United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

July 22, 2008

Colonel Alvin B. Lee
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Lee

Please reference the "Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) St. Charles Parish, Louisiana (IER1)". That study was conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps of Engineers (Corps) to upgrade some existing hurricane protection projects to provide protection against a 100-year hurricane event. This report contains an analysis of the impacts on fish and wildlife resources that would result from the implementation of 100-year hurricane protection for that area, and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which instructed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the LPV and the West Bank and Vicinity (WBV) Hurricane Protection Projects so those projects would provide 100-year hurricane protection. Procedurally, project construction has been authorized in the absence of the report of the Secretary of the Interior that is required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). In this case, the authorization process has precluded the normal procedures for fully complying with the FWCA. The FWCA requires that our Section 2(b) report be made an integral part of any report supporting further project authorization or administrative approval. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Service will be providing post-authorization 2(b) reports for each IER.

This report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the WBV of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the LPV (dated July 25, 1984 and January 17, 1992) Hurricane Protection projects and the November 26, 2007 Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. This report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA.

The draft and supplemental FWCA Report was provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service; their comments are incorporated into this final report.

We appreciate the cooperation of your staff on this study. Should your staff have any questions regarding the enclosed report, please have them contact Ms. Catherine Breaux (504/862-2689) of this office.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

Enclosures

cc: EPA, Dallas, TX
National Marine Fisheries Service, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD/CRD), Baton Rouge, LA

Fish and Wildlife Coordination Act Report
for the
Individual Environmental Reports (IER)
St. Charles Parish, Louisiana
IER 1

Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4)

PROVIDED TO
NEW ORLEANS DISTRICT
U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

PREPARED BY
CATHERINE BREAUX
FISH AND WILDLIFE BIOLOGIST

U.S. FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
LAFAYETTE, LOUISIANA
JULY 2008
U.S. FISH AND WILDLIFE SERVICE – SOUTHEAST REGION

TABLE OF CONTENTS

FIGURES AND TABLES

EXECUTIVE SUMMARY

The U. S. Army Corps of Engineers' New Orleans District (Corps) is preparing the "Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) St. Charles Parish, Louisiana (IER1)". That study was conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade some existing hurricane protection projects to provide protection against a 100-year hurricane event. This report contains an analysis of the impacts on fish and wildlife resources that would result from the implementation of 100-year hurricane protection for that area, and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which instructed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the LPV and the West Bank and Vicinity (WBV) Hurricane Protection Projects so those projects would provide 100-year hurricane protection. Procedurally, project construction has been authorized in the absence of the report of the Secretary of the Interior that is required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). In this case, the authorization process has precluded the normal procedures for fully complying with the FWCA. The FWCA requires that our Section 2(b) report be made an integral part of any report supporting further project authorization or administrative approval. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Service will be providing post-authorization 2(b) reports for each IER.

This report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the WBV of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the LPV (dated July 25, 1984 and January 17, 1992) Hurricane Protection projects and the November 26, 2007 Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. This report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. The draft and supplemental FWCA Report was provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service; their comments are incorporated into our final report.

Construction of the flood protection levee would result in the loss of 292 acres of swamp and bottomland hardwood wetlands for a total loss of 193 AAHUs. The Service does not object to the construction of the proposed project provided the following fish and wildlife conservation recommendations are implemented concurrently with project implementation:

1. The Corps and local sponsor shall provide 193 AAHUs to compensate for the unavoidable, project-related loss of forested wetlands. The Service, National Marine Fisheries Service (NMFS), Louisiana Department of Wildlife and Fisheries (LDWF), and Louisiana Department of Natural Resources (LDNR) should be consulted regarding the adequacy of any proposed alternative mitigation sites. The mitigation plan developed to

offset project related impacts should be consistent with mitigation requirements of the Clean Water Act regulatory program, and include monitoring, success criteria, and financial assurance components.

2. The Service recommends that any impacts to forested wetlands should be avoided or minimized to the greatest extent practicable.

3. Three new access roads will be constructed at the Shell pipeline crossing, under I-310, and at the Walker structure. The potential for induced development is increased greatly with these new access corridors, especially the access road at the Walker structure. The Service recommends that all three access roads be only used temporarily during construction and to be degraded and replanted with appropriate bottomland hardwood forest or cypress swamp species after construction activities are complete. Reforestation activities should include the use of measures to prevent nutria herbivory, and monitoring to document habitat recovery and the need for further actions. If any of the access roads are not degraded after construction activities are completed, then secondary and cumulative impacts would have to be assessed.

4. Where each of the three access roads cross wetlands, 18-24 inch culverts should be installed every 250 feet. Additional culverts should be installed at stream crossings and drainage features. Culverts should be maintained to ensure that existing flow of surface water is uncompromised.

5. All gates and/or culverts being replaced or modified should be operated according to previously developed operational plans to avoid further degradation of the project area hydrology.

6. To prevent the protected-side swamps near the Bayou Trepagnier pumps and drainage structure from becoming impounded or drained, provide assurance that once the drainage structure is replaced with a T-wall that the pumps will be operated to achieve the same hydrologic results (i.e. water levels) as in the past thus perpetuating existing conditions and minimizing secondary impacts from development and hydrologic alteration.

7. Bayou Trepagnier is a Louisiana designated Natural and Scenic River. The Corps must obtain authorization from the LDWF, Scenic Rivers Program prior to initiating any of the proposed activities within or adjacent to the banks of Bayou Trepagnier. Scenic Rivers Coordinator Keith Cascio can be contacted at (318) 343-4045.

8. Avoid adverse impacts to wading bird colonies through careful design project features and timing of construction. Colonies that are not currently listed in the database maintained by the Louisiana Department of Wildlife and Fisheries may be present. That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new, comprehensive coast-wide survey is conducted to determine the location of newly-established nesting colonies, the Service recommends that a qualified

biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season.

9. The Service shall be provided an opportunity to review and submit recommendations on future planning and design documents and the draft plans and specifications for all levee work addressed in this report.

