

**FINAL
ENVIRONMENTAL ASSESSMENT
FOR

EMERGENCY REPAIRS
TO
TEXAS CITY AND VICINITY
TEXAS HURRICANE FLOOD PROTECTION PROJECT
GALVESTON COUNTY, TEXAS

U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
GALVESTON, TEXAS**

APRIL 2009

FINAL ENVIRONMENTAL ASSESSMENT

**EMERGENCY REPAIRS
TO
TEXAS CITY AND VICINITY
TEXAS HURRICANE FLOOD PROTECTION PROJECT
GALVESTON COUNTY, TEXAS**

Table of Contents

1.0	PROPOSED ACTION	1
1.1	EXISTING PROJECT DESCRIPTION	1
1.2	PURPOSE AND NEED FOR PROPOSED PROJECT	1
1.3	PROPOSED PROJECT	2
2.0	ALTERNATIVES	3
2.1	ALTERNATIVE 1 – NO ACTION.....	3
2.2	ALTERNATIVE 2 – REPAIR OF THE DAMAGED SYSTEM (SELECTED PLAN).....	4
2.3	COMPARISON AND EVALUATION OF ALTERNATIVES.....	5
3.0	AFFECTED ENVIRONMENT	6
3.1	PROJECT AREA	6
3.2	VEGETATION	6
3.3	WILDLIFE	7
3.4	FISHERIES AND ESSENTIAL FISH HABITAT	7
3.5	THREATENED AND ENDANGERED SPECIES	8
3.6	CULTURAL RESOURCES.....	8
3.7	AIR QUALITY AND NOISE	11
3.8	WATER QUALITY	12
3.9	HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW).....	13
3.10	SOCIOECONOMICS	13
3.11	ENVIRONMENTAL JUSTICE.....	14
3.12	PRIME AND UNIQUE FARMLANDS	14
3.13	RECREATIONAL RESOURCES	15
3.14	ROADWAYS AND TRAFFIC.....	15
4.0	ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE	15
4.1	IMPACTS ON THE PROJECT AREA.....	15
4.2	IMPACTS ON VEGETATION	16
4.3	IMPACTS ON WILDLIFE	16
4.4	IMPACTS ON FISHERIES AND ESSENTIAL FISH HABITAT	16
4.5	IMPACTS ON THREATENED AND ENDANGERED SPECIES	16
4.6	IMPACTS ON CULTURAL RESOURCES.....	17
4.7	IMPACTS ON AIR QUALITY AND NOISE	17
4.8	IMPACTS ON WATER QUALITY	18
4.9	IMPACTS ON HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW).....	18
4.10	IMPACTS ON SOCIOECONOMICS.....	18

4.11	IMPACTS ON ENVIRONMENTAL JUSTICE	18
4.12	IMPACTS ON PRIME AND UNIQUE FARMLANDS	18
4.13	IMPACTS ON RECREATIONAL RESOURCES	19
4.14	IMPACTS ON ROADWAYS AND TRAFFIC	19
5.0	MITIGATION	19
6.0	CUMULATIVE IMPACTS.....	19
7.0	COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS.....	21
7.1	NATIONAL ENVIRONMENTAL POLICY ACT.....	21
7.2	FISH AND WILDLIFE COORDINATION ACT OF 1958, AS AMENDED.....	21
7.3	NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED	21
7.4	MAGNUSON-STEVENSON FISHERY CONSERVATION MANAGEMENT ACT	22
7.5	COASTAL ZONE MANAGEMENT ACT OF 1972	22
7.6	ENDANGERED SPECIES ACT, AS AMENDED	22
7.7	CLEAN AIR ACT OF 1972, AS AMENDED.....	23
7.8	CLEAN WATER ACT OF 1977, AS AMENDED.....	23
7.9	EXECUTIVE ORDER 11990 – PROTECTION OF WETLANDS.....	23
7.10	EXECUTIVE ORDER 12898 – ENVIRONMENTAL JUSTICE	23
7.11	FARMLAND PROTECTION POLICY ACT OF 1981 AND THE CEQ MEMORANDUM PRIME OR UNIQUE FARMLANDS	23
7.12	EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT.....	24
8.0	COORDINATION WITH OTHERS.....	24
9.0	CONCLUSIONS	24
9.0	LITERATURE CITED.....	25

LIST OF APPENDICES

Appendix A	Project Coordination
Appendix B	Biological Assessment and Endangered Species Coordination
Appendix C	401 Certification Waiver
Appendix D	404(b)1 Evaluation
Appendix E	TCMP Consistency Evaluation
Appendix F	Air Conformity Determinations
Appendix G	Comments and Responses to the Public Notice and Draft Environmental Assessment

LIST OF FIGURES

FIGURE 1	Texas City Levee Stationing and Proposed Repair Work
----------	--

LIST OF TABLES

TABLE 1	Federally-Listed Threatened and Endangered Species, And Species of Concern in Galveston County, Texas
TABLE 2	Potential State-Listed Rare, Threatened and Endangered Species for Galveston County, Texas
TABLE 3	Summary of 2001 Air Emissions Inventory for Galveston County, Texas by Source Category

FINAL ENVIRONMENTAL ASSESSMENT

EMERGENCY REPAIRS TO TEXAS CITY AND VICINITY TEXAS HURRICANE FLOOD PROTECTION PROJECT GALVESTON COUNTY, TEXAS

1.0 PROPOSED ACTION

1.1 EXISTING PROJECT DESCRIPTION

The Texas City and Vicinity Hurricane Flood Protection Project (Texas City HFPP) is located in Galveston County, Texas on the southwest shore of Galveston Bay, about 9 miles northwest of Galveston, Texas (Figure 1). The Texas City HFPP encompasses the cities of Texas City, La Marque, and the surrounding vicinity. The project consists of 17 miles of protective works, including earthen levees and concrete floodwalls. The system has numerous appurtenant structures, including a tide control and navigation structure for Moses Lake, vehicular and railroad closure gates, highway ramps, gated gravity drainage structures, and two pumping plants with a combined capacity of 705,000 gallons per minute.

The Texas City HFPP is designed to provide protection for about 36 square miles of residential and industrial development from tropical cyclones of magnitudes up to and including a Standard Project Hurricane Tide of 15 feet (National Geodetic Vertical Datum, or NGVD).

The Texas City HFPP was authorized by the Flood Control Act of 3 July 1958, PL 85-500, House Document No. 347, 85th Congress, 2nd Session. The project sponsor is Galveston County.

1.2 PURPOSE AND NEED FOR PROPOSED PROJECT

The Texas City HFPP protects the cities of Texas City and La Marque as well as a significant amount of the nation's petrochemical production capacity, including the third highest producing refinery in the country owned by British Petroleum.

Hurricane Ike made landfall in northern Galveston County on September 13, 2008 as a Category 2 storm. The storm surge in the project area was greater than 13 feet above mean sea level, which is more characteristic of Category 3 or 4 storm than a Category 2 storm. Hurricane Ike's unprecedented size, which at one point was the largest Atlantic hurricane ever recorded, caused extensive damage and ranks as the third costliest storm in U.S. history, causing approximately \$27 billion in property damage.

The combined storm surge and wave action from Hurricane Ike caused extensive damage to the Texas City HFPP levee system in several locations. Engineer Regulation (ER) 500-1-1 eligibility requirements for rehabilitation assistance are met under the criteria for extraordinary storm and significant amount of damage.

Various sections of the Texas City HFPP appear to have suffered damage from several factors including erosion of the levee toe, wave attack displacing protective armor, and degradation of the levee cross section due to erosion of the embankment. Because the damage has contributed to several potential failure modes and any future storm could involve a unique combination of surge, duration and wave attack, it is nearly impossible to define a single remaining level of protection with the available data. Given the damaged condition of the project, the remaining level of protection is estimated to be between a 25 year and a 100 year event. A 2% annual probability of failure was selected as the most reasonable estimate of remaining protection based upon a 50-year storm event causing flooding behind the line of protection. The flooding could result from levee failure due loss of stability due to toe erosion, failure of the riprap armor resulting in rapid erosion of the levee embankment, or a piping or rapid drawdown slope failure of the already stressed cross sections.

The next storm season begins in June 2009. Early projections from Colorado State University predict that there will be 14 named storms in the Atlantic during the 2009 hurricane season. Of the 14 named storms, seven are projected to be hurricanes, with three of the hurricanes classified as major storms. National Oceanic and Atmospheric Administration (NOAA) projections are not determined until May 2009. Failure to repair the Texas City HFPP prior to the next hurricane season, June through November 2009, increases the risk of project failure during a significant storm event and threatens the protected communities, facilities and properties. Additional damage and potential failure at even one location could compromise the entire system.

1.3 PROPOSED PROJECT

Storm surge and wave action from Hurricane Ike caused severe damage to portions of the levee system of the Texas City and Vicinity HFPP, including riprap displacement and severe erosion of the levee slope and toe. Rehabilitation and repairs to the Texas City and Vicinity HFPP includes the use of geotextile, blanket stone and riprap to restore the pre-storm cross-sections and/or conditions to the following areas that were damaged by erosion (Figure 1):

- Interior Levee Erosion - Station 150+00 to 152+50 where 250 linear feet of interior levee slope located northwest of Moses Lake was eroded
- Moses Lake Floodgate Protection - Stations 192+00 to 197+00 and 200+00 to 205+00 where the riprap and armoring system was eroded or displaced
- Levee Erosion Section One - Stations 205+00 to 278+00, 303+00 to 311+00, and 313+00 to 320+00, where levee erosion ranged from 5 to 15 feet

- Levee Erosion Section Two - Station 356+00 to 370+00, where levee erosion ranged from 40 to 50 feet
- Riprap Displacement - Stations 370+00 to 448+00 and 457+00 to 464+00 where the levee toe protection was damaged and riprap was displaced along the length of the levee

All of the damage sustained on the HFPP was to hard structure and the estimated cost of repairs is \$7,220,910. The annualized cost of these repairs, with the annual operations and maintenance cost, is \$563,760, with annual project benefits of \$10,476,901 and a benefit-to-cost ratio of 18.6 to 1.



