United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506
January 25, 2010

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) Orleans East Bank, Caernarvon Canal, New Orleans, Louisiana (IER 9, LPV Reach 149)." 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 two 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 Lake Pontchartrain and Vicinity (LPV) and the West Bank and Vicinity (WBV) Hurricane Protection Projects so those projects would provide 100-year hurricane protection (authorized as the Hurricane Storm Damage Risk Reduction System [HSDRRS]. 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 Fish and Wildlife Service (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 LPV (dated July 25, 1984 and January 17, 1992) Hurricane Protection projects, the November 26, 2007 Draft Programmatic FWCA Report that addresses the hurricane protection improvements authorized in Supplemental 4, and the August 18, 2009 draft and October 2, 2009, supplemental report for IER 9. This report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. A draft of the August and October 2009

TAKE PRIDE® IN AMERICA

reports has been provided to the Louisiana Department of Wildlife and Fisheries (LDWF) and the National Marine Fisheries Service (NMFS); their comments were incorporated into t final report.

DESCRIPTION OF THE STUDY AREA

The study area is located within the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem. Higher elevations occur on the natural levees of the Mississippi River and its distributaries. Developed lands are primarily associated with natural levees, but extensive wetlands have been leveed and drained to accommodate residential, commercial, and agricultural development. Federal, State, and local levees have been installed for flood protection purposes, often with negative effects on adjacent wetlands. Navigation channels such as the Gulf Intracoastal Waterway and the Mississippi River – Gulf Outlet (MRGO) are also prominent landscape features, as are extensive oil and gas industry access channels and pipeline canals. Extensive wetlands and associated shallow open waters dominate the landscape outside the flood control levees. Major water bodies include the Mississippi River which is located west of the project area and Lake Borgne which is located northeast of the project area.

Most of the boundary of IER 9 project area overlays the existing LPV east bank levee system on the southern side of St. Bernard Parish (Figure 1) in southeast Louisiana. The northern boundary of the study area is the north bank of the Caernarvon Canal and the adjacent hurricane protection levee. That levee is part of the LPV Chalmette Loop levee and improvements to that levee are addressed in IER 10. North of that levee is the community of Caernarvon. The western project area boundary is the Mississippi River and its adjacent levee. The eastern portion of the project area where the proposed levee alignment traverses the Caernarvon Canal and its' adjacent spoil disposal bank is dominated by marshes and openwater. The southern boundary parallels the northern spoil disposal bank of the Caernarvon Freshwater Diversion Outfall Canal.

The project area is characterized by small communities, forested areas, marshes, and cleared land. Fresh marshes and early succesional stage bottomland hardwoods are found inside of and adjacent to the project area.

The existing spoil disposal banks for the Caernarvon Canal and the Caernarvon Freshwater Diversion Canal are bisected downstream by a pipeline canal spoil disposal bank, which creates a semi-impoundment of the project area. Tidal exchange and local rainfall run-off must pass over those spoil banks to leave the project area.