10. Any proposed change in levee, floodwall, or drainage structure features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

11. The project's first Project Cooperation Agreement (or similar document) shall include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation features.

12. If the proposed project has not been constructed within 1 year or if changes are made to the proposed project, the Corps should re-initiate Endangered Species Act consultation with the Service to ensure that the proposed project would not adversely affect any Federally listed threatened or endangered species or their habitat.

INTRODUCTION

The U. S. Army Corps of Engineers' New Orleans District (Corps) is preparing the "Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) St. Charles Parish, Louisiana (IER1)". That study was conducted in response to Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (Supplemental 4). That law authorized the Corps to upgrade some existing hurricane protection projects to provide protection against a 100-year hurricane event. This report contains an analysis of the impacts on fish and wildlife resources that would result from the implementation of 100-year hurricane protection for that area, and provides recommendations to minimize and/or mitigate project impacts on those resources.

The proposed project was authorized by Supplemental 4 which instructed the Corps to proceed with engineering, design, and modification (and construction where necessary) of the LPV and the West Bank and Vicinity (WBV) Hurricane Protection Projects so those projects would provide 100-year hurricane protection. Procedurally, project construction has been authorized in the absence of the report of the Secretary of the Interior that is required by Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). In this case, the authorization process has precluded the normal procedures for fully complying with the FWCA. The FWCA requires that our Section 2(b) report be made an integral part of any report supporting further project authorization or administrative approval. Therefore, to fulfill the coordination and reporting requirements of the FWCA, the Service will be providing post-authorization 2(b) reports for each IER.

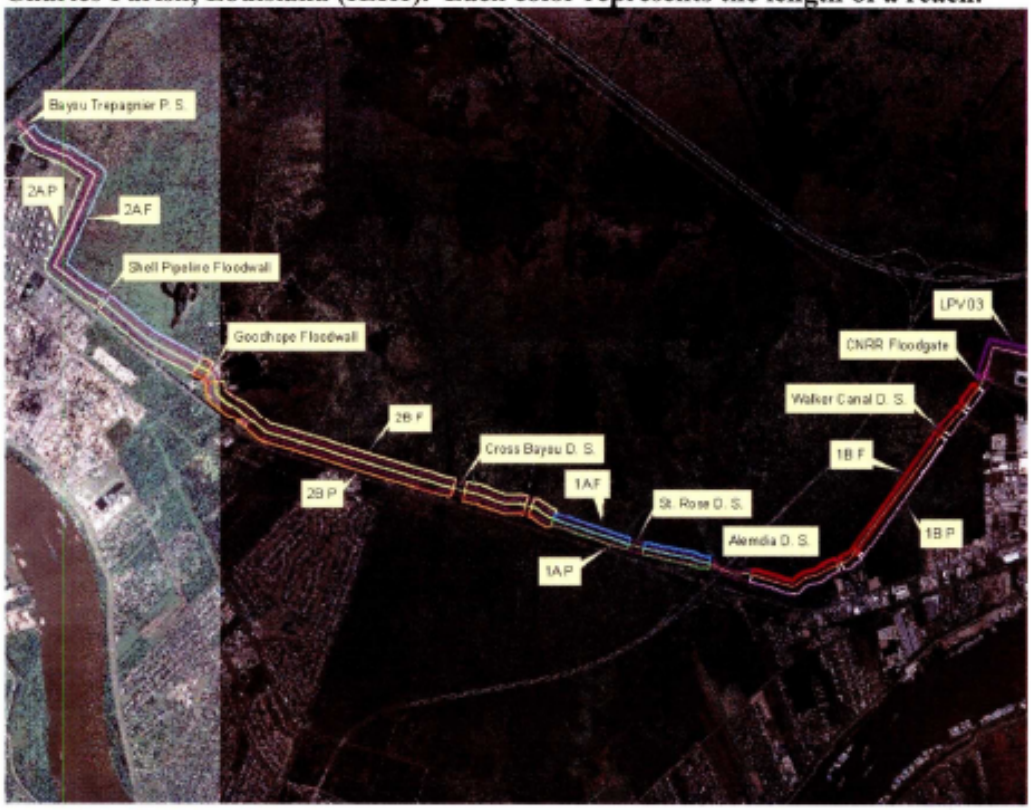
This draft report incorporates and supplements our FWCA Reports that addressed impacts and mitigation features for the WBV of New Orleans (dated November 10, 1986, August 22, 1994, November 15, 1996, and June 20, 2005) and the LPV (dated July 25, 1984 and January 17, 1992) Hurricane Protection projects and the November 26, 2007 Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4. This report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. The draft report was provided to the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service; their comments are incorporated into our final report.

DESCRIPTION OF THE STUDY AREA

The IER1 project area runs along the existing St. Charles Parish levee system on the north side of U.S. 61 (Airline Highway) (Figure 1). The existing levee, floodwalls, and floodgates proposed for amendment as part of the IER1 project begins immediately north of the Shell-Norco complex adjacent to the Bonnet Carré Guide Levee, which is east of the Bonnet Carré Spillway. The existing levee system wraps around the Shell-Norco complex and runs approximately 0.1 mile north of and parallel to Airline Highway. Approximately one half mile east of the Interstate-310

interchange with Airline Highway the levee system turns to a northeasterly direction. The IER1 project area terminates around the northwest end of the Louis Armstrong New Orleans International Airport near the St. Charles/Jefferson parish line.

Figure 1. Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) St. Charles Parish, Louisiana (IER1). Each color represents the length of a reach.