Figure 1: Texas City Levee Stationing and Proposed Repair Work

2.0 ALTERNATIVES

Two alternatives were considered: No Action and Repair of the Damaged System.

2.1 ALTERNATIVE 1 – NO ACTION

Under the No Action Alternative – Alternative 1 – the proposed rehabilitation and repair work would not occur leaving the levee sections described below susceptible to continued erosion and increased risk of failure during a storm event similar to Hurricane Ike.

Interior Levee Erosion - Without repairs, the wave action from Moses Lake would continue to erode the interior levee slope and decrease the factor of safety of the levee system.

Moses Lake Floodgate Protection – Currently the system provides the same level of protection as the original design, but at a lower factor of safety. However, the movement and dislocation of riprap that protect the Moses Lake Floodgate on the east side created an unstable levee. If the rip rap and levee are not repaired, much larger scale erosion of the levee sections protecting the Moses Lake Floodgate would likely occur. This, in turn, could affect the floodgate’s foundation, and the structural integrity of the gate could be undermined.

Levee Erosion Section One - If the levee at this location is left unrepaired, surge and wave action from future storm events would likely cause increased erosion as the current bluff edge is unprotected. The displacement of the blanket stone from the existing riprap section could result in further erosion of the subgrade material beneath the riprap. If this continues, the effective levee cross-section would be reduced, lowering the factor of safety.

Levee Erosion Section Two – The levee toe at this location has less riprap protection because of the smaller design wave produced from shallow offshore waters. The deeper waters experienced during Hurricane Ike’s storm surge produced large waves that impacted the shoreline causing erosion to occur at this location much faster than anywhere else. If repairs to this section of levee are not performed and a storm event similar to Hurricane Ike occurred again, the levee would potentially erode enough to place the shoreline only 50 feet from the levee crest, lowering the effective levee cross-section and safety factor, potentially leading to levee slope instability and breach.

Riprap Displacement – At this location, the levee currently provides the same level of protection, but at a lower safety factor safety as the movement and dislocation of riprap protecting the levee toe has created shoreline instability. Erosion from future storm events is likely, which would begin to reduce the effective levee cross-section and future lower the safety factor. By rebuilding the appropriate riprap armoring system, erosion at this location can be avoided and the stability of the levee would be maintained.

2.2 ALTERNATIVE 2 – REPAIR OF THE DAMAGED SYSTEM (SELECTED PLAN)

Alternative 2 involves rehabilitation and repairs to the Texas City HFPP that would include the use of geotextile, blanket stone and riprap to restore the pre-storm conditions and levels of protection to areas that were damaged by erosion during Hurricane Ike (see Figure 2 for repair locations). All construction equipment and material would be transported to the site via roads on the existing levee top (e.g. Beach and Skyline Drives). All work would take place within the existing project footprint, thereby avoiding any new areas of impact. The proposed repairs would occur at five locations along the existing levee as follows:

Interior Levee Erosion – Approximately 250 linear feet (Station 150+00 to 152+50) of interior levee eroded by wave action during Hurricane Ike would be repaired to pre-storm conditions. This would be accomplished by repairing the damaged area with geotextile, blanket stone and riprap to restore the original cross-section. Repairs would tie into the existing riprap protection.

Moses Lake Floodgate Protection – Blanket stone would be placed at the toe of the levee immediately west and east of the Moses Lake Floodgate, between Stations 192+00 and 197+00 to the west and Stations 200+00 and 205+00 to the east to restore the protection to the pre-storm condition.

Levee Erosion Section One – The damage from Stations 205+00 to 278+00, 303+00 to 311+00, and 313+00 to 320+00 would be repaired by restoring the existing levee toe protection and adding riprap to the section to prevent the erosion of the levee toe. To restore the toe protection, the displaced blanket stone would be placed back to the previous design section. In order to place the blanket stone, the current riprap stone would be removed and stockpiled adjacent to the work area. The slope would be graded to the previous specified slope and a geotextile would be placed. The blanket stone would be placed and then the existing riprap would be placed back to the previous location. To protect the eroding material at the bluff edge, additional riprap would be used to transition from the riprap to the levee toe. This would prevent further erosion from occurring at the edge of the bluff and maintain the integrity of the levee.

Levee Erosion Section Two – This section of the levee, which extends from Section 357+00 to 370+00, suffered approximately 50 feet of erosion along the toe. In order to repair the area, articulated concrete blocks would be used to protect the damage area. This system would be anchored on the bottom end in a small trench filled with riprap (to be taken from available onsite material) to provide toe protection. The upper end of the blocks would be tied down underground with ground anchors to hold the system in place. The area would be graded to the original slope and vegetated with grass as it was before the storm. The articulated blocks would allow grass to cover the area while still providing wave protection for the levee and restore the integrity of the levee to pre-storm conditions.

Riprap Displacement – The displaced riprap between Section 370+00 and 448+00 would be repaired by using the existing riprap and rebuilding the armor. Larger stone may be provided to prevent future damage to the armor system in this section.

2.3 *COMPARISON AND EVALUATION OF ALTERNATIVES*

It has been determined that without the repairs the Texas City HFPP would experience significant erosion affecting the slope stability and structural integrity of the levee system; the system would be compromised and a significant amount of life and property would be at risk. Thus, the alternative of no action was not considered to be

acceptable. Therefore, the selected plan is to repair the damaged sections of the Texas City HFPP.

3.0 AFFECTED ENVIRONMENT

3.1 PROJECT AREA

The project is located between Moses Lake and Lower Galveston Bay in Texas City, Galveston County, Texas. The project surrounds the cities of Texas City, and La Marque, Texas, along the shoreline of Galveston Bay providing protection to about 36 square miles of residential and industrial development from hurricane storm tides up to elevation 15 feet (NGVD).

Rainfall in the Texas City area averages 57 inches per year. The average January low temperature is 43 degrees Fahrenheit and the average high July temperature is 91 degrees Fahrenheit. Elevation within the Texas City area ranges from 0 to 19 feet.

Developed areas in the vicinity of the project are located along on the south side of Moses Lake along Loop 197 (25th Avenue North) in Texas City, and consist primarily of single-family homes. The area northwest of the project along the northern shoreline of Moses Lake is undeveloped Gulf coastal prairie habitat which is protected and managed by the Texas City Prairie Preserve (TCPP) and The Texas Nature Conservancy. Other land uses for the immediate project area include cattle grazing operations.

3.2 VEGETATION

The Texas City FHPP encompasses and provides protection to Moses Lake which is located west of the project. This area contains salt marsh habitat typically dominated by smooth cordgrass (*Spartina alterniflora*), salt grass (*Distichlis spicata*), sea ox-eye daisy (*Borrchia frutescens*), Gulf cordgrass (*Spartina spartinae*), high-tide bush (*Iva frutescens*), and false willow (*Baccharis halimifolia*). Mud flats supporting glasswort (*Salicornia* spp.) also occur in the area. Areas of submerged aquatic vegetation (SAV) dominated by widgeon grass (*Ruppia maritima*) may be found growing in shallow waters and borrow areas located inside and adjacent to the levees (USACE, 1997).

The area west of the project also encompasses the TCCP which features over 2,300 acres of Gulf coastal prairie habitat. The site is located immediately west of the project site. Plants found on the preserve and surrounding Gulf coastal prairie habitat include big and little bluestem (*Schizachyrium scoparium*), indiagrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), eastern gammagrass (*Tripsacum dactyloides*), cordgrasses (*Spartina* spp.) and the rare coastal gayfeather (*Liatris acidota*) (The Nature Conservancy of Texas, 2009).

While the Texas City FHPP protects valuable coastal wetland and prairie upland habitats, the project footprint itself is dominated mostly by upland grasses such as Bermudagrass (*Cynodon dactylon*) and is routinely mowed.

3.3 WILDLIFE

The project area provides a home for wintering and migrating grassland songbirds. The area also contains wetlands that support migratory and year-round populations of waterfowl, shorebirds and wading birds, including nesting colonies of interior least terns (*Sterna antillarum*) and black skimmers (*Rynchops niger*). Other birds that may be found in the area include brown pelican (*Pelecanus occidentalis*), white-faced ibis (*Plegadis chihi*), black rail (*Laterallus jamaicensis*), American peregrine falcon (*F. peregrinus*), white-tailed hawk (*Buteo albicaudatus*), Forster's tern (*Sterna forsteri*), American oystercatcher (*Haematopus palliatus*), roseate spoonbill (*Ajaia ajaja*), a variety of gulls and terns (*Laridae* family), and herons and egrets (*Ardeidae* family). (The Nature Conservancy of Texas, 2009).

Mammals which may be found in the project area include nutria (*Myocaster coupus*), otter (*Lutra canadensis*), muskrat (*Ondatra zibethicus*), skunk (family *Mustelidae*), rabbit (*Syvilagus spp.*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), coyote (*Canis latrans*) and armadillo (*Dasypus novemcinctus*).

3.4 FISHERIES AND ESSENTIAL FISH HABITAT

Congress enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265) in 1996 that established procedures for identifying Essential Fish Habitat (EFH) and required interagency coordination to further the conservation of federally managed fisheries. Rules published by the National Marine Fisheries Service (NMFS) (50 CFR Sections 600.805–600.930) specify that any Federal agency that authorizes, funds or undertakes, or proposes to authorize, fund, or undertake an activity that could adversely affect EFH is subject to the consultation provisions of the above-mentioned act and identifies consultation requirements. This EA serves to initiate EFH consultation under the Magnuson-Stevens Fishery Conservation and Management Act.

