrontations. Although sites for restoration projects have yet to be determined, they likely would not be associated with preferred habitat types for the Louisiana Black Bear, thus the likelihood and degree of effect would be minimal.

5.3.2 West Indian Manatee

Migrating West Indian manatees have been observed during summer along the Louisiana coast, but this species is unlikely to be encountered in rivers or nearshore habitats in Region 2. Although sites for restoration projects have yet to be determined, they likely would not be associated with preferred habitat types for the West Indian manatee, thus the likelihood and degree of effect to this species would be minimal. Should any manatees be encountered during the proposed activities, proper personnel would be notified and harmful activities (e.g., dredging) would be temporarily suspended until the animal(s) moves to safety.

5.4 Reptiles

There would be a minimal likelihood of adversely affecting sea turtles from restoration activities in Region 2 because these species rarely use coastal Louisiana for nesting, rivers, or nearshore habitats that could be affected by restoration projects.

5.4.1 Green Sea Turtle

Adverse effects to green sea turtles in Region 2 from potential restoration projects would not be expected because there are not extensive seagrass beds in coastal Louisiana and because this species is rarely encountered or observed stranded. Therefore, the likelihood and degree of effect to this species would be minimal.

5.4.2 Hawksbill Sea Turtle

The likelihood of adversely affecting Hawksbill sea turtles from restoration activities in Region 2 is minimal because of its rarity along the Louisiana coast. Only one record of a Hawksbill sea turtle in Louisiana has been reported and their nesting distribution in the continental U.S. is believed to be restricted to the southeast coast of Florida and the Florida Keys.

5.4.3 Kemp's Ridley Sea Turtle

The Kemp's ridley sea turtle occasionally occupies inshore areas, especially around mouths of major rivers, but this species has not been observed nesting along coastal Louisiana. Therefore, effects to Kemp's ridley sea turtles in Region 2 from potential restoration projects likely would be minimal. Marsh creation projects may provide more suitable inshore habitat (characterized by low salinity, and high turbidity and organic content, where shrimp and blue crabs are abundant) for this species when foraging.

5.4.4 Leatherback Sea Turtle

Restoration activities in Region 2 likely would have minimal adverse effects to leatherback sea turtles because they largely occupy oceanic water more than 50 meters in depth. Leatherback sea turtles may occasionally inhabit shallow waters and estuaries in Louisiana, but the primary nesting location for this species is farther south and east in Florida, U.S. Virgin Islands, and Puerto Rico. Louisiana nesting sites have not been observed for leatherback sea turtles.

5.4.5 Loggerhead Sea Turtle

Adverse effects to loggerhead sea turtles in Region 2 from potential restoration projects likely would be minimal because only minor and solitary nesting of loggerhead sea turtles has been recorded along the coast of the Gulf of Mexico and the probability of nesting along the Louisiana coast is considered extremely low.

6.0 Cumulative Effects of the Proposed Action

Cumulative effects to threatened and endangered species would primarily be related to the incremental impact of all past, present, and future restoration activities, such as the beneficial use of dredged material for creation of bird islands; other Federal, state, local and private restoration actions such as Coastal Wetland and Protection Preservation Act (CWPPRA) restoration projects; Civil Works Section 204/1135 restoration projects; mitigation actions; and others. A directional analysis (i.e., benefit, neutral, adverse) was used to analyze the cumulative effects to threatened and endangered species from the draft Region 2 RRP. Detailed cumulative effects can not be quantified at this time because potential restoration projects associated with the Draft Region 2 RRP are conceptual and potential effects are considered on a programmatic scale. Detailed cumulative effects would be further developed on a project-by-project basis in separate ESA consultations, as appropriate.

Based on the analysis of direct, indirect, and cumulative effects from other programmatic biological assessments in the region (USACE 2004) and the analysis provided in this document, the likelihood of adverse cumulative effects to threatened and endangered species, and their designated critical habitat is considered minimal. Most pre-identified restoration project sites would be located in coastal or riparian areas, would occur on a small-scale relative to species' home ranges and habitat utilization patterns, and potential effects to endangered and threatened species and their critical habitat would be avoided by current regulatory impact avoidance measures. Potential actions associated with the Draft Region 2 RRP instead may benefit a number of endangered and threatened species through the restoration of coastal, estuarine, and riverine habitats, however quantifying benefits to species in relation to other ongoing, large-scale human and environmental effects in the region is difficult. There are not adverse effects to threatened and endangered species to which the proposed restoration program would contribute, that, cumulatively, would clearly constitute a cumulative effect.