DESCRIPTION OF SELECTED PLAN

The proposed plan for IER1 involves upgrading or rebuilding the existing flood protection levee and associated floodwalls, gates, and drainage structures on the St. Charles Parish levee system. The preferred plan will rebuild 8.7 miles of earthen levees, replace 6,400 linear feet of floodwalls, and construct fronting protection for five existing drainage structures. IER1 is subdivided into several separate reaches (figure 1). Reaches LPV 03, 1A, 1B, 2A, and 2B make up the earthen levee portions of IER1; the floodwalls and gates include the Bonnet Carre floodwall, Shell pipeline floodwall, Good Hope floodwall, Koch-Gateway floodwall, floodwall under Interstate 310 (I-310), Canadian National Railroad Gate; and the drainage structures include the Cross Bayou drainage structure, St. Rose drainage structure, Almeidia drainage structure, and Walker drainage structure.

LPV03

LPV 03b consists of approximately 3,000 linear feet (lf) of levees at the northwestern end of the Louis Armstrong New Orleans International Airport. The existing elevations of the levees vary, but range from +10.5 to +13.5 feet (ft) as referenced to the North American Vertical Datum (NAVD88). The preferred alternative for this reach consists of an increase in levee height with a flood-side shift. The levees would be raised increasing the height to approximately 14 ft to 16 ft. There would be an approximate 20 ft expansion of the levee footprint (the ground surface area that would be covered by the alternative structure and associated right-of-way [ROW]) on the flood-side of the levee. Tie-ins to the Canadian National Railroad Gate and the floodwalls of IER #2 (Jefferson East Bank Levee) would also be incorporated.

Levee Reaches 1A, 1B, 2A, and 2B

LPV04 consists of approximately 8 miles of levee. Prior to hurricane Katrina, the levees were at an elevation of approximately +9 to +12 ft NAVD88. These reaches either were recently raised or are currently under contract to be raised to their authorized heights of approximately +14 ft NAVD88.

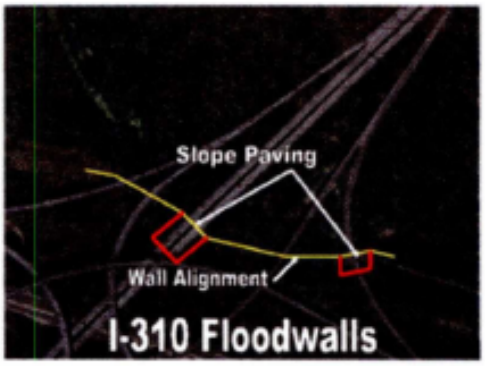
The preferred alternative for these reaches consists of raising the levee reaches from their authorized height of 12.5 to 13.5 ft to 18 ft plus 1 ft overbuild for Reach 1A; 16 ft plus 1 ft overbuild for Reach 1B; and 18 ft plus 1 ft overbuild for Reach 2A and 2B. Levee alignments would not be changed; however, the centerline of the levees could shift slightly, as necessary, to accommodate the levee footprint expansions of 100 to 250 ft on both the flood- and protected-sides.

Floodwalls and Gate

The Bonnet Carré floodwall consists of approximately 155 lf of floodwall, the Shell pipeline floodwall is 195 lf, the Good Hope floodwall is 550 lf, and the Koch-Gateway floodwall is 272 lf. The preferred alternative for these four flood walls consists of demolishing the existing walls and rebuilding the new T-walls to approximately 17 to 18.5 ft. Based on the preferred alternative for levees, the new walls would remain in their current alignment with minimal footprint expansion. However, the Bonnet Carré Floodwall would be increased in length to 465 ft. During the construction phase, temporary structures (sheet piling) would be installed on the flood-side to protect the existing levee system.

The preferred alternative for the floodwall under I-310 (1,760 lf) consists of demolishing the existing I-wall, replacing the I-wall with a new T-wall to approximately the same height (13.5 ft) under the I-310 spans and under the onramp from Westbound Airline Drive to Northbound I-310 and to an elevation of 15.5 ft at all other sections of the wall. In addition, concrete scour protection would be incorporated under the bridges extending approximately to the limit of the ROW on the protected side of the floodwall and extending approximately 50 feet on either side of the bridges (Figure 2). The small gate located about mid-way down the length of the floodwall and located east of the main I-310 spans would also be replaced. The existing sheet pile would be driven down and new steel H-piles would be driven approximately 90 feet on the protected side of the new wall.

Figure 2. I-310 Wall Scour Protection



The preferred alternative for the 450 lf Canadian National Railroad Gate consists of adding approximately 4-5 ft of height to the existing gate, bringing it to an approximate height of 16 ft. The tie-in floodwalls on each side of the existing gate would be demolished and new T-walls would be constructed to tie-in with the levee reach at approximately 16 ft.

Drainage Structures

The preferred alternative for the existing drainage structure on the canal west of Bayou Trepagnier would be retrofitted with a new T-wall to a height of approximately 18 ft and a stability berm.

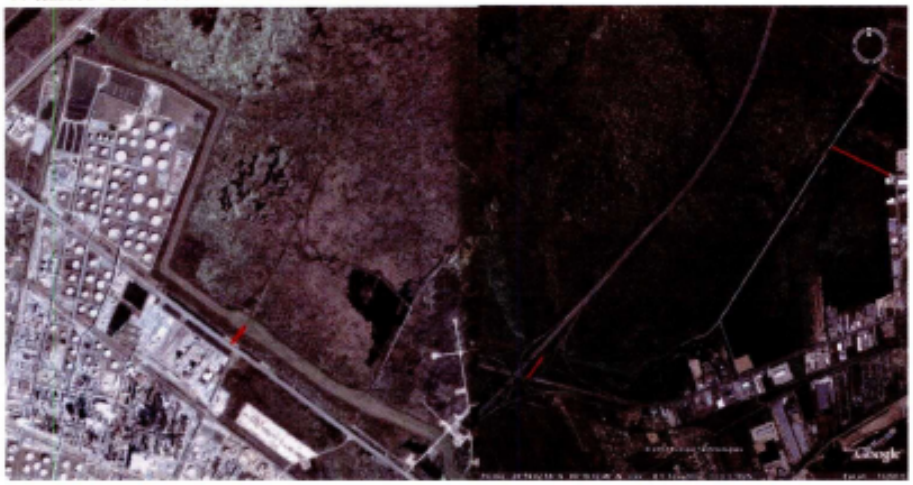
The proposed action for the Cross Bayou drainage structure (503 lf) and the St. Rose drainage structure (640 lf) consist of demolishing and rebuilding the structures to approximately 18 ft. The new structures would remain in alignment with the levee system; however, the current structures would remain in place while the new structures are built. The new structures would be built adjacent to the existing structures and the drainage canals would be realigned to flow through the new structures after completion. Following completion of the new structures, the existing structures would be demolished and replaced with an extension to the adjacent levee and a levee tie-in system.