The areas surrounding the project site contain shallow tidal waters which support wetlands and submerged aquatic vegetation. These areas provide nursery, foraging, and refuge habitats that sustain various recreationally and economically important marine fishery species including brown shrimp (*Farfantepenaeus aztecus*) and white shrimp (*Litopenaeus setiferus*), blue crab (*Callinectes sapidus*), Gulf menhaden (*Brevoortia patronus*), spotted seatrout (*Cynoscion neulosus*), flounder (*Paralichthys spp.*), red drum (*Sciaenops ocellatus*) Atlantic croaker (*Micropogonias undulates*), and striped mullet (*Mugil cephalus*).

The proposed project would be located within an area (ECOREGION 4) that has been identified by the Gulf of Mexico Fishery Management Council (GMFMC) as EFH. EFH has been designated for each life stage of federally managed marine fish species by either the GMFMC and/or the NMFS. Based upon information provided in the 2005 amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the

GMFMC and the highly migratory species Fishery Management Plans for Atlantic Billfish and Atlantic Tunas, Swordfish, and Sharks prepared by the Secretary of Commerce, we have developed the following list of species and life stages for which EFH has been designated in the project area:

Managed Species	Scientific Name	Life Stages
brown shrimp	<i>Farfantepenaeus aztecus</i>	eggs, larvae, postlarvae, juvenile, subadult, and adult (all life stages)
white shrimp	<i>Litopenaeus vannamei</i>	all life stages
red drum	<i>Sciaenops ocellatus</i>	all life stages
Spanish mackerel	<i>Scomberomorus maculatus</i>	all life stages
Various sharks	Various species	juveniles, adults

Categories of EFH that may be impacted by portions of the project located within the Moses Lake and Galveston Bay include the estuarine water column, estuarine mud, sand, shell and rock substrates (unvegetated estuarine benthic habitats).

3.5 *THREATENED AND ENDANGERED SPECIES*

The U.S. Fish and Wildlife Service (USFWS) and the NMFS considered the threatened or endangered species in Table 1 as possibly occurring in Galveston County. The bald eagle has been recently delisted but the protections provided by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act remain in effect.

A Biological Assessment (BA) has been prepared that addresses the proposed project’s potential impact on federally listed threatened and endangered species and species of concern. This BA, which is included as Appendix B, includes information on the distribution and habitat requirements of these species. Of the species listed in Table 1, only the brown pelican, bald eagle, Attwater’s greater prairie-chicken, and sea turtles are known to occur in areas adjacent to the project. However, these species are not known to directly utilize the Texas City HFPP levee system due to lack of suitable habitat.

Table 2 lists additional state-listed rare species that may potentially occur at or near the project site as a resident or migrant.

3.6 *CULTURAL RESOURCES*

The shoreline erosion protection for the existing project levee has been previously coordinated with the Texas State Historic Preservation Officer (SHPO). The project levee reaches along Moses Lake proposed for shoreline protection have been found to be highly disturbed by previous construction. Further cultural resource surveys and coordination is not required because the proposed work sites have no potential for significant historic properties.

**TABLE 1. FEDERALLY-LISTED THREATENED AND ENDANGERED SPECIES,
AND SPECIES OF CONCERN IN GALVESTON COUNTY, TEXAS**

Common Name	Scientific Name	Status	
		USFWS	NMFS
INVERTEBRATES			
ivory bush coral	<i>Oculina varicosa</i>	NA	SOC
FISH			
Smalltooth sawfish	<i>Pristis pectinata</i>	NA	E
dusky shark	<i>Carcharhinus obscurus</i>	NA	SOC
largetooth sawfish	<i>Pristis pristis</i>	NA	SOC
night shark	<i>Charcharhinus signatus</i>	NA	SOC
saltmarsh topminnow	<i>Fundulus jenkinsi</i>	NA	SOC
sand tiger shark	<i>Carcharias Taurus</i>	NA	SOC
speckled hind	<i>Epinephelus drummondhayi</i>	NA	SOC
Warsaw grouper	<i>Epinephelus nigritus</i>	NA	SOC
white marlin	<i>Tertrapturus albidus</i>	NA	SOC
BIRDS			
Attwater's greater prairie-chicken	<i>Tympanuchus cupido attwateri</i>	E	NA
bald eagle	<i>Haliaeetus leucocephalus</i>	DM	NA
brown pelican	<i>Pelecanus occidentalis</i>	E, DM	NA
Eskimo curlew	<i>Numenius borealis</i>	E	NA
piping plover	<i>Charadrius melodus</i>	T w/CH	NA
REPTILES			
green sea turtle	<i>Chelonia mydas</i>	T	T
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	E
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E	E
leatherback sea turtle	<i>Dermochelys coriacea</i>	E	E
loggerhead sea turtle	<i>Caretta caretta</i>	T	T
MAMMALS			
Blue whale	<i>Balaenoptera musculus</i>	NA	E/D
Finback whale	<i>B. physalus</i>	NA	E/D
Humpback whale	<i>Megaptera novaengliae</i>	NA	E/D
Sei whale	<i>B. borealis</i>	NA	E/D
Sperm whale	<i>Physeter macrocephalum</i>	NA	E/D

1 USFWS, 2009. www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm

2 NOAA/NMFS, 2009. <http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf>

E = Endangered; species in danger of extinction throughout all or a significant portion of its range; DM = Delisted Taxon; T = Threatened; T w/CH = Threatened, with Federally-designated Critical Habitat; SOC = Species of Concern (NMFS); NA = Not Applicable.

TABLE 2. POTENTIAL STATE-LISTED RARE, THREATENED AND ENDANGERED SPECIES FOR GALVESTON COUNTY, TEXAS¹

Common Name	Scientific Name	Status
PLANTS		
Texas prairie dawn-flower	<i>Hymenoxys texana</i>	E
FISH		
Creek chubsucker	<i>Erimyson oblongus</i>	T
BIRDS		
American peregrine falcon	<i>Falco peregrinus anatum</i>	E
Arctic peregrine falcon	<i>Falco peregrinustundrius</i>	T
Attwater's greater prairie-chicken	<i>Tympanuchus cupido attwateri</i>	E
bald eagle	<i>Haliaeetus leucocephalus</i>	T
brown pelican	<i>Pelecanus occidentalis</i>	E
Eskimo curlew	<i>Numenius borealis</i>	E
piping plover	<i>Charadrius melodus</i>	T
reddish egret	<i>Egretta rufescens</i>	T
white-faced ibis	<i>Plegadis chihi</i>	T
white-tailed hawk	<i>Buteo albicaudatus</i>	T
whooping crane	<i>Grus Americana</i>	E
wood stork	<i>Mycteria Americana</i>	T
REPTILES		
alligator snapping turtle	<i>Macrochelys temminckii</i>	T
green sea turtle	<i>Chelonia mydas</i>	T
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E
leatherback sea turtle	<i>Dermochelys coriacea</i>	E
loggerhead sea turtle	<i>Caretta caretta</i>	T
smooth greensnake	<i>Opheodrys vernalis</i>	T
Texas horned lizard	<i>Phrynosoma cornutum</i>	T
timber rattlesnake	<i>Crotalus horridus</i>	T
MARINE MAMMALS		
West Indian manatee	<i>Trichechus manatus</i>	E
TERRESTRIAL MAMMALS		
jaguarundi	<i>Herpailurus jaguarondi</i>	E
Louisiana black bear	<i>Ursus americanus luteolus</i>	T
ocelot	<i>Leopardus pardalis</i>	E
Rafinesque's big-eared bat	<i>Corynorhynchus rafinesquii</i>	T
red wolf	<i>Canis rufus</i>	E

¹Texas Parks and Wildlife Department (2007).

3.7 AIR QUALITY AND NOISE

3.7.1 AIR QUALITY

The project area is located in Galveston County, Texas. This county is within an area designated as the Houston-Galveston-Brazoria Intrastate Air Quality Control Region (HGB) (Environmental Protection Agency (EPA), 2007). The HGB is in attainment or unclassified with the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants except ozone and was classified as having “moderate” nonattainment with the 8-hour NAAQS for ozone until 2008, when the EPA reclassified the area to “severe” nonattainment, with an attainment deadline of 2019. Thus by 2019, the area is expected to achieve and maintain attainment with the NAAQS for ozone. Counties in the HGB Nonattainment Area affected under this status are Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The planning and implementation of the Texas State Implementation Plan (SIP) requirements for assessing and maintaining these NAAQS, as required by the Clean Air Act (last amended in 1990) incorporates the effects of population and industrial growth, technology changes, and national or statewide control measures.

Ambient air quality in the project area is directly related to emissions from man-made sources such as stationary sources (stacks, vents, etc.); emissions from mobile sources such as vehicles, ships, trains, etc.; chemical reactions in the atmosphere such as the formation of ozone; and natural sources such as trees, fires, and wind-blown dust. Since all of these sources must be considered in an assessment of air quality, the EPA has identified air emissions inventories and ambient air monitoring as key methods for assessing air quality. Table 3 is a summary of emissions for Galveston County for 2001 (EPA, 2009).

Table 3. Summary of 2001 Air Emissions Inventory for Galveston County, Texas by Source Category

Source Category	CO (tpy)	NOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	SO2 (tpy)	VOC (tpy)
Area	3,560	2,828	12,475	2,370	6	3,567
Point Source	17,795	22,606	2,597	2,119	10,768	7,448
Highway Vehicles	45,496	5,557	145	104	133	4,077
Off-Highway	26,585	23,114	1,173	1,077	3,323	4,714
SUBTOTAL	93,435	54,105	16,390	5,669	14,231	19,806

3.7.2 NOISE

Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. The Federal Interagency Committee on Urban Noise developed land-use compatibility guidelines for noise in terms of day-night average sound level (DNL) (U.S. Department of Transportation, 1980). It is recommended that no residential uses, such as homes, multifamily dwellings, dormitories, hotels, and mobile home parks, be located where the

noise is expected to exceed a DNL of 65 decibels (dBA). The DNL is the energy average A-weighted acoustical level for a 24-hour period with a 10-decibel upward industrial uses area considered acceptable where the noise level exceeds DNL of 65 dBA. For outdoor activities, the EPA recommends DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population would be at risk from any of the effects of noise (EPA, 1974). Noise-sensitive receptors are facilities or areas where excessive noise may disrupt normal activity, cause annoyance, or loss of business. Land uses such as residential, religious, educational, recreational, and medical facilities are more sensitive to increased noise levels than are commercial and industrial land uses.