Overall, piping plovers, brown pelicans, bald eagles, Gulf and pallid sturgeon, and sea turtles likely would benefit from restoration actions described in Section 5.0 of this document because

the availability of coastal wetland habitats likely would increase or restored habitat would be of higher quality. Potential actions associated with the Draft Region 2 RRP would help moderate adverse effects experienced nationwide for these species in particular. Projected habitat gains would be contrasted with continued wetland loss in Region 2 from subsidence and other natural and anthropogenic causes. All other threatened and endangered species in this consultation likely would not be impacted.

7.0 Essential Fish Habitat

The Draft Region 2 RRP addresses conceptual restoration alternatives to implement damage assessment and restoration planning on a programmatic level and, as such, each incident's Damage Assessment and Restoration Plan (DARP) will include an EFH assessment as required by the Magnuson-Stevens Fishery and Conservation and Management Act (MSFCMA). This approach would be consistent with the EFH consultation review performed for the Louisiana Regional Restoration Planning Program, DPEIS by the NMFS on July 9, 2003 (Appendix B).

Because Trustees consist of more than one Federal agency and non-Federal agencies, provisions (50 CFR Sections 600.920(b) and (c)) for designating a lead agency or non-Federal representative to conduct EFH consultation for individual DARPs will be followed. Adverse effects to EFH may occur as a result of habitat restoration activities addressed in the Draft Region 2 RRP. Implementation of habitat enhancement or restoration activities can result in short-term and localized adverse impacts to resources during and following construction. However, in the long-term, restoration activities are likely to result in positive impacts to EFH and the various life stages of fishes that utilize it. Individual DARPs will incorporate mandatory contents and recommended additional information for EFH assessments, as provided in 50 CFR Section 600.920(e)(3).

8.0 Conclusion and Determination

8.1 Summary

This programmatic biological assessment addresses all potential restoration activities described under Section 3.0, Description of the Proposed Action. Proposed activities resulting from the Draft Region 2 RRP likely would not affect the blue whale, finback whale, sei whale, humpback whale, northern right, or sperm whale, even indirectly, nor will it affect habitat used by those species (Table 2). Thus, the Draft Region 2 RRP would have *no effect* on those species. The Draft Region 2 RRP *is not likely to adversely affect* bald eagle, brown pelican, piping plover, Louisiana black bear, West Indian manatee, Gulf sturgeon, pallid sturgeon, green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle (Table 2). In addition, the Draft Region 2 RRP *is not likely to adversely affect* designated critical habitat for Gulf sturgeon and piping plover. The following determinations for the Draft Region 2 RRP are consistent with those contained in Appendix B of the Final EIS for the Louisiana Coastal Area Ecosystem Restoration Study (USACE 2004), which also analyzed the effects of

potential restoration actions on threatened and endangered species in Region 2, and throughout Louisiana.

Table 2. Summary of effect determinations for threatened and endangered species with the potential to occur in the geographic boundaries identified in the Draft Region 2 RRP.

Species Name	Determination
bald eagle	Not likely to adversely affect
brown pelican	Not likely to adversely affect
piping plover*	Not likely to adversely affect
Gulf sturgeon*	Not likely to adversely affect
pallid sturgeon	Not likely to adversely affect
Louisiana black bear	Not likely to adversely affect
West Indian manatee	Not likely to adversely affect
blue whale	No effect
finback whale	No effect
sei whale	No effect
humpback whale	No effect
northern right whale	No effect
sperm whale	No effect
green sea turtle	Not likely to adversely affect
hawksbill sea turtle	Not likely to adversely affect
Kemp's ridley sea turtle	Not likely to adversely affect
leatherback sea turtle	Not likely to adversely affect
loggerhead sea turtle	Not likely to adversely affect

*Denotes the designation of critical habitat.