The proposed action for the 225 lf Almeidia drainage structure and the 248 lf Walker drainage structure drainage structures would be to modify the existing structures (using additional pilings and thicker walls to add height) to approximately 16 ft.

Access Roads

Three new temporary access roads will be constructed based on increased activities and to relieve significant congestion on the existing access roads. The access roads (figure 3) will be located at the Shell pipeline crossing (0.47 acres) in reach 2A and under I-310 (0.63 acres) in reach 1B. The access road near the Walker structure (1.89 acres) would extend from the northwest corner of the business park to the Walker structure in reach 1B.

Figure 3. Access road at the Shell pipeline crossing in reach 2A and under I-310 and at the Walker structure in reach 1B.



Borrow

For all construction under the proposed action, earthen fill material would be obtained from the Bonnet Carre Spillway, which is located approximately 1-9 miles from the IER1 project area. The borrow material would be stock piled, as needed, along the protected side of the new levee alignment for each reach included in the proposed action. Impacts for areas stock piled and for borrow for each IER will be addressed in a separate IER document.

FISH AND WILDLIFE RESOURCES

Description of Habitats

Habitat types in the study area include forested wetlands (i.e., swamp and/or bottomland hardwoods), marsh, open water, and developed areas. Wetlands within the project area provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands in the project area also provide valuable water quality functions such as reduction of excessive dissolved nutrient levels, filtering of waterborne contaminants, and removal of suspended sediment. In addition, coastal wetlands buffer storm surges reducing their damaging effect to man-made infrastructure within the coastal area.

Factors that will strongly influence future fish and wildlife resource conditions in the area include freshwater input and loss of coastal wetlands. In the future, depending upon the deterioration rate of marshes, the frequency of occasional short-term saltwater events may increase. Under that scenario, tidal action in the project area may increase gradually as the buffering effect of marshes are lost, and use of that area by estuarine-dependent fishes and shellfish tolerant of freshwater

conditions would likely increase. However, with a total closure structure on the MRGO there is expected to be an overall decrease in salinities throughout the Pontchartrain basin. Regardless of which of the above factors ultimately has the greatest influence, freshwater wetlands within and adjacent to the project area will probably experience losses due to development, subsidence, and erosion; however, fish and wildlife habitat quality should remain approximately at or slightly below present levels on the remaining acreage of those wetlands.

As previously mentioned, the Service has provided previous FWCA Reports for the two subject hurricane protection projects. Those reports contain a discussion of the significant fish and wildlife resources including habitats that occur within the study area. For brevity, that discussion is incorporated by reference herein, but the following brief descriptions are provided to update the previously mentioned information.

Forested Wetland Habitats

The majority of the area adjacent to the levee reaches in the IER1 project area is swamp. About 350 acres of swamp habitat are located on the protected side of the existing levee and hundreds of acres of swamp extend from the flood side of the levee. The swamp habitat in the project area is predominantly vegetated by bald cypress, tupelo, and red maple (see Appendix A for all Latin names of plants, fish, amphibians, reptiles, birds, and mammals in this report). Other tree species include Chinese tallow-tree, green ash, black willow, black gum, and pumpkin ash. Other vegetation includes Walter's millet, spikerush, alligatorweed, pennywort, Aster, goldenrod, marshmallow, cattail, rattlebox, frogbit, dogfennal, eastern baccharis, smartweed, deerpea, Panicum, waterhyssop, frogfruit, spikerush, buttonbush, palmetto, and delta duckpotato.

Only one and a half acres of bottomland hardwood (BLH) on the flooded side near the I-310 interchange will be affected by this project. That BLH exist on higher elevation than the surrounding swamp because the site was a medical waste landfill. BLH habitat in the project area is predominantly sugarberry, red maple, green ash, and American elm. Other tree species include oaks, pumpkin ash, Chinese tallow-tree, cottonwood, and flowering dogwood. Other vegetation includes alligatorweed, smartweed, lizard's tail, eastern baccharis, Virginia creeper, Rubus, elderberry, goldenrod, and mulberry.

Due to the railroad through LaBranche, the St. Charles Parish levee, and Highway 61, the hydrology of the forested wetlands has been altered. Before the railroad and the levee, water levels were mostly influenced by sheet flow across the marsh and influenced from Lake Pontchartrain. Though the swamp on the flooded side of the levee is still tidally connected to Lake Pontchartrain, the exchange may be somewhat restricted (moderate flow/exchange and semi-permanently flooded) as water flows through openings across the railroad. The protected side is not or minimally tidally influenced (low flow/exchange and semi-permanently flooded) as the water has to pass through more culverts or gates across the levee. The bottomland hardwood, which is higher in elevation than the swamp, is seasonally flooded but has the same flow/exchange as the swamp.

In the future, the forested wetlands are expected to remain for the project life. Subsidence will continue but not to the extent that will be detrimental to this habitat.

Marshes

Some fresh marsh exists at the eastern end of the project area near the airport (LPV03 reach). The marsh vegetation there includes marshhay cordgrass, smooth cordgrass, bullwhip, eastern baccharis, alligatorweed, deerpea, Walter's millet, spikerush, pennywort, marshmallow, cattail, rattlebox, frogbit, smartweed, panicum, waterhyssop, frogfruit, and spikerush.