The majority of the repair sites are fairly remote; the closest residential neighborhood is located approximately one-third mile from the nearest repair site (i.e. riprap displacement site). Vehicles and equipment required to transport and place the geotextile, base rock, riprap material in the areas requiring repair would be the primary source of noise from the proposed activities. All equipment and materials would be brought to the site by vehicles via existing roads located on the levee tops (e.g. Beach and Skyline Drives via SH 146 or Loop 197).

3.8 *WATER QUALITY*

Moses Lake (Segment 2431) is a 3.3-square-mile brackish, tidally influenced waterbody on the western shore of Lower Galveston Bay that receives inflows from Moses Bayou. The Texas Commission on Environmental Quality (TCEQ) designated uses for Moses Lake are Aquatic Life and Contact Recreation, General Use, and Fish Consumption. Water quality inventory data from 2008 indicate that the aquatic life, contact recreation and general uses are fully supported in Moses Lake (TCEQ, 2008a).

The Lower Galveston Bay (Segment 2439_01) is a 13.8 square mile area which includes tidal bay waters adjacent to Texas City Ship Channel and Moses Lake. The designated uses for Lower Galveston Bay are Aquatic Life Use, Contact Recreation Use, General Use, Fish Consumption Use and Oyster Waters Use. Water quality inventory data from 2008 indicated the Aquatic Life Use, Fish Consumption Use and Contact Recreation Use are fully supported (TCEQ 2008a). General Use as was a concern due to elevated nitrate levels (TCEQ, 2008a) attributed to non-point sources associated with urban runoff and storm sewers (TCEQ, 2008b). Oyster Waters Use was non-supporting as a result of high levels of bacteria (TCEQ, 2008a) which were also attributed to non-point sources associated with urban runoff and storm sewers (TCEQ 200b). Shellfish harvesting from the waters adjacent to the project area is restricted (DSHS, 2008a). Development of a Total Maximum Daily Load¹ (TMDL) is underway, scheduled or will be schedule to address the impairment to Oyster Waters Use due to high bacterial levels (TCEQ, 2008 a and c).

¹ Total Maximum Daily Load (TMDL) is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources and natural background, and a margin of safety. TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

Due to concerns regarding the presence of dioxin and polychlorinated biphenyls (PCBs) at concentrations exceeding established health assessment guidelines, the Texas Department of State Health Services (DSHS) issued an advisory in July 2008 regarding the consumption of catfish species and spotted seatrout from Lower Galveston Bay, which includes the project area (DSHS, 2008b). The DSHS advisory recommends that adults should limit consumption of all catfish species and spotted seatrout caught from these waters to no more than one 8-ounce meal per month; women who are nursing, pregnant, or who may become pregnant and children should not consume catfish or spotted seatrout from these waters.

3.9 *HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)*

A Hazardous, Toxic, and Radioactive Waste (HTRW) preliminary assessment was conducted for the proposed project. The assessment methodology is designed to identify known and potentially unknown HTRW sites that could cause a release to the environment, endanger human health, and impact project costs and schedules. Methodology included a database search, and a review of aerial photos and maps. Databases included in the research included the Superfund, National Pollutant Discharge elimination System, Resource Conservation and Recovery Act report from the Hazardous Waste database, and the Toxic Release Inventory (<http://134.67.99.122/enviro>). Investigations indicate there are no known HTRW sites in the proposed project area or adjacent to the proposed project.

3.10 *SOCIOECONOMICS*

As of 2006, Texas City's population is around 45,070 people compared to 41,521 people in 2000 (U.S. Census Bureau, 2009). Since 2000, it has had a population growth of 8.55 percent. In 2000, the area population was comprised mostly of White persons (60.7 percent) followed by Black or African American persons (27 percent). Less than 1 percent of the population is either Asian or Native American, and 11 percent claims their race as 'Other'. Around 20 percent of the people in Texas City claim Hispanic ethnicity (U.S. Census Bureau, 2009)

In 2007, the median age of persons living in the area was 35.8 years compared to the national median age of 37.6 years (Sperling's Best Places, 2009). Around 57 percent of people in Texas City are married; 12 percent are divorced. The average household size is 2.6 people. (Sperling's Best Places, 2009)

As of 2007, the area population had 77 percent of the population being high school graduates (or equivalent), followed by 8 percent of the population attaining a bachelor's degree and 3 percent of the population attaining a graduate or professional degree (Sperling's Best Places, 2009); these percentages have changed little since 2000 (U.S. Census Bureau, 2009; (Sperling's Best Places, 2009).

The 2007 income per capita is \$19,595 (Sperling's Best Places, 2009) compared to \$17,057 in 1999 (U.S. Census Bureau, 2009). In 1999, the number of persons living

below the poverty line was 14.9 percent (U.S. Census Bureau, 2009). The unemployment rate in Texas City, TX, is 5 percent, with job growth of 2.26 percent. Future job growth over the next ten years is predicted to be 24.13 percent (Sperling's Best Places, 2009).

The 2004 valuation of properties for Texas City totals over \$4.2 billion. The present land use is comprised of 50 percent industrial and commercial, 20 percent residential, and 30 percent other. Approximately 10,120 commercial and industrial buildings and 12,440 single-family residential structures are located within Texas City (USACE, 2009).

3.11 ENVIRONMENTAL JUSTICE

The proposed project is in compliance with Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," signed by the president on February 11, 1994, which directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health of the environment of minority and low-income populations to the greatest extent practicable and permitted by law. The EO requires that minority and low-income populations not receive disproportionately high adverse human health or environmental impacts, and requires that representatives of any low-income or minority populations that could be affected by the proposed project be involved in the community participation and public involvement process.

Low-income persons are defined as "a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines." The 2008 HHS poverty guideline for a family of four is \$21,200. The most recent three year (2005-2007) estimated average household income for the area is \$48,476, which is well above the 2008 HHS poverty guideline. The most recent three year median household income for the area is estimated \$36,660 which is also well above the 2008 HHS poverty guideline (U.S. Census Bureau, 2009).

The land surrounding Moses Lake and the project area north of Loop 197 and east of SH 146 is either undeveloped or consists of fairly affluent subdivisions. This area is not considered socially or economically disadvantaged.

3.12 PRIME AND UNIQUE FARMLANDS

Prime farmland soils are defined by the Secretary of Agriculture in 7 CFR, Part 657 (Federal Register, Vol. 43, No. 21) as those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. The soil quality, growing season, and moisture supply are available to economically produce sustained high yield of crops when treated and managed, including water management, according to acceptable farming methods. Some soils are considered prime farmland in their native state, and others are considered prime farmland only if they are drained or watered well enough to grow the main crops in the area.

Based on the Soil Survey of Galveston County, Texas (Soil Conservation Service, 1988) soils that occur within 0.25 mile of the proposed repairs to the Texas City FHPP are classified within the following soil series: Follet loam, Francitas clay, Ijam clay, Kemah silt loam (KeA, 0 to 1 percent slopes), Narta fine sandy loam, and Stowell-Leton complex. According Soil Survey Geographic Database (SSURGO) information acquired from the Natural Resources Conservation Service (NRCS), the majority of the soils located within this study area are not considered prime farmlands (NRCS, 2009).

“Unique farmlands” is a category of farmlands that is recognized by the NRCS. Unique farmlands have very specific and rigid criteria in the states where they occur. There are no soils recognized as “Unique Farmlands” in the state of Texas (Brown, 2002).

3.13 RECREATIONAL RESOURCES

Sportfish anglers frequent Galveston Bay and Moses Lake to fish for recreationally important species. Bird watching has become a popular, non-consumptive outdoor activity in the nation, with the upper Texas coast recognized internationally as a birding hotspot. The TCPP supports the bird populations that people visit the area to observe. An important activity of the TCPP associated with the nesting birds is ecotourism and a strong emphasis on education and public outreach.

3.14 ROADWAYS AND TRAFFIC

Major roadways within the study area include State Highway (SH) 146, which provides access to areas north and south of Texas City and Loop 197 (a.k.a. 25th Avenue North) which provides access east and west. The Texas City FHPP levee and project repair sites can be accessed from SH 146 via Skyline and from Loop 197 via Bay Street and Beach Drive. Vehicular traffic in the area consists of a mixture of local area and urban residents, and commercial and industrial vehicles associated with the Port of Texas City and petrochemical industries, and tourism.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE

4.1 IMPACTS ON THE PROJECT AREA

An Environmental Statement was completed for the authorized project in March 1979 (USACE, 1979). The proposed sites proposed for repair in the levee reach along Moses Lake have been highly disturbed by previous construction activities. An Environmental Assessment was also completed in January 1988 for erosion protection of the project levees along Galveston Bay and Moses Lake (USACE, 1988). The currently proposed work activities would involve minor and temporary impacts to the regularly maintained upland grasses and existing rock riprap and unvegetated sand or mud shoreline within the existing project footprint.

4.2 *IMPACTS ON VEGETATION*

No wetlands or areas of SAV would be impacted by the proposed rehabilitation and repairs. The proposed work would occur within the authorized alignment and footprint of the Texas City FHPP to restore the project to its pre-storm conditions. All equipment and materials would be brought to the site via the levee top by vehicles. All work would occur along the unvegetated rock riprap or sandy and mud shoreline or on the slopes of the project which are dominated by upland grasses that are routinely mowed. The upland vegetation along the levee system should recover to near-present conditions after construction.