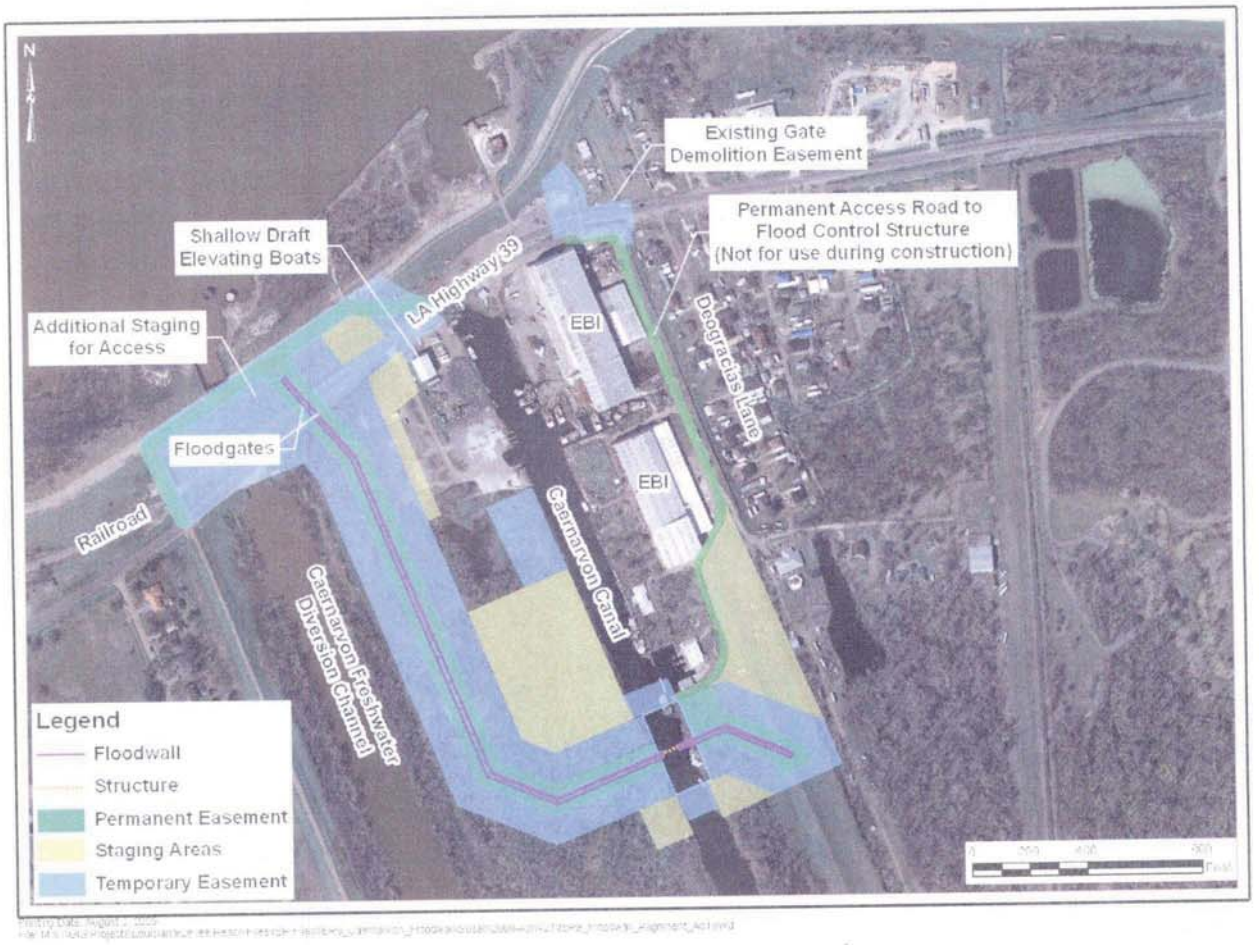

Figure 1. Lake Pontchartrain and Vicinity (LPV) Caernarvon Canal, IER 9 LPV Reach 149

The project primarily consists of the building of approximately 2,500 feet of floodwalls and a floodgate for navigation on the Caernarvon Canal and another floodgate but for vehicle traffic on Louisiana Highway 39. The proposed action is a part of the overall Chalmette Loop Levee system that includes connections to IER # 11 - Tier 2 Borgne, IER # 8 - the Bayou Dupre Flood Gate (LPV 144.02), and IER # 10 - the Chalmette Loop Levee (LPV 145 -148).

FISH AND WILDLIFE RESOURCES

Habitat types in the project area and vicinity include bottomland hardwoods (wet and non-wet), scrub-shrub, marsh, open water, and developed areas. Due to urban development, the existing spoil disposal banks, the local and Federal levee systems, and the Caernarvon Freshwater Diversion Structure, the hydrology of much of the wetland habitat has been altered. Those factors have been in operation for many years and wetland loss and subsidence is evident throughout the area, however, local input of freshwater and sediments from the Caernarvon Freshwater Diversion

is offsetting those factors. Developed habitats in the study area include residential and commercial areas, as well as roads and existing levees. Those habitats do not support significant wildlife use. The Service has provided a November 26, 2007 draft programmatic FWCA Report for the LPV project. That report contains a thorough discussion of the significant fish and wildlife resources (including those habitats) that occur within the study area. For brevity, that discussion is incorporated by reference herein.

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 and the areas that are predominantly non-tidal wetlands (i.e., those located behind the spoil disposal banks) are not likely to be suitable habitat for any of the managed species (e.g., shrimp, red drum).

ALTERNATIVES UNDER CONSIDERATION

No-Action Alternative

Under the no-action alternative, the current levee reach, floodwall, floodgate, and associated structures would remain at or be brought to their previously authorized height. Routine maintenance of the levee system would continue, but no additional height (i.e., greater storm protection) would be added to the system.