Emergent wetlands within the project area provide plant detritus to adjacent coastal waters and thereby contribute to the production of commercially and recreationally important fishes and shellfishes. Wetlands in the project area also serve valuable water quality functions such as reduction of excessive dissolved nutrient levels and removal of suspended sediment. These wetlands are expected to remain relatively stable with some decline from subsidence.

Open-Water Habitats

The project area is bound to the north by the LaBranche Wetlands and to the north of LaBranche is Lake Pontchartrain. Bayous LaBranche and Trepagnier are the major natural water features occurring in and around the project area. Bayou LaBranche originates near Highway 61 and flows northward for four miles to its confluence with Lake Pontchartrain. Bayou Trepagnier flows for four miles north from the Shell-Norco Oil Refinery to its confluence with Bayou LaBranche.

The major canals and drainage-ways within the project area are the Cross Bayou Canal that starts north of the Mississippi River and crosses the existing flood control levee flowing north to cross Bayou Traverse and terminates in the LaBranche wetlands near Interstate 10. Another drainage-runs parallel to the Cross Bayou Canal on the east, crossing the existing levee and flowing north across Bayou Traverse to its confluence in Lake Pontchartrain; Walker Canal begins south of the levee near U.S. 61 (Airline Highway) and flows north across the levee to its confluence in Lake Pontchartrain. The levees borrow canal runs parallel to the south side of the levee from the eastern side of the I-310 interchange to the Canadian National Railroad Gate. These canals and drainage-ways are man made features created for control of storm water run-off or were created during construction of the existing levees. The network of these structures illustrates the highly manipulated hydrology of the project area.

The canals and bayous support submerged and floating aquatic vegetation such as coontail, wild celery, alligatorweed, hydrocotle, and pondweeds. In places the borrow canal had dense vegetation reducing the value of that aquatic habitat. Bayou Trepagnier has contaminated sediment due to the historical disposal of oil refinery waste (Maygarden 2004).

Developed Areas

Developed habitats in the project area include commercial areas (Shell-Norco petrochemical complex at the western end, facilities near the Almedia drainage structure, truck/trailer storage facility, and the western end of New Orleans International Airport runway adjacent to LPV03 on the east), the I-310 overpass, and the railroad at the eastern end of the project area (LPV03). In addition, the project area has low grade roads (gravel or dirt) with intermittent use and the existing levee. Highways usually induce development; with Highway 61 paralleling the project area, it is expected that some additional development along the highway near the project area (on the protected side of the levee) may occur in the foreseeable future, especially with a new permanent access road near the Walker structure. Those and future developed habitats do not support significant wildlife use.

Fishery/Aquatic Resources

Drainage and borrow canals in the project area does not support significant fishery resources because of dense vegetation, poor water quality, and inadequate depth. Freshwater sport fishes present in Bayous LaBranche and Trepagnier and other wetlands outside of the levees, include largemouth bass, crappie, bluegill, redear sunfish, warmouth, channel catfish, and blue catfish. Other fishes likely to be present include yellow bullhead, freshwater drum, bowfin, carp, buffaloes, and gars. In the future fisheries of the area are expected to remain relatively stable.

Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; P.L. 104-297) set forth a new mandate for NOAA's National Marine Fisheries Service (NMFS), regional fishery management councils (FMC), and other federal agencies to identify and protect important marine and anadromous fish habitat. The Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act support one of the nation's overall marine resource management goals- maintaining sustainable fisheries. Essential to achieving this goal is the maintenance of suitable marine fishery habitat quality and quantity. Detailed information on federally managed fisheries and their EFH is provided in the 1999 generic amendment of the Fishery Management Plans (FMP) for the Gulf of Mexico prepared by the Gulf of Mexico Fishery Management Council (GMFMC). The generic FMP subsequently was updated and revised in 2005 and became effective in January 2006 (70 FR 76216). NMFS administers EFH regulations.

EFH includes all waters and substrates within estuarine boundaries, including the subtidal vegetation (seagrasses and algae) and adjacent tidal vegetation (marshes). The forested wetland areas adjacent to the project area are hydrologically connected to the EFH of the Lake Pontchartrain estuary. However, the primarily cypress swamp of this project area are not likely to be suitable habitat for any of the Lake Pontchartrain managed species (shrimp, red drum, and Spanish mackerel).

Wildlife Resources

Mammals known to occur in the project-area wetlands include mink, raccoon, nutria, river otter, and muskrat, armadillo, Virginia opossum, cotton mouse, hispid cotton rat, eastern cottontail rabbit, swamp rabbit, fox squirrel, grey squirrel, fox, bobcat, and white-tailed deer (Lowery, 1974a and O'Neil and Linscombe 1975).

Those wetlands also support a variety of birds including herons and egrets. Flooded swamp within the project area provide habitat for nesting colonial wading birds. Swamp, BLH, and scrub-shrub habitats within the study area also provide habitat for many resident passerine birds and essential resting areas for many migratory songbirds including warblers, sparrows, thrushes, vireos, buntings, flycatchers, chickadees, titmouse, wrens, and swallows.

Given the extent of development and drainage, waterfowl use within the hurricane protection system is likely minimal, while adjacent wetlands outside the levees provide high quality habitat. Swamps, fresh and intermediate marshes usually receive greater waterfowl utilization than brackish and saline marshes because they generally provide more waterfowl food. Resident species expected to occur in that area include mottled duck and wood duck (Lowery 1974b).

The project area also supports resident hawks and owls including the red-shouldered hawk, barn owl, common screech owl, great horned owl, and barred owl. The red-tailed hawk, marsh hawk, and American kestrel are seasonal residents which utilize habitats within the project area.

Amphibians such as the southern dusky salamander, dwarf salamander, eastern newt, three-toed amphiuma, lesser siren, Gulf coast toad, northern cricket frog, green treefrog, squirrel treefrog, spring peeper, eastern narrow-mouthed toad, bullfrog, green frog, pig frog, and southern leopard frog (Dundee and Rossman, 1989) are expected to occur in the project-area wetlands.