4.3 *IMPACTS ON WILDLIFE*

The project would result in temporary, minor disturbances to wildlife in the project area during construction. The proposed repair work would occur within the footprint of the existing project which has been previously disturb and undergoes routine inspection and maintenance activities. These activities produce disturbances similar to those expected from the rehabilitation and repair work being proposed. For these reasons, the proposed action is not expected to negatively impact any listed species or their critical habitat. Most species that do not tolerate disturbances resulting from the repair could avoid the area during this time. The habitat at the sites proposed for rehabilitation and repair work is similar to the habitat found extensively along the Texas coast in the immediate vicinity of the project area. Temporarily displaced wildlife would have suitable habitat immediately available to them.

4.4 *IMPACTS ON FISHERIES AND ESSENTIAL FISH HABITAT*

The USACE has determined that no permanent effects to EFH would occur as a result of the project. Temporary impacts to estuarine water column and estuarine mud, sand, shell and rock substrates would result from the project. However, it is anticipated that these impacts would be temporary and minor in nature. Therefore, no EFH mitigation is required for the project.

4.5 *IMPACTS ON THREATENED AND ENDANGERED SPECIES*

Several federally listed threatened or endangered species are known to occur in Galveston County. Those that may be potentially found in or near the project area are the brown pelican, Attwater's greater prairie chicken, and five species of sea turtles (Table 1). All of the threatened and endangered species are highly mobile and should not be affected by the proposed repair activities because of the limited scope and short construction time period involved.

The USFWS has expressed concerns over noise impacts to the Atwatter's greater prairie chickens which inhabit the coastal prairie habitat located within the TCCP. These birds breed and nest each year from March to May, and noise impacts during this period

are of concern for these birds. However, project activities do not call for an intrusion upon the coastal prairie now serving as habitat for the prairie chicken; the closest repair site (Interior Levee Erosion) is located approximately 0.25 mile to the east and isolated by water from this habitat. Through informal consultation with USFWS, avoidance and conservation measures have been developed and incorporated into the BA (Appendix B) to address potential impacts to the Attwater's greater prairie chicken.

The proposed repair work is minor, short-term and would occur within the footprint of the existing project which has been previously disturbed and undergoes routine inspection and maintenance. These activities produce disturbances similar to those expected from the rehabilitation and repair work being proposed. For these reasons, the proposed action is not expected to negatively impact any listed species or their critical habitat. Therefore, no effect on any of the federally listed species is anticipated.

4.6 IMPACTS ON CULTURAL RESOURCES

The project was reviewed by a staff Archeologist and it was determined that the project footprint has been so extensively modified that there is little potential for a historic property to be present. The repairs are of such limited nature that little likelihood exists for the repairs to impinge upon a historic property, even if present within the affected area.

4.7 IMPACTS ON AIR QUALITY AND NOISE

The project area is located in the Houston-Galveston-Brazoria (HGB) Consolidated Metropolitan Statistical Area (CMSA), which is classified as "moderate" non-attainment with the 8-hour National Ambient Air Quality Standards (NAAQS) for ozone. General conformity under the Clean Air Act, Section 176 has been reviewed for this project. The requirements of this rule are not applicable to this project because it is exempt under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analysis which might otherwise be required and this project cannot be delayed due to the overriding concerns for public health and welfare, especially in view of the upcoming hurricane season. Furthermore, given the complexities of repair execution, a determination pursuant to 40 CFR 93.153(e)(2) and 30 TAC 1201.30(c)(5)(B) has been signed that extends this exemption an additional six months, through March 13, 2010. Signed determinations documenting these decisions are included in Appendix F.

Noise associated with earth-moving equipment presents a short-term impact during the construction phase. It may periodically and temporarily disturb wildlife in the immediate vicinity of the site, or cause movement of wildlife away from the site to other ecologically suitable areas. Similarly, recreating humans may avoid this area due to noise during repairs, but as with wildlife, such disruption would be limited to the repair phase, and there are several comparable substitute recreation sites readily available within the area. No long-term effects would occur as a result of noise during construction.

The USFWS has expressed concerns over potential noise impacts to the Atwater's greater prairie chickens which inhabit the coastal prairie habitat located within the TCCP. These birds breed and nest each year from March to May, and noise impacts during this period are of concern for these birds. However, project activities do not call for an intrusion upon the coastal prairie now serving as habitat for the prairie chicken; the closest repair site (Interior Levee Erosion) is located approximately 0.25 mile to the east and isolated by water from this habitat.

4.8 IMPACTS ON WATER QUALITY

During construction, activities such as the placement of stone and riprap along the shoreline may increase turbidity in the immediate vicinity of the repair site. After repairs are completed, the shoreline and sediments should stabilize rapidly.

4.9 IMPACTS ON HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

Based on the findings of the HTRW survey, the probability of increased project cost or lost time from discovery and remediation of any contaminated materials during activities to repair the hurricane flood protection system is considered low. Information compiled by this assessment indicates additional HTRW investigations are not warranted at this time.

4.10 IMPACTS ON SOCIOECONOMICS

The proposed rehabilitation and repair work to the FHPP would not adversely impact socioeconomic resources in the vicinity of the project area. Completion of the work should return the levee system's hurricane protection for the surrounding area to the level which existed prior to landfall from Hurricane Ike.

4.11 IMPACTS ON ENVIRONMENTAL JUSTICE

The proposed repairs would not have a disproportionate adverse impact on minority or low-income population groups. The make-up of people living in the vicinity of the project does not constitute a minority or low-income population. Moreover, any impacts from the proposed project would be minor, temporary, and distributed among all groups equally.

4.12 IMPACTS ON PRIME AND UNIQUE FARMLANDS

The project would not impact prime and unique farmlands as these resources do not occur in the project area.

4.13 IMPACTS ON RECREATIONAL RESOURCES

Noise from heavy equipment and vehicles used during construction of the project may discourage recreational activities in the immediate vicinity of the project site. However, these affects would be limited to the period of construction and should be minor. Furthermore, there are many comparable substitute recreation sites readily available within the surrounding area of Moses Lake and Galveston Bay.

4.14 IMPACTS ON ROADWAYS AND TRAFFIC

Traffic from moving land-based construction equipment and vehicles would occur or increase at the site during the period of repairs. This type of traffic may be similar to that experienced at times on SH 146 which is a north-south thoroughfare for port facilities and communities located along the western side of Galveston Bay. However, temporary disruptions to traffic along Loop 197, which is primarily residential, may result. Once the repairs are complete, the all associated land-based project equipment and vehicular traffic would end.

5.0 MITIGATION

The proposed project would not impact wetlands, SAV, or other special aquatic sites. There would not be any significant impacts to other resources. Therefore, compensatory mitigation would not be required.

6.0 CUMULATIVE IMPACTS

6.1 CUMULATIVE EFFECTS

An extensive analysis of cumulative effects which included Galveston, Harris and Chambers Counties was conducted for the Shoal Point Container Terminal EIS (USACE Permit No. 21979) and is summarized in the Texas City Channel Deepening Project Final General Reevaluation Report and EA (USACE, 2007). The cumulative effects analysis included the Texas City HFPP project area.

Past, present and future development in the region involves both adverse and beneficial cumulative effects. Potential adverse effects include loss of bay bottom habitat and air and water quality impacts. Beneficial effects of development include conversion of bay bottom to emergent marsh, new economic opportunities, employment opportunities, and recreational resources. Additional housing, infrastructure, and commercial and public land uses required to serve the projected population would result in continued regional development. As development continues, transportation improvements would be needed. The conversion of natural wildlife habitat and agricultural lands into commercial, residential or industrial land uses would continue to disrupt and disperse fish and wildlife populations. The loss of wetlands in the area would continue to affect natural resources. Development of sites that can be used beneficially for the environment should preserve, restore, and create habitat to ensure the ecosystem's

sustainability. Although dredging projects would affect water quality, the impacts would be temporary and localized. Use of best management practices and spill prevention measures should result in minimal adverse impacts to water quality and aquatic resources. Increased development in the HGB is likely to contribute to additional and varying amounts of air pollution emissions. Emission control measures proposed in the SIP are expected to significantly reduce emissions of ozone precursors in the HGB. TCEQ also has regulations in place to control emissions of other pollutants, reducing the potential impact.

Projects occurring in the general vicinity of the Texas City FHPP are part of the continued urbanization and industrialization of region. The potential cumulative effects of these projects accompany this trend and would affect environmental, social and economic receptors. Potential impacts related to the repairs of the Texas City HFPP and to the many projects occurring in the area would be controlled by governmental regulations and the goals and coordination of community planning efforts. These entities serve to safeguard resources and avoid or minimize negative impacts that adversely affect the general health and sustainability of the region.

6.2 PAST, PRESENT AND FUTURE ACTIONS

Activities in Galveston county requiring permits from both the Texas General Land Office (TxGLO) and the USACE were considered as part of the cumulative effects evaluation for this area. The largest categories of TxGLO permitted activities include construction, maintenance or removal of marine structures, pipeline installation, maintenance or removal of pipelines, habitat creation, shoreline stabilization and transportation projects. USACE permitted activities primarily pertain to marine structures, dredge/fill, shoreline stabilization, pipelines, bulkheads, stormwater, wells/drilling and transportation. Specific actions that may contribute to overall cumulative effects in the project area include the following:

- Modifications to SH 146, SH 3 and IH 45
- Grand Parkway
- Houston/Galveston Navigation Channels Project
- Texas City “Y” – Modifications to Texas City Channel and GIWW Intersection
- Texas City Channel Federal Project
- Grand Cay Harbor Development on Moses Lake

6.3 CONCLUSIONS

Historically, the study area has experienced increased development and growth which resulted in decreased quality of some environmental resources such as air and water. Cumulative impacts from past, existing, and reasonably foreseeable future projects, along with the proposed project, are not expected to have significant adverse effects within the study area. Although the effect of many assessed projects are unknown, it is assumed that many projects would adhere to state and federal regulations which require no significant effect to resources or mitigation of those affected resources,

while other major projects may negatively affect an environmental resource. The Texas City HFPP repair work is expected to have minor temporary local impacts to recreation and wildlife from construction related noise, EFH, water quality from increased turbidity, and traffic due to increased construction equipment. These resources are expected to recover to pre-project conditions after the work is completed. The proposed project is expected to contribute beneficially to public health and safety and is not expected to contribute negative cumulative impacts to the area.