8.2 Birds

8.2.1 Bald Eagle

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* bald eagle. This determination is based on:

- Negligible effect on foraging and predation
- Restoration activities likely would occur outside of nesting periods
- Restoration activities likely would not occur in close proximity to tall, bald cypress trees and/or lakes with tall pine trees typically used for nesting
- Restoration activities would be temporary and likely occur on small spatial scales

8.2.2 Brown Pelican

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* brown pelican. This determination is based on:

- Negligible effect on foraging and predation
- Restoration activities likely would occur outside of nesting periods
- Restoration activities likely would not permanently affect suitable pelican nesting habitat
- Restoration activities would be temporary and likely occur on small spatial scales

8.2.3 Piping Plover

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* piping plover or piping plover critical habitat. This determination is based on:

- Restoration activities likely would occur outside the wintering season
- Restoration activities likely would not permanently affect plover wintering habitat
- Restoration activities would be temporary and likely occur on small spatial scales
- Restoration activities likely would occur greater than 2000 feet away from critical habitat
- Restoration activities likely would not affect critical habitat

8.3 Fish

8.3.1 Gulf Sturgeon

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* Gulf sturgeon or Gulf sturgeon critical habitat. This determination is based on:

- In-river restoration activities would occur in locations and during periods with the lowest probability of Gulf sturgeon presence
- Adults likely would not be entrained in diversion structures because this species is found on the bottom of large rivers
- Relatively slight changes in river and/or coastal habitats relative to overall habitat availability likely would not affect sturgeon
- Restoration activities would be temporary and likely occur on small spatial scales
- Restoration activities would be minimized or eliminated by selecting areas that do not contain constituent factors used to designate critical habitat or areas that are designated as critical habitat

8.3.2 Pallid Sturgeon

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* pallid sturgeon. This determination is based on:

- In-river restoration activities would occur in locations and during periods with the lowest probability of pallid sturgeon presence
- Adults likely would not be entrained in diversion structures because this species is found on the bottom of large rivers
- Relatively slight changes in river and/or coastal habitats relative to overall habitat availability likely would not affect sturgeon
- Restoration activities would be temporary and likely occur on small spatial scales

8.4 Mammals

8.4.1 Louisiana Black Bear

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* Louisiana Black Bear. This determination is based on:

- Restoration activities likely would occur outside of the denning season, thereby avoiding disturbance of pregnant females and cubs
- Restoration activities likely would not occur in or near to thick bottomland forests preferred by this species
- Restoration activities would be temporary and likely occur on small spatial scales

8.4.2 West Indian Manatee

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* West Indian Mantee. This determination is based on:

- The low likelihood of occurrence in the coastal waters of Louisiana
- Restoration activities would be temporary and likely occur on small spatial scales

8.5 Reptiles

Based on the above analysis, the Draft Region 2 RRP *is not likely to adversely affect* green, hawksbill, Kemp's ridley, leatherback, or loggerhead sea turtle populations. This determination is based on:

- The low likelihood of occurrence in the coastal waters of Louisiana
- Restoration activities would not likely occur near nesting areas
- Restoration activities would be temporary and likely occur on small spatial scales

Restoration activities that do not meet the "*no effect*" or "*not likely to adversely effect*" determinations for all species considered in this document will not be addressed by this programmatic biological assessment. When such activities are proposed, they will be addressed by another biological assessment and consultation.

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10.0 List of Contacts/Contributors/Preparers

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Appendix A

Draft Regional Restoration Plan - Region 2 for the
Louisiana Regional Restoration Planning Program

Appendix B

EFH Consultation Review on July 9, 2003 for the
Louisiana Regional Restoration Planning Program, DPEIS

Response letter from NOAA NMFS with Essential Fish Habitat comments for the PEIS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
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(727) 570-5317, FAX (727) 570-5300

July 9, 2003 F/SER4:DD

MEMORANDUM FOR: John Iliff
Damage Assessment and Restoration Program

FROM: F/SER4 - Rickey Ruebsamen

SUBJECT: Louisiana Regional Restoration Planning Program, Draft Programmatic Environmental Impact Statement (DPEIS) - EFH Consultation Review

This is in response to your June 19, 2003, Essential Fish Habitat (EFH) consultation request for the Draft Programmatic Environmental Impact Statement (Draft PEIS) for the Louisiana Regional Restoration Planning Program (RPP). The RPP would assist natural resource trustees in carrying out their responsibilities in Natural Resource Damage Assessment cases in the state of Louisiana.