Reptiles such as the American alligator, eastern mud turtle, red-eared turtle, snapping turtle, green anole, broadhead skink, ground skink, mud snake, speckled kingsnake, rat snake, Gulf coast ribbon snake, cottonmouth, garter snake, and water snakes are expected to occur in the project-area wetlands (Dundee and Rossman, 1989).

In the future, wildlife in the project area is not expected to significantly change.

Endangered and Threatened Species/Protected Species

The bald eagle potentially may occupy habitat in the project area. Until recently the bald eagle was federally listed as threatened; however, it was determined to have recovered and was delisted on August 8, 2007 (FWS 2007). The bald eagle is still protected under the Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).and Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d)

No Federally listed threatened or endangered species presently occur within the proposed project area. Therefore, no further endangered species consultation is required unless there are changes in the scope or location of the project, or project construction has not been initiated within one year. If project construction has not been initiated within 1 year, follow-up consultation should be accomplished prior to making expenditures for construction. If the scope or location of the proposed work is changed, consultation should be reinitiated as soon as such changes are made.

ALTERNATIVES UNDER CONSIDERATION

The proposed plan is discussed above in the Description of Selected Plan section. Other alternatives that were considered include the following:

No-Action Alternative

For each levee reach, floodwall, flood gate, and structure within IER1, the no-action alternative was evaluated. Under the no-action alternative, the proposed action would not be constructed. The current levee reaches, floodwalls, and associated structures would remain or be brought to the authorized heights of 12.5 to 13.5 ft. Routine maintenance of the levee system would continue, but no height would be added to the system.

Levee Alternatives

Sets of alignment alternatives and scales within these alignments were initially considered for each levee reach including: alignments – existing alignment with straddle, flooded side shift (all toe-to-toe growth occurs on the flooded side of the levee), and protected-side shift (all toe-to-toe growth occurs on the protected side of the levee); scale – earthen levee, T-wall floodwall, earthen levee with T-wall floodwall cap, and earthen levee with Deep Soil Mixing.

It was determined that using the existing levee with a protected-side shift would be unlikely due to the location of the Shell Oil Refinery, U.S. 61 (Airline Highway), a drainage canal, and segments of pipelines that run south of the existing levee alignment. In addition, a protected-side shift would be infeasible due to the geotechnical instability of the land between the drainage canal and the stability berm associated with the existing levee structure. A flooded–side shift was eliminated in order to avoid and minimize the destruction of wetlands. In addition the cost for mitigation would make it infeasible. Replacement with floodwalls and floodwall caps was eliminated due to engineering inferiority. Deep Soil Mixing was eliminated due to the presence of cypress logs in the subsurface surrounding the existing levee system.

Floodwalls and Drainage Structure Alternatives

As part of the initial evaluation of the Bonnet Carré Floodwall, Shell Pipeline Floodwall, Good Hope Floodwall, Koch-Gateway Floodwall, Canadian National Railroad Gate, Bayou Trepagnier Drainage Structure, Cross Bayou Drainage Structure, St. Rose Drainage Structure, Almeidia Drainage Structure, and Walker Drainage Structure, flood-side and protected-side shifts as well as

deep zone mixing were eliminated from detailed analysis. Significant shifts in the floodwall and gate alignments were considered impractical from an engineering perspective, and deep zone mixing was eliminated due to obstructions (i.e., cypress logs) in the surrounding subsurface. For the four drainage structures and the Canadian National Railroad Gate, all forms of earthen levees were also eliminated from detailed impact analysis because there were physical factors (i.e., drainage area or railroad crossing) that would prevent the construction of an earthen levee. In addition, modification of existing LPV 06 floodwalls (adding height) was eliminated from further analysis because it was determined that the existing floodwalls are not structurally designed to handle the increased hydrostatic load.

As part of the initial evaluation of the floodwall under I-310, all forms of earthen levees and replacement floodwall caps were eliminated from further consideration based on the proximity to I-310. In addition, any form of deep zone mixing was eliminated from consideration due to the potential of hazardous waste in the immediate vicinity.

Non-Structural Alternatives

Non-structural alternatives included elevating all residential and commercial properties and public acquisition of properties in areas subject to flooding. Both these alternatives were eliminated due to excessive cost.

PROJECT IMPACTS

Approximately 292 acres (Table 1) of wetlands would be directly impacted by the proposed project. Work would involve raising part of and realigning the levee in reach LPV03, raising the levees in reaches 1A, 1B, 2A, and 2B, rebuilding new T-walls, adding concrete scour protection under I-310, and rebuilding new or modify existing drainage structures.

Table 1: Habitat Impacts from Individual Environmental Report (IER) Lake Pontchartrain and Vicinity (LPV) St. Charles Parish, Louisiana (IER1)

Habitats	Acres	AAHUs
Swamp flooded side	143.57	-110.97
Swamp protected side	137.05	-73.99
BLH flooded side	11.33	-8.09
BLH protected side	0	0
Total	291.95	-193.05

To quantify anticipated project impacts to fish and wildlife resources, the Service used the Wetland Value Assessment (WVA) methodology. The WVA was developed to evaluate restoration projects proposed for funding under Section 303 of the Coastal Wetlands Planning, Protection and Restoration Act. The WVA version utilized in this evaluation was modified by the Louisiana Department of Natural Resources to better determine impacts and mitigation needs in forested wetlands. Further explanation of how impacts/benefits are assessed with WVA and an

explanation of the assumptions affecting HSI values for each target year are available for review at the Fish and Wildlife Service's (Service) Lafayette, Louisiana, field office.

As indicated in Table 1, our WVA analyses indicate that project implementation would result in the direct loss of 193 Average Annual Habitat Units (AAHUs) in swamp and bottomland hardwood forested wetlands. Once the proposed action is complete, the adjacent wetlands would stabilize. As with the future without project, fish and wildlife and their habitats, in the future with project scenario, are expected to remain relatively stable with some decline from development, subsidence, and erosion.