7.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

This EA has been prepared to satisfy the requirement of all applicable environmental laws and regulations, and has been prepared in accordance with the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (NEPA), 40 CFR Parts 1500-1508, and USACE Regulation ER 200-2-2, Environmental Quality: Procedures for Implementing NEPA. The planning and implementation of the proposed project is consistent with the U.S. Army Corps of Engineers' Environmental Operating Principles.

The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

7.1 NATIONAL ENVIRONMENTAL POLICY ACT

This EA has been prepared in accordance with Council on Environmental Quality regulations for implementing NEPA. The environmental and social consequences of the recommended plan have been analyzed in accordance with the Act and presented in the assessment.

7.2 FISH AND WILDLIFE COORDINATION ACT OF 1958, AS AMENDED

Coordination with the USFWS and NMFS for the existing authorized levee system is documented in the Final Environmental Statement for the Texas City and Vicinity, Texas, HFPP dated March 1979 (USACE, 1979). The proposed work involves repairs to the Texas City and Vicinity HFPP to restore areas of the existing levee system that were damaged by erosion during Hurricane Ike to pre-storm cross-sections and/or conditions and would not result in modifications or expansion of the existing project. Therefore, Fish and Wildlife Coordination Act coordination is not required. The USFWS, NMFS and TPWD were provided the opportunity to review and comment on the draft EA, published February 25, 2009.

7.3 NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED

This project was determined to be of such limited nature that it does not have the potential to cause an effect on historic properties. This project is in compliance with the National Historic Preservation Act pursuant to 36 CFR 800.3(a).

7.4 *MAGNUSON-STEVEN'S FISHERY CONSERVATION MANAGEMENT ACT*

Congress enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Act in 1996 that established procedures for identifying EFH and required interagency coordination to further the conservation of federally managed fisheries. Rules published by the NMFS (50 CFR 600.805 through 600.930) specify that any Federal agency that authorizes, funds or undertakes, or proposes to authorize, fund or undertake an activity that could adversely affect EFH be subject to the consultation provisions of the act. No permanent impacts to living marine resources or EFH would occur as a result of the project, therefore no mitigation is required. The Draft EA, published February 25, 2009, served to initiate EFH consultation under the Magnuson-Stevens Fishery Conservation and Management Act. In a letter dated March 18, 2009, the NMFS concurred that the proposed project would not have substantial adverse effects on living marine resources or areas designated as EFH, and that no further coordination with NMFS would be required.

7.5 *COASTAL ZONE MANAGEMENT ACT OF 1972*

This Act requires that all land-use changes in the project area be conducted in accordance with approved state coastal zone management programs. Any project that is located in or that may affect land and water resources in the Texas coastal zone and that requires a Federal license or permit, or is a direct activity of a Federal agency, or is federally funded must be reviewed for consistency with the Texas Coastal Management Program (TCMP), which can be found in Appendix E. The proposed work involves repairs to the Texas City and Vicinity HFPP to restore areas of the existing levee system that were damaged by erosion during Hurricane Ike to pre-storm cross-sections and/or conditions and would not result in impacts to any coastal natural resource areas (e.g. tidal waters or submerged lands). This EA was coordinated with the Coastal Coordination Council (CCC) for compliance with the TCMP. In a letter dated March 5, 2009, the CCC determined that there are no significant unresolved consistency issues with respect to the project, and the project is consistent with the goals of the TCMP (Appendix E).

7.6 *ENDANGERED SPECIES ACT, AS AMENDED*

The District prepared a BA (Appendix B) of potential impacts to Federally listed species within the project area. The BA concluded that the proposed project would have no effect on any federally listed threatened or endangered species or their critical habitat. The BA was provided to the USFWS and NMFS for review and comment along with the draft EA, on February 25, 2009. Through informal consultation with USFWS, avoidance and conservation measures were developed and incorporated into the BA (Appendix B) to address potential impacts to the Attwater's greater prairie chicken. In a letter dated March 30, 2009, the USFWS concurred with the District's determination that the project would not likely adversely affect any federally listed threatened or endangered species (Appendix B).

7.7 CLEAN AIR ACT OF 1972, AS AMENDED

General Conformity under the Clean Air Act, Section 176 has been evaluated for this project according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because it is exempt under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A), since it is impractical to prepare the conformity analysis which might otherwise be required and the action cannot be delayed due to overriding concerns for public health and welfare, especially in view of the upcoming hurricane season.

On February 24, 2009 a Clean Air Act General Conformity Record of Non-Applicability was issued by the Corps of Engineers, Galveston District, that exempted this project. In light of the complexities of execution of the emergency repairs, this exemption has been extended for an additional six months, through March 13, 2010, pursuant to 40 CFR 93.153(e)(2) and 30 TAC 101.30(c)(5)(B). This project is not considered regionally significant under 40 CFR 93.153(i).

7.8 CLEAN WATER ACT OF 1977, AS AMENDED

The District evaluated the proposed action pursuant to Section 404 of the Clean Water Act and project impacts are summarized in a Section 404(b)(1) analysis, which is included in Appendix C. The Texas Commission on Environmental Quality has issued a waiver for Section 401 of the Clean Water Act for the proposed project (see Appendix C).

7.9 EXECUTIVE ORDER 11990 – PROTECTION OF WETLANDS

This project footprint is entirely within the limits of the previously existing, disturbed areas of the project footprint and would not result in new impacts to wetlands; therefore the project is in compliance with E.O. 11990.

7.10 EXECUTIVE ORDER 12898 – ENVIRONMENTAL JUSTICE

The proposed project would not have a disproportionate adverse impact on minority or low-income population groups within the project area.

7.11 FARMLAND PROTECTION POLICY ACT OF 1981 AND THE CEQ MEMORANDUM PRIME OR UNIQUE FARMLANDS

The proposed project would not impact any farmland soils considered prime or unique.

7.12 EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT

This EO directs Federal agencies to evaluate the potential effects of proposed actions on floodplains. Such actions should not be undertaken that directly or indirectly induce growth in the floodplain unless there is no practical alternative. The proposed project is not expected to induce growth within the floodplain as it is simply returning the existing project to pre-storm conditions.

8.0 COORDINATION WITH OTHERS

A Public Notice, describing the proposed action and announcing the availability of the draft EA, was issued on February 25, 2009 to interested parties, including Federal and State agencies. Comment letters were received from two State and Federal agencies; none expressed concerns with the project. Comments and responses to the concerns on the Draft EA are included in Appendix G of the Final EA.

9.0 CONCLUSIONS

The following conclusions summarize the findings of the EA, as detailed in the environmental analyses in Section 4.0:

- Wetlands and SAV would not be impacted by this project.
- Wildlife may be temporarily affected by minor impacts during repairs.
- Fisheries and EFH would experience minor, temporary impacts. No mitigation is required for EFH as a result of the project. Consultation has been initiated with the NMFS.
- There would be no effect on federally listed threatened or endangered species as a result of the proposed project.
- Historic Properties would not be affected by the project.
- Implementation of the proposed action would not result in significant noise impacts.
- There would be temporary, minor impacts to water quality due to turbidity from the proposed repairs. After repairs are completed, the shoreline and sediments would stabilize rapidly and water quality would return to pre-project conditions.
- There would be no hazardous, toxic, or radioactive waste impacts from the proposed project.
- The project would not adversely impact socioeconomics either locally or regionally.
- There are no prime or unique farmlands in the project area.
- Recreational resources may be temporarily affected by minor noise impacts during repairs.
- Roadways and traffic may be temporarily impacted during repairs.
- No significant or adverse impacts to environmental resources are expected to occur as a result of implementation of the proposed project. No adverse

cumulative impacts to environmental resources are expected as a result of project implementation.

- The U.S. Army Corps of Engineers finds that the proposed action is in compliance with the Texas Coastal Management Program.

The proposed project would not result in significant impacts to the human environment. Therefore, the preparation of an Environmental Impact Statement is not required.

9.0 LITERATURE CITED

Brown, S. 2002. Soil scientist, soil survey program, Natural Resources Conservation Service (NRCS).

Natural Resources Conservation Service (NRCS). 2009. SSURGO (Soil Survey Geographic Database) for Galveston County, Texas, Natural Resources Conservation Service, U.S. Dept. of Agriculture. www.soildatamart.nrcs.usda.gov. (Accessed 20090212).

National Marine Fisheries Service. 2009. Endangered and Threatened Species and Critical Habitats under the Jurisdiction of the NOAA Fisheries Service – Texas. <http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf>. (Accessed 20090220).

Soil Conservation Service (SCS) (now the NRCS). 1988. Soil Survey Map of Galveston, County, Texas.

Sperling's Best Places. 2009. www.bestplaces.net/city/Texas_City-Texas.aspx#. (Accessed 20090210).

Texas Commission on Environmental Quality. 2008a. www.tceq.state.tx.us/assets/public/complilance/monops/water/08twqi/2008_basin_24.pdf. (Accessed 20090217).

_____. 2008b. www.tceq.state.tx.us/assets/public/complilance/monops/water/08twqi/2008_sources.pdf. (Accessed 20090217).

_____. 2008c. www.tceq.state.tx.us/assets/public/complilance/monops/water/08twqi/2008_303d.pdf. (Accessed 20090217).

Texas Department of State Health Services. 2008a. Classification of Shellfish Harvesting Areas of Galveston Bay. <http://www.dshs.state.tx.us/seafood/MapsPDF/ShellfishClassificationMaps/Galveston08.pdf> (Accessed 20090217).