Alternatives Considered

Seven alternatives to the proposed action were considered in detail for the Caernarvon floodwall. These primary alternatives are: alternative 1 - modification or replacement of existing flood gates and construction of a levee with a T-wall cap; alternative 2 - realignment of the Caernarvon floodwall to the immediate western side of the Elevated Boats, Incorporated (EBI) property; alternative 3 - realignment of the Caernarvon floodwall to the western side of the Caernarvon Canal; alternative 4 - realignment of the Caernarvon floodwall to the western side of the Shallow

Draft Elevating Boats, Incorporated (SDEB) property (zigzag configuration); alternative 5 - realignment of the Caernarvon floodwall to the eastern side of the Caernarvon freshwater diversion canal; alternative 6 - realignment of the Caernarvon floodwall to the western side of the SDEB property (running diagonal to the Caernarvon Canal); and alternative 7 - realignment of Caernarvon floodwall to the western side of the SDEB property (north of the EBI sea plane hangar).

Other alternatives that were eliminated from further consideration because they did not adequately meet the screening criteria included, hollow core levee and raising the existing levees with earthen material. Additionally, non-structural alternatives included elevating all residential and commercial properties and public acquisition of properties in areas subject to flooding. Both of these alternatives were eliminated due to excessive cost

DESCRIPTION OF SELECTED PLAN

The proposed action for the IER 9 project area would provide 100-year level of protection for St. Bernard Parish by primarily constructing T-wall on top of the existing levee, however, rebuilding and/or modifying earthen levees and floodwalls and adding new floodgates are also part of the proposed plan. Modifications to the previous plan were proposed in order to provide sufficient staging areas for construction and to accommodate local sponsor's requests.

Realignment of Caernarvon Floodwall to the West of the Shallow Draft Elevating Boats, Incorporated Property

The proposed action consists of constructing a new alignment mainly to the west of the Caernarvon Canal to replace the existing Caernarvon Floodwall complex on the east side of the canal. As shown in Figure 1, the new alignment would include, beginning at its northern end, the following components: a tie-in to the Mississippi River levee system; overhead trolley and roller gates across Louisiana (LA) Highway 39 and the Norfolk Southern railroad; a floodwall (T-wall) at a height of +24 ft North American Vertical Datum of 1988 (NAVD88) along the east bank of the Caernarvon freshwater Diversion canal (to the west of the SDEB property and the Caernarvon Boat Launch), turning southeast and then east to the Caernarvon Canal; a sector gate across the Caernarvon Canal south of the EBI sea plane hangar; a continuation of the floodwall from the Caernarvon Canal east to the existing HSDRRS Chalmette Loop levee (LPV 148); and a tie-in to the levee system. The existing closures across LA Highway 39 and the railroad would be demolished. The existing levee and floodwalls would be left in place in order to provide a buffer between the EBI facility and the adjacent residences. Figure 1 indicates the location of the proposed right-of-way (permanent easement), and the staging areas and temporary construction area (temporary easement) that would be required to complete the proposed action for LPV 149.

Construction of the proposed action is anticipated to begin in the fall of 2010 and the construction activities are expected to last for approximately 21 months. A significant amount of construction equipment would be required to conduct the work, including, but not limited to, generators, barges, boats, cranes, dump trucks, bull dozers, excavators, rollers, pile hammers, graders,

tractors, front end loaders, welding machines, and water trucks. Access would be along project alignment right-of-way as well as existing roadways or levee alignment right-of-way.

Armoring of Levees and Floodwalls

Armoring would be incorporated as an additional feature to protect against erosion and scour on the protected, flood, or both sides of critical portions of floodwalls (T-walls) and levees. These critical areas include: transition points (where levees and floodwalls transition into any hardened feature such as gates, floodwalls, pump stations, etc.), utility pipeline crossings, floodwall protected side slopes, and earthen levees that are exposed to wave and surge overtopping during a 500-year hurricane event. The proposed method of armoring could be one of the following: cast-in-place reinforced concrete slabs, articulated concrete blocks (ACB) covered with soil and grass, turf reinforcement mattress (TRM), ACB/TRM, TRM/grass, or good grass cover. The armoring would be incorporated into the existing levee or floodwall footprint, and no additional environmental impacts would be anticipated.

Borrow

Impacts from borrow are being addressed in separate IERs.

PROJECT IMPACTS

Commercial and residential development is ongoing within the hurricane protection levees; therefore, the Service has assumed that, for this specific IER, project-induced development within enclosed wetlands will be insignificant. However, impacts to wetlands (forested and marsh) due to construction activities should be mitigated.

Project impacts would result primarily from construction of a new floodwall; however, some work (approximately 400 linear feet of floodwall) would occur within the existing levee ROW. Although most construction will occur in cleared non-wet areas, project implementation will also directly impact bottomland hardwoods and marsh that provide high to medium habitat value for diverse fish and wildlife resources. The wetlands located within the existing ROW of the project may have reduced wetland functions and values due to their location. Impacts resulting from borrow pit creation are being addressed in separate IERs, therefore, impacts, mitigation, and Service recommendations concerning borrow pits will not be included in this report.