FISH AND WILDLIFE CONSERVATION MEASURES

The President's Council on Environmental Quality defined the term "mitigation" in the National Environmental Policy Act regulations to include:

(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

The Service supports and adopts this definition of mitigation and considers its specific elements to represent the desirable sequence of steps in the mitigation planning process. Based on current and expected future without-project conditions, the planning goal of the Service is to develop a balanced project, i.e., one that is responsive to demonstrated development needs while addressing the coequal need for fish and wildlife resource conservation.

The Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981) identifies four resource categories that are used to ensure that the level of mitigation recommended by Service biologists will be consistent with the fish and wildlife resource values involved. Considering the high value of forested wetlands for fish and wildlife and the relative scarcity of that habitat type, those wetlands are usually designated as Resource Category 2 habitats, the mitigation goal for which is no net loss of in-kind habitat value. Because the "no action" alternative was not selected, avoiding the project impacts altogether is not feasible. Therefore, remaining project impacts should be mitigated via compensatory replacement of the habitat values lost.

To replace the project-related loss of high-quality forested wetland habitat, the Corps and the local sponsor should develop and fund mitigation actions that would produce the equivalent of 148 AAHUs within the Pontchartrain basin. The estimated costs for achieving that mitigation via timber stand improvement and management, in addition to any mitigation area fixed costs, should be borne as a project expense, and should be provided to the agency implementing the mitigation.

SERVICE POSITION AND RECOMMENDATIONS

Construction of the flood protection levee would result in the loss of 292 acres of swamp and bottomland hardwood wetlands for a total loss of 193 AAHUs. The Service does not object to the construction of the proposed project provided the following fish and wildlife conservation recommendations are implemented concurrently with project implementation:

1. . The Corps and local sponsor shall provide 193 AAHUs to compensate for the unavoidable, project-related loss of forested wetlands. The Service, National Marine Fisheries Service (NMFS), Louisiana Department of Wildlife and Fisheries (LDWF), and Louisiana Department of Natural Resources (LDNR) should be consulted regarding the adequacy of any proposed alternative mitigation sites. The mitigation plan developed to offset project related impacts should be consistent with mitigation requirements of the Clean Water Act regulatory program, and include monitoring, success criteria, and financial assurance components.

2. The Service recommends that any impacts to forested wetlands should be avoided or minimized to the greatest extent practicable.

3. Three new access roads will be constructed at the Shell pipeline crossing, under I-310, and at the Walker structure. The potential for induced development is increased greatly with these new access corridors, especially the access road at the Walker structure. The Service recommends that all three access roads be only used temporarily during construction and to be degraded and replanted with appropriate bottomland hardwood forest or cypress swamp species after construction activities are complete. Reforestation activities should include the use of measures to prevent nutria herbivory, and monitoring to document habitat recovery and the need for further actions. If any of the access roads are not degraded after construction activities are completed, then secondary and cumulative impacts would have to be assessed.

4. Where each of the three access roads cross wetlands, 18-24 inch culverts should be installed every 250 feet. Additional culverts should be installed at stream crossings and drainage features. Culverts should be maintained to ensure that existing flow of surface water is uncompromised.

5. All gates and/or culverts being replaced or modified should be operated according to previously developed operational plans to avoid further degradation of the project area hydrology.

6. To prevent the protected-side swamps near the Bayou Trepagnier pumps and drainage structure from becoming impounded or drained, provide assurance that once the drainage structure is replaced with a T-wall that the pumps will be operated to achieve the same

hydrologic results (i.e. water levels) as in the past thus perpetuating existing conditions and minimizing secondary impacts from development and hydrologic alteration.

7. Bayou Trepagnier is a Louisiana designated Natural and Scenic River. The Corps must obtain authorization from the LDWF, Scenic Rivers Program prior to initiating any of the proposed activities within or adjacent to the banks of Bayou Trepagnier. Scenic Rivers Coordinator Keith Cascio can be contacted at (318) 343-4045.

8. Avoid adverse impacts to wading bird colonies through careful design project features and timing of construction. Colonies that are not currently listed in the database maintained by the Louisiana Department of Wildlife and Fisheries may be present. That database is updated primarily by monitoring the colony sites that were previously surveyed during the 1980s. Until a new, comprehensive coast-wide survey is conducted to determine the location of newly-established nesting colonies, the Service recommends that a qualified biologist inspect the proposed work site for the presence of undocumented nesting colonies during the nesting season.

9. The Service shall be provided an opportunity to review and submit recommendations on future planning and design documents and the draft plans and specifications for all levee work addressed in this report.

10. Any proposed change in levee, floodwall, or drainage structure features, locations or plans shall be coordinated in advance with the Service, NMFS, LDWF, and LDNR.

11. The project's first Project Cooperation Agreement (or similar document) shall include language that includes the responsibility of the local-cost sharer to provide operational, monitoring, and maintenance funds for mitigation features.

12. If the proposed project has not been constructed within 1 year or if changes are made to the proposed project, the Corps should re-initiate Endangered Species Act consultation with the Service to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

LITERATURE CITED

Dundee, H.A., and D.A. Rossman. 1989. The amphibians and reptiles of Louisiana. Louisiana State University Press, Baton Rouge. 300 pp.

Lowery, G.H., Jr. 1974a. The mammals of Louisiana and its adjacent waters. Louisiana State University Press. Baton Rouge. 565 pp.

Lowery, G.H., Jr. 1974b. Louisiana birds. Louisiana State University Press, Baton Rouge. 651 pp.

Maygarden, D. F. 2004. A Guide to the Wetlands of the Lake Pontchartrain Basin: 2004. A project of the University of New Orleans Pontchartrain Institute for Environmental Sciences (PIES) and the Lake Pontchartrain Basin Foundation. PIES CLR Technical Report Series 04013.

O'Neil, T. and G. Linscombe. 1975. The Fur Animals, The Alligator, and The Fur Industry in Louisiana. Louisiana Wildlife and Fisheries Commission. Louisiana Wildlife and Fisheries Commission. Wildlife Education Bulletin No. 106. 66 pp.