_____. 2008b. Fish and Shellfish Consumption Advisory ADV-35. http://www.dshs.state.tx.us/seafood/PDF2/FishConsumptionAdvisoryBaNNews/ADV-35_signed.pdf. July 8, 2008.

- Texas Parks and Wildlife Department. 2007. County lists of Texas' special species, Galveston County.
<http://gis2.tpwd.state.tx.us/ReportServer?%2fReport+Project2%2fReport5&rs:Command=Render&county=Galveston>. Revised 8 August.
- The Nature Conservancy of Texas. 2009. Texas City Prairie Preserve.
<http://www.nature.org/wherewework/northamerica/states/texas/preserves/texascity.html> (Accessed 20090218).
- U.S. Army Corps of Engineers. 2009. Final Project Information Report Emergency Repairs To Hurricane/Shore Protection Project Texas City And Vicinity, Texas Hurricane Flood Protection Texas City Galveston County, Texas.
- _____. 1997. Environmental Assessment and Statement of Findings, Department of the Army Permit 13037(07), October 20, 1997.
- _____. 1988. Texas City and Vicinity, Texas, Hurricane Flood Protection, Reconnaissance Report on Shore Erosion Impacting Project Levees. January 1988.
- _____. 1979. Texas City and Vicinity, Texas, Hurricane Flood Protection Project, Final Environmental Statement. March 1979.
- U.S. Census Bureau. 2009. U.S. Census Bureau, State & County QuickFacts.
<http://quickfacts.census.gov/qfd/states/48/4872392.html>. (Accessed 20090220).
- U.S. Department of Transportation. 2006. CA/T Noise Emission Reference Levels and Usage Factors. FHWA Roadway Construction Noise Model User's Guide. Office of Environment and Planning. Washington, D.C. January, 2006.
- US Environmental Protection Agency. 2009. "AirData."
<http://www.epa.gov/air/data/geosel.html>. (Accessed 20090220).
- _____. 2007. Code of Federal Regulations Title 40, Chapter I, Subchapter C, Part 50, "National Primary and Secondary Air Quality Standards."
- _____. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. EPA 550/9-74-004. March. NNA19870406.0098.
- U.S. Fish and Wildlife Service. 2009. U.S. Fish and Wildlife Service Endangered Species List – Galveston County, Texas.
www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm. (Accessed 20090220.)

APPENDIX A - PROJECT COORDINATION

February 25, 2009

NOTICE OF AVAILABILITY

**U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
ENVIRONMENTAL ASSESSMENTS
FOR EMERGENCY REPAIRS TO**

**THE GALVESTON SEAWALL AND GROINS,
AND THE FREEPORT AND TEXAS CITY AND VICINITY
HURRICANE AND FLOOD PROTECTION PROJECTS**

PURPOSE

This notice is being distributed to interested State, Federal, and local agencies, private organizations, news media, and individuals in order to assist in collecting facts and recommendations concerning proposed rehabilitation and repair work that will restore the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity Hurricane Flood Protection Projects (HFPPs) to pre-storm conditions following damages sustained from Hurricane Ike, which made landfall in northern Galveston County on September 13, 2008. The proposed rehabilitation and repair work is necessary to restore the projects to their pre-storm levels of protection and safety. The proposed work will not result in improvements or expansion of existing projects.

NEED FOR WORK

Hurricane Ike made landfall in northern Galveston County on September 13, 2008. Before making landfall the hurricane was a Category 4 storm, as measured on the Saffir-Simpson Scale. Wind speeds decreased as it approached land, and the storm was classified as a Category 2 storm when it reached land. The magnitude of the storm surge was more characteristic of a Category 3 or 4 storm than a Category 2 storm. According to the National Hurricane Center, Ike was a very large hurricane with hurricane force winds extending 120 miles from the center and tropical storm force winds extending 275 miles. Hurricane Ike's unprecedented size, which at one point was the largest Atlantic hurricane ever recorded, caused extensive damage. Ike ranks as the third costliest storm in U.S. history, causing approximately \$27 billion in property damage. The proposed work would be conducted under authority of Public Law 84-99 for Flood Control and Coastal Emergencies. Engineer Regulation (ER) 500-1-1 eligibility requirements for the work are met under the criteria for extraordinary storm and significant amount of damage.

The combined storm surge and wave action from Hurricane Ike caused extensive damage to the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity HFPPs. The proposed rehabilitation work will include repairs that will restore these projects to pre-storm conditions. If these projects are left in their current conditions, the risk of structural failure and potential damages the projects may sustain during future significant storm events could threaten the communities and properties they protect.

PROJECT LOCATIONS

The locations of the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity HFPPs are shown in Figure 1.

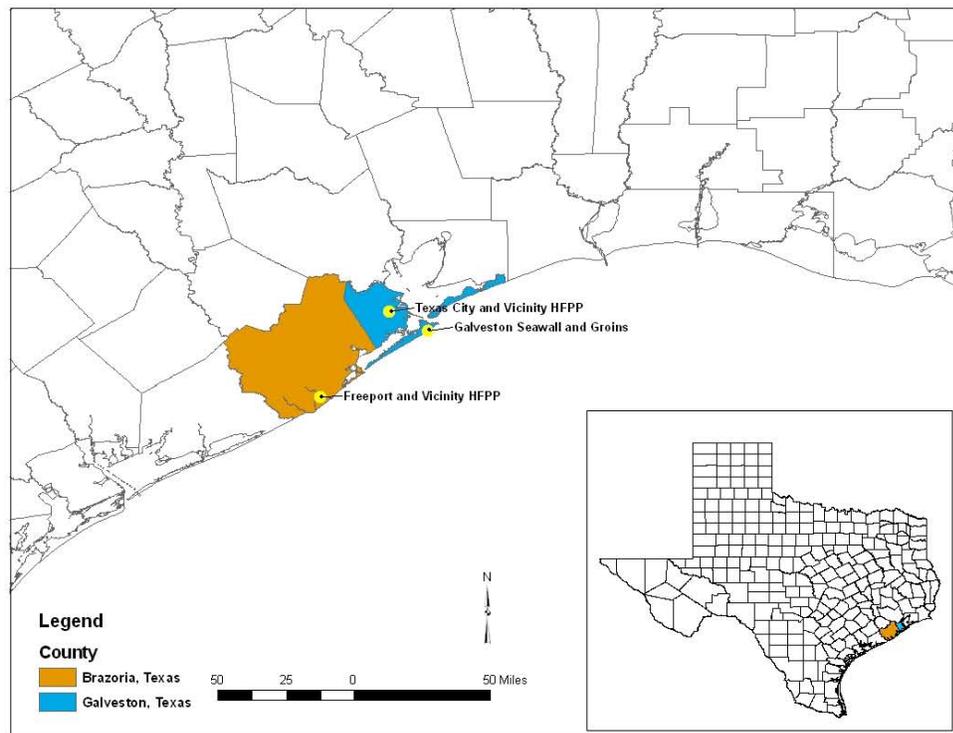


Figure 1. Locations of the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity HFPPs.

Galveston Seawall and Groins, Galveston County, Texas

The Galveston Seawall and Groins Project is located on Galveston Island, Galveston County, Texas. The Galveston Seawall and Groins Project protects portions of the City of Galveston beginning at the south jetty located at the entrance to the Houston Ship Channel and extending approximately 9.7 miles along Galveston Island's beach front on the Gulf of Mexico.

The Texas City and Vicinity, Hurricane Flood Protection Project, Galveston County, Texas

The Texas City and Vicinity HFPP is located in Galveston County, Texas on the southwest shore of Galveston Bay, about 9 miles northwest of Galveston, Texas and encompasses the cities of Texas City, La Marque, and the surrounding vicinity. The Texas City HFPP consists of 17 miles of protective works, including earthen levees and concrete floodwalls. The system has numerous appurtenant structures, including a tide control and navigation structure for Moses Lake, vehicular and railroad closure gates, highway ramps, gated gravity drainage structures, and two pumping plants.

Freeport and Vicinity, Hurricane Flood Protection Project, Brazoria County, Texas

The Freeport and Vicinity HFPP is located in southern Brazoria County, about 48 miles southwest of Galveston, Texas. The project consists of 53 miles of earthen levees varying from 15 to 21 feet above MSL with concrete and steel pile floodwalls and removable panels, a flood control tide gate structure providing a horizontal navigation clearance of 75 feet and a vertical clearance of 70 feet above MSL, water intake structures, numerous gravity drainage structures and two new pumping stations having a combined capacity of 650,000 gallons per minute.

DESCRIPTION OF REHABILITATION AND REPAIR WORK

Galveston Seawall and Groins

Although the seawall appears to remain structurally intact, the damage to toe scour protection and exposure of the sheet pile cutoff could have significant consequences for future wall stability. In addition, loss of integrity of the groins appears to have reduced their trapping efficiency which will result in increased erosion of the scour protection and exposure of the timber sheet pile cutoffs. Flanking of the seawall at the west end has exposed areas landward of the seawall to erosion, and continued erosion is possible from future wave impacts.

Elements of the Galveston Seawall proposed for repair include: 1) the Seawall West End Ramp; 2) the maintenance access ramp at 57th Street; 3) the maintenance access ramp at 35th Street; 4) the loss of subgrade and sidewalk between 25th and 22nd Street; 5) grade settling/toe protection in various locations; 6) void repair under sidewalk in various locations; 7) sheet pile repair at the seawall toe, 8) crack repair in various locations; and, 9) groin repair at 10th, 29th, 37th and 61st Streets. The locations of the repair work are shown in Figure 2.



Figure 2. Galveston Island Seawall and Groins.