The Service quantified unavoidable project impacts on wildlife resources and calculated mitigation needs through the use of Habitat Assessment Methodology (HAM) and the Wetland Value Assessment (WVA). The HAM was used to determine impacts to wet bottomland hardwoods and the WVA was used to assess impacts to marsh. Those methodologies utilize an assemblage of variables considered important to the suitability of each habitat type to support a diversity of fish and wildlife species. All methodologies also operate under the assumption that optimal conditions for fish and wildlife habitat within each habitat type can be characterized, and that existing (i.e., baseline) or predicted conditions can be compared to that optimum to provide

an index of habitat quality. Baseline conditions (i.e., habitat quantity and quality) are therefore measured and predicted for future without-project and future with-project conditions. The numeric comparison of each future condition provides an estimate of project-related effects on fish and wildlife habitat quality and quantity. Both habitat assessment models were developed for wetlands within the Louisiana Coastal Zone and are modified from those developed in the Service's Habitat Evaluation Procedures (HEP). The HAM and WVA, however, are community-level evaluations instead of the species-based approach used with HEP. An explanation of the assumptions affecting HSI values for each target year is available for review at the Service's Lafayette, Louisiana, Field Office. In summary, impact assessments were conducted using the HAM and WVA methodologies as well as field inspections, wetland-loss data, knowledge of the area, and experience with other projects located within the project area.

In the future without project scenario, fish and wildlife and their habitats within the impacted areas are expected to remain relatively stable with some decline from development. Because of the proximity to the Caernarvon Freshwater Diversion, subsidence and erosion are not expected to affect the project area. All impacts were determined from geographic information system (GIS) files produced by the Corps.

Table 1: Impacts (wet and non-wet) of IER 109 (LPV Caernarvon Canal) 100-year Level Protection

Habitat Type	Impacted (acres)*	Permanent (P) or Temporary(T) Impact	Wetland Impacted (I) Enclosed (E)	AAHUs lost	Acres by Habitat Type	AAHUs by Habitat Type
Fresh Marsh	0.6	T	I	0.1	1.9	1.2
Fresh Marsh	0.6	P	I	0.46		
Fresh Marsh	0.7	T	I/E	0.64		
Bottomland Hardwoods	8.3	T	I (non-wet)	3.84	11.22	5.31
Bottomland Hardwoods	1.1	T	I	0.63		
Bottomland Hardwoods	1.76	P	I (non-wet)	0.81		
Bottomland Hardwoods	0.06	P	I	.03		
Total					13.12	6.5

*Does not include 0.57 acres of un-impacted enclosed wetlands.

For the entire project a total of 1.9 acres of fresh marsh would be impacted resulting in the loss of 1.2 AAHUs. Of that acreage, approximately 0.6 acres (0.46 AAHUs) of fresh marsh would be lost due to the levee and the permanently maintained right-of-way. An additional 0.7 acres (0.1 AAHUs) would be temporarily impacted but are not likely to recover from their use as a staging area (anticipated clear and filling), thus those impacts were treated as permanent impacts. The

remaining 0.6 acres (0.1 AAHUs) located on the floodside of the levee would be temporarily impacted and are expected to recover over the project life.

Impacts to bottomland hardwoods would result in the loss of 11.22 acres and 5.31 AAHUs, however, 10 acres (4.65 AAHUs) of that total would be impacts to non-wet bottomland hardwoods. Of the 1.16 acres (0.66 AAHUs) of wet bottomland hardwoods that would be impacted, approximately 0.06 (0.03) acres would be permanently impacted, however, the other 1.1 acres (0.63 AAHUs) of temporary impacts were treated as permanent impacts because that area is not likely to recover from its use as a staging area (anticipated clear and filling). Approximately 8.3 acres (3.84 AAHUs) of non-wet bottomland hardwoods were treated as permanent impacts for the same reasons above and because adjacent areas cleared since approximately 2001 have been maintained by mowing. The remaining 1.1 acres (0.63 AAHUs) of bottomland hardwoods would be temporarily impacted and are expected to begin recovering following construction, however, because of the presence of exotic tree species the habitat quality of the recovering site is expected to be reduced.