APPENDIX A
LATIN NAMES FOR SPECIES DISCUSSED IN REPORT

PLANTS

Alligatorweed	*Alternanthera philoxeroides*
American elm	*Ulmus americana*
Aster	*Aster* spp.
Bald cypress	*Taxodium distichum*
Black gum	*Nyssa sylvatica*
Black willow	*Salix nigra*
Bullwhip	*Scirpus californicus*
Buttonbush	*Cephalanthus occidentalis*
Cattail	*Typha* spp.
Chinese tallow-tree	*Triadica sebifera*
Deerpea	*Vigna luteola*
Delta duckpotato	Sagittaria platyphylla
Dogfennal	*Eupatorium capillifolium*
Eastern baccharis	*Baccharis halimifolia*
Eastern cottonwood	*Populus deltoides*
Elderberry	*Sambucus canadensis*
Frogbit	*Limnobium spongia*
Frogfruit	*Phyla nodiflora*
Goldenrod	*Solidago* sp.
Green ash	*Fraxinus pennsylvanica*
Lizard's tail	*Saururus cernuus*
Marshhay cordgrass	*Spartina patens*
Marshmallow	*Hibiscus* spp.
Mulberry	*Morus* spp.
Overcup oak	*Quercus lyrata*
Palmetto	*Sabal minor*
Panicum	*Panicum* sp.
Pennywort	*Hydrocotyle* spp.
Pumpkin ash	*Fraxinus tomentosa*
Rattlebox	*Sesbania drummondii*
Red maple	*Acer rubrum*
Red mulberry	*Morus rubra*
Roughleaf dogwood	*Cornus drummondii*
Rubus	*Rubus* spp.
Smartweed	*Polygonum* spp.
Smooth cordgrass	*Spartina alterniflora*
Spikerush	*Eleocharis* spp.

Sugarberry	*Celtis laevigata*
Tupelo	*Nyssa aquatica*
Virginia creeper	*Parthenocissus quinquefolia*
Walter's millet	*Echinochloa walteri*
Waterhyssop	*Bacopa*
Water oak	*Quercus nigra*
Willow oak	*Quercus phellos*

FISH

Bigmouth buffalo	*Ictiobus cyprinellus*
Black crappie	*Pomoxis nigromaculatus*
Blue catfish	*Ictalurus furcatus*
Bluegill	*Lepomis macrochirus*
Bowfin	*Amia calva*
Channel catfish	*Ictalurus punctatus*
Common carp	*Cyprinus carpio*
Freshwater drum	*Aplodinotus grunniens*
Grass carp	*Ctenopharyngodon idella*
Largemouth bass	*Micropterus salmoides*
Redear sunfish	*Lepomis microlophus*
Shortnose gar	*Lepisosteus platostomus*
Smallmouth buffalo	*Ictiobus bubalus*
Spotted gar	*Lepisosteus oculatus*
Warmouth	*Lepomis gulosus*
White crappie	*Pomoxis annularis*
Yellow bullhead	*Ameiurus natalis*

AMPHIBIANS

Bullfrog	*Rana catesbeiana*
Dusky salamander	*Desmognathus auriculatus*
Dwarf salamander	*Eurcyea quadridigitata*
Eastern narrow-mouthed toad	*Gastrophryne carolinensis*
Eastern newt	*Notophthalmus viridescens*
Green frog	*Rana clamitans*
Green treefrog	*Hyla cinerea*
Gulf coast toad	*Bufo valliceps*
Lesser siren	*Siren intermedia*
Northern cricket frog	*Acris crepitans*
Pig frog	*Rana grylio*
Southern leopard frog	*Rana sphenocephala*
Spring peeper	*Hyla crucifer*

Squirrel treefrog	*Hyla squirella*
Three-toed amphiuma	*Amphiuma tridactylum*

REPTILES

American alligator	*Alligator mississippiensis*
Broadhead skink	*Eumeces laticeps*
Cottonmouth	*Agkistrodon piscivorus*
Eastern mud turtle	*Kinosternon subrubrum*
Garter snake	*Thamnophis sirtalis*
Green anole	*Anolis carolinensis*
Ground skink	*Scincella lateralis*
Gulf coast ribbon snake	*Thamnophis proximus*
Mud snake	*Farancia abacura*
Rat snake	*Elaphe obsoleta*
Red-eared turtle	*Trachemys scripta*
Speckled kingsnake	*Lampropeltis getulus*
Snapping turtle	*Chelydra serpentina*
Water snakes	*Neodia* spp.

BIRDS

American kestrel	*Falco sqarverius*
Barn owl	*Tyto alba*
Barred owl	*Strix varia*
Cattle egret	*Bubulcus ibis*
Common screech owl	*Otus asio*
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Green heron	*Butorides virescens*
Great horned owl	*Bubo virginianus*
Marsh hawk	*Circus cyaneus*
Mottled duck	*Anas fulvigula*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Snowy egret	*Egretta thula*
Wood duck	*Aix sponsa*

MAMMALS

Armadillo	*Dasypus novemcinctus*
Bobcat	*Lynx rufus*
Cotton mouse	*Peromyscus gossypinus*
Eastern cottontail rabbit	*Sylvilagus floridanus*

Fox	*Vulpes vulpes*
	Urocyon cinereoargenteus
Fox squirrel	*Sciurus niger*
Grey squirrel	*Sciurus carolinensis*
Hispid cotton rat	*Sigmodon hispidus*
Mink	*Mustela vison*
Muskrat	*Ondatra zibethicus rivalicius*
Northern raccoon	*Procyon lotor*
Nutria	*Myocaster coypus*
River Otter	*Lutra canadensis*
Swamp rabbit	*Sylvaligus aquaticus*
Virginia opossum	*Didelphis virginiana*
White-tailed deer	*Odocoileus virginianus*