Your request indicates that the Draft PEIS analyzes alternatives to implement damage assessment and restoration planning on a programmatic level and, as such, each incident's Damage Assessment and Restoration Plan (DARP) will include an EFH assessment as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). Based on the nature of the action analyzed in the Draft PEIS we concur with this approach as provided for in 50 CFR Section 600.920(j)(3). The following comments are provided to assist in your preparation of the Final PEIS and DARPs.

Various incomplete and incorrect descriptions, definitions and requirements of the Essential Fish Habitat provisions of the MSFCMA are scattered throughout the document (pages 12, 97, B-37 and Appendix C). In order to provide a complete and coherent representation of EFH provisions and requirements, we recommend that these be modified (as described below) and be moved to, and the reader refered to, Appendix C.

1 Page 12: The description of EFH on this page is confusing and implies that the EFH provisions do not apply nationwide. We recommend modifying paragraph as follows:

> Essential Fish Habitat - Essential Fish Habitat and Habitat Areas of Particular Concern (HAPC) are described and identified in amendments to address EFH requirements of the Fishery Management Plans (FMP) of the regional Fishery Management Councils and approved by NOAA Fisheries. EFH and HAPC's

(if any) within Louisiana and its coastal waters are designated in the generic FMP amendment of the Gulf of Mexico Fishery Management Council.

2 Page 97: The above identified request for EFH consultation was sent directly to our Habitat Conservation Division independently of the Endangered Species Act Section 7 Consultation purportedly sent to the National Marine Fisheries Service (NOAA Fisheries) as described on this page. This should be corrected. The EFH section should also describe the responsibility that Federal agencies have to consult with NOAA Fisheries regarding any of their actions proposed to be authorized, funded, or undertaken that may adversely affect EFH. Furthermore, this section should clearly state that each incident's DARP will include an EFH assessment as required by the MSFCMA.

3 Page B-37: The definition of the Exclusive Economic Zone (EEZ) as presented on this page implies that the seaward boundary of the EEZ is 200 miles beyond the 3- or 9-mile boundary of state territorial waters. We recommend that it be clarified that the outer extent of the EEZ is 200-miles from shore.

4 We recommend that the following (from 50 CFR Section 600.920(e)(3)) be provided in Appendix C. as a guideline to the mandatory contents and recommended additional information for EFH assessments to assist in the preparation of DARPs:

Mandatory contents. The assessment must contain:

(i) A description of the action.
(ii) An analysis of the potential adverse effects of the action of EFH and the managed species.
(iii) The Federal agency's conclusions regarding the effects of the action on EFH.
(iv) Proposed mitigation, if applicable.

Additional information. If appropriate, the assessment should also include

(i) The results of an on-site inspection to evaluate the habitat and the site-specific effects of the project.
(ii) The views of recognized experts on the habitat or species that may be affected.
(iii) A review of pertinent literature and related information.
(iv) An analysis of alternatives to the action. Such analysis should include alternatives that could avoid or minimize adverse effects on EFH.

(v) Other relevant information.

5. Because Trustees consist of more than one Federal agency and non-Federal agencies, Appendix C should also reference the provisions (50 CFR Sections 600.920(b) and (c)) for designating a lead agency or non-Federal representative to conduct EFH consultation for individual DARPs.

Finally, it is important to note that adverse impacts to EFH may occur as a result of habitat restoration activities. The PEIS correctly states (page E-10) that implementation of habitat enhancement or restoration activities can result in adverse impacts to resources during and following construction. It is also important to recognize that restoration activities that result in the conversion of habitat types where both types are designated as EFH, results in a permanent/long-term adverse impact on EFH of the previous type. This would be the case even if the overall project is deemed as environmentally beneficial or preferred by the trustees. This dichotomy should be presented in the PEIS as guidance to prevent unnecessary delays resulting from incorrect or incomplete EFH assessments.

If we can be of further assistance, please advise. Questions regarding these comments should be directed to Mr. David Dale at (727)570-5736.

TOTAL P.04