Approximately 0.57 acres of fresh, non-tidal marsh would be enclosed within IER 9. Approximately 0.1 acres of this area is adjacent to State Highway 39 while the remaining 0.47 acres is located in a mowed area between the proposed levee and the Caernarvon Canal. Because this wetland is currently isolated from any tidal influence it can become dry during droughts. Most of the southern part of this area was cleared between 1998 and 2001 (as determined by Service interpretation of satellite photographs) and has probably been maintained by mowing as evidenced by the lack of scrub-shrub vegetation, which is found along the edge of the adjacent bottomland hardwoods. The Service in our 2007 draft report recommended that any wetlands enclosed within a flood protection feature should have either a non-development easement purchased on those wetlands or should have hydrologic connections with adjacent wetlands maintained. As previously mentioned these are isolated wetlands therefore the second part of our recommendation is not applicable. The purpose of the first part of that recommendation is to reduce the likelihood of large wetland areas from being enclosed within a flood protection project and having those areas subjected to development pressures that would have otherwise not existed. This wetland area is small and is of low-quality (i.e., mowed); therefore, the Service does not support the first part of our previous recommendation but only in regard to these wetlands. The small acreage beside the state highway is most likely associated with road construction and drainage and is not considered to be threatened by any development that may occur behind the protection levee. While the 0.47 acres could be lost sooner to development because of proposed levee alignment the Service does not believe that purchase of a non-development easement on that area is a practical solution. However, development of that wetland would require a permit from the Corps Wetland Regulatory Program and that program would determine mitigation needs at that time.

IER 9 proposed floodwalls would separate wetlands (which are predominantly marsh and young bottomland hardwoods) and waterbodies adjacent to the T-wall from each other. Semi-aquatic species such as river otter, mink, muskrat, alligators, and turtles utilize those wetland areas. Floodwalls can act as barriers to animal passage resulting in fragmented and isolated populations,

which can affect the viability of animal populations. Those walls may also significantly decrease the opportunity for animals to recolonize vacant habitat after local population eliminating events (e.g., hurricanes, droughts). However, the relatively small total acreage enclosed by the T-wall and the opening at the canal would help to minimize the impact of fragmentation and isolation.

No Federally listed threatened or endangered species presently occur within the proposed project area. If project construction has not been initiated within 1 year, consultation should be accomplished prior to making expenditures for construction. If the scope or location of the proposed work is changed, both threatened and endangered species and FWCA consultation should be reinitiated as soon as such changes are made.

FISH AND WILDLIFE CONSERVATION MEASURES

Coastal wetlands are considered by the Service to be aquatic resources of national importance due to their increasing scarcity and high habitat value for fish and wildlife within Federal trusteeship (i.e., migratory waterfowl, wading birds, other migratory birds, threatened and endangered species, and interjurisdictional fisheries).

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 hurricane protection needs while addressing the co-equal 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 bottomland hardwoods and marsh 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. Project impacts to wetlands will be minimized to a large extent by construction of the T-wall instead of a levee. Therefore, remaining direct project impacts should be mitigated via compensatory replacement of the habitat values lost.

Toward that end, the Service recommends that the following planning objectives be adopted to guide future project studies.

1. Conserve important fish and wildlife habitat (i.e., bottomland hardwoods, marsh) by minimizing the acreage of those habitats directly affected by flood control features.

2. Fully compensate for any unavoidable losses of wetland habitat or non-wet bottomland hardwoods caused by project features.

3. Minimize the effects of the proposed floodwalls on wildlife movement.

SERVICE POSITION AND RECOMMENDATIONS

The Service does not object to providing improved hurricane protection to the Greater New Orleans area provided the following fish and wildlife conservation recommendations are incorporated into future project planning and implementation:

1. To the greatest extent possible, situate flood protection features so that destruction of wetlands and non-wet bottomland hardwoods are avoided or minimized.

2. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds, when practicable.

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

4. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, LDWF, Environmental Protection Agency (EPA) and Louisiana Department of Natural Resources (LDNR). The Service shall be provided an opportunity to review and submit recommendations on the all work addressed in those reports.

5. If a proposed project feature is changed significantly or is not implemented within one year of the date of our January 30, 2009, (incorrectly dated 2007), Endangered Species Act consultation letter, we recommend that the Corps reinitiate coordination with this office to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their habitat.

6. The Corps shall fully compensate for any unavoidable losses of 5.31 AAHUs of bottomland hardwoods, and 1.2 AAHUs of fresh marsh caused by project features. Development and implementation of those mitigation plans should be done in concert with the Service and other

resource agencies. We appreciate the opportunity to provide recommendations in the planning stages of the proposed project. If you or your staff have further questions, or would like to meet and discuss our recommendations, please contact David Walther of this office at (337) 291-3122.

Sincerely,

James F. Boggs
Supervisor
Louisiana Field Office

cc: EPA, Dallas, TX
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
OCPR, Baton Rouge, LA