The Texas City and Vicinity Hurricane Flood Protection Project

Storm surge and wave action from Hurricane Ike caused severe damage to portions of the levee system of the Texas City and Vicinity HFPP, including riprap displacement and severe erosion of the levee slope and toe. Rehabilitation and repairs to the Texas City and Vicinity HFPP will include the use of geotextile, blanket stone and riprap to restore the pre-storm cross-sections and/or conditions to the following areas that were damaged by erosion (Figure 3):

- Interior Levee Repairs - Station 150+00 to 152+50 where 250 linear feet of interior levee slope located northwest of Moses Lake was eroded

- Moses Lake Floodgate Protection - Stations 192+00 to 197+00 and 200+00 to 205+00 where the riprap and armoring system was eroded or displaced
- Levee Erosion Section One - Stations 205+00 to 278+00, 303+00 to 311+00, and 313+00 to 320+00, where levee erosion ranged from 5 to 15 feet
- Levee Erosion Section Two - Station 356+00 to 370+00, where levee erosion ranged from 40 to 50 feet
- Riprap Displacement - Stations 370+00 to 448+00 and 457+00 to 464+00 where the levee toe protection was damaged and riprap was displaced along the length of the levee



Figure 3: Texas City Levee Stationing and Proposed Repair Work

Freeport and Vicinity Hurricane Flood Protection Project

The Freeport and Vicinity HFPP will be restored to pre-storm conditions by making repairs to the following areas that sustained damage:

- -Velasco Memorial Tide Gate and the Port of Freeport
- -Sections of the removable panel wall from Station 197+00 to 224+24 at the Port of Freeport.

The Project will be repaired to provide the same level of flood protection as the pre-storm condition. The damaged emergency generator and associated system located within the Velasco Memorial Tide Gate house will be repaired or replaced to restore the pre-storm level of protection. In addition, the removable flood panel wall from Station 197+00 to 224+24 at the Port of Freeport which was damaged during Hurricane Ike will be replaced. Because the wall is within the Port of Freeport operating facilities, it must consider the operational constraints of the loading/unloading of ships. Two structural alternatives are under consideration (Figure 4):

- Option 1 - a removable flood panel wall
- Option 2 - permanent flood panel wall with removable gates that can be opened for Port of Freeport operations



Figure 4. Freeport and Vicinity HFPP flood panel wall repair work.

COMPLIANCE WITH LAWS AND REGULATIONS

Draft Environmental Assessments (EAs) are being coordinated with the US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and other Federal, state, and local agencies. Consultation has been initiated with the USFWS and NMFS in compliance with the Endangered Species Act to address potential impacts to piping plovers and sea turtles for the Galveston Seawall and Groins Project, and Attwaters prairie chicken for the Texas City and Vicinity Hurricane and Shore Protection Project. The Biological Assessments (Appendix B of

the Draft EAs) conclude that the projects may affect, but are not likely to adversely affect threatened or endangered species in the project areas.

The EAs also initiate Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The initial determination is that the proposed actions are minor and temporary in nature and will not have adverse impacts on EFH or federally-managed fisheries in the Gulf of Mexico. The final determinations relative to project impacts and the need for mitigation measures is subject to consultation with the NMFS.

The proposed rehabilitation and repair work will also be evaluated, as appropriate, with regard to the requirements of Section 404(b)(1) of the Clean Water Act (CWA). The Texas Council on Environmental Quality (TCEQ) has waived Clean Water Act Section 401 certification for these projects in recognition that impacts from the proposed work are minor and temporary in nature, and to expedite Hurricane Ike recovery efforts. It should be noted that all projects would qualify under Corps of Engineers Nation Wide Permit 3, and as such, would require no further CWA coordination.

It is also our preliminary determination that the proposed actions are consistent with the Texas Coastal Management Program (TCMP) to the maximum extent practicable.

A record of non-applicability has been issued for general conformity under the Clean Air Act (CAA), Section 176 according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to these projects because the projects are exempt actions under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A).

The proposed activities will be coordinated with the State Historic Preservation Officer (SHPO). Our initial determination is that the proposed actions will not have any adverse impacts on historic or cultural resources. SHPO coordination of potential impacts to the Galveston Seawall, a National Register property has been initiated.

The following is a partial list of Federal, State, and local agencies with which these activities are being coordinated:

- U.S. Environmental Protection Agency, Region 6
- U.S. Department of Commerce
- U.S. Department of the Interior
- Texas Historical Commission
- Texas Parks and Wildlife Department
- Texas Commission on Environmental Quality
- Texas General Land Office

Coastal Coordination Council
Texas Department of Transportation
Texas Water Development Board

EVALUATION FACTORS

The decision whether to proceed with these repair projects will be based on an evaluation of the probable impact of the proposed activities on the public interest. That decision will reflect the national concern for both protection and utilization of important resources as well as public and environmental safety and economic concerns. The benefit, which reasonably may be expected to accrue from the proposals, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal, will be considered. The proposed repair projects will proceed unless found contrary to the overall public interest.

ENVIRONMENTAL DOCUMENTATION

It is anticipated that Environmental Assessments and Findings of No Significant Impact will fulfill the requirements of the National Environmental Policy Act. Single copies of these documents will be available by request to the address below. The draft EAs are also available online for review in the "Hot Topics" section at: <http://www.swg.usace.army.mil/>.

PUBLIC COMMENT

Persons desiring to express their views or provide information to be considered in evaluating the impacts of these proposed repair projects are requested to submit their comments within 10 days of the date of this notice, March 6, 2009 to:

District Engineer
U.S. Army Engineer District, Galveston
ATTN: CESWG-PE-PR, Ms. Carolyn Murphy
P.O. Box 1229
Galveston, Texas 77553-1229

or email at: carolyn.e.murphy@usace.army.mil; or phone 409-766-3044.

Comments should make specific reference to the individual project to which they pertain. Any person who has an interest which may be affected by this action may request a public hearing. The request must be submitted in writing within 10 days of the date of this notice and must clearly set forth the interest which may be affected and the manner in which the interest may be

affected by the proposed work. Any questions concerning the proposed action may be directed to Ms. Carolyn Murphy at (409) 766-3044, or the email address above.


David C. Weston
Colonel, Corps of Engineers
District Engineer

**APPENDIX B – BIOLOGICAL ASSESSMENT AND ENDANGERED
SPECIES COORDINATION**

**FINAL
BIOLOGICAL ASSESSMENT

FOR

EMERGENCY REPAIRS
TO
TEXAS CITY AND VICINITY
TEXAS HURRICANE FLOOD PROTECTION PROJECT
GALVESTON COUNTY, TEXAS**

**U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
GALVESTON, TEXAS**

February 2009

1.0 INTRODUCTION

1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT

This Biological Assessment (BA) has been prepared to fulfill the U.S. Army Corps of Engineers' (USACE), Galveston District requirements as outlined under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. The Federal action requiring this assessment is the proposed repairs to the levee system of the Texas City and Vicinity Hurricane Flood Protection Project (Texas City HFPP). The Texas City HFPP was authorized by the Flood Control Act of 3 July 1958, PL 85-500, House Document No. 347, 85th Congress, 2nd Session. The project sponsor is Galveston County.

This BA evaluates the potential impacts the proposed repairs to the Texas City HFPP may have on federally listed threatened and endangered species identified by the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). Species included in this BA (Table 1) were identified from lists obtained from databases managed by the USFWS and NMFS (USFWS, 2009; NMFS, 2009). Additional protected species are listed by the Texas Parks and Wildlife Department as potentially occurring in Galveston County. However, these additional species are not covered in this BA as they were not identified on the lists obtained from the databases managed by the jurisdictional Federal agencies (NMFS and USFWS).

The bald eagle was recently removed from the federal list of threatened and endangered species. However, this species maintains federal protection under the Migratory Bird Treaty Act, and the bald eagle continues to receive additional protection under the Bald and Golden Eagle Protection Act (64 Federal Register [FR] 164:46542–46558; 72 FR 130:37346– 37372); however, these bird species are not included in this BA as they are no longer protected under the ESA.

TABLE 1. FEDERALLY-LISTED THREATENED AND ENDANGERED SPECIES,
AND SPECIES OF CONCERN IN GALVESTON COUNTY, TEXAS

Common Name	Scientific Name	Status	
		USFWS ¹	NMFS ²
FISH			
Smalltooth sawfish	<i>Pristis pectinata</i>	NA	E
BIRDS			
Attwater's greater prairie-chicken	<i>Tympanuchus cupido attwateri</i>	E	NA
bald eagle	<i>Haliaeetus leucocephalus</i>	DM	NA
brown pelican	<i>Pelecanus occidentalis</i>	E	NA
Eskimo curlew	<i>Numenius borealis</i>	E	NA
piping plover	<i>Charadrius melodus</i>	T w/CH	NA
REPTILES			
green sea turtle	<i>Chelonia mydas</i>	T	T
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	E
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E	E
leatherback sea turtle	<i>Dermochelys coriacea</i>	E	E
loggerhead sea turtle	<i>Caretta caretta</i>	T	T
MAMMALS			
Blue whale	<i>Balaenoptera musculus</i>	NA	E/D
Finback whale	<i>B. physalus</i>	NA	E/D
Humpback whale	<i>Megaptera novaengliae</i>	NA	E/D
Sei whale	<i>B. borealis</i>	NA	E/D
Sperm whale	<i>Physeter macrocephalum</i>	NA	E/D

1 USFWS, 2009. www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm

2 NOAA/NMFS, 2009. <http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf>

E = Endangered; species in danger of extinction throughout all or a significant portion of its range; DM = Delisted Taxon; T = Threatened; T w/CH = Threatened, with Federally-designated Critical Habitat; NA = Not Applicable.

1.1 DESCRIPTION OF THE PROPOSED PROJECT AND HABITATS

Storm surge and wave action from Hurricane Ike caused severe damage to portions of the levee system of the Texas City HFPP, including riprap displacement and severe erosion of the levee slope and toe. Rehabilitation and repairs to the Texas City HFPP would include the use of geotextile, blanket stone and riprap to restore the pre-storm cross-sections and/or conditions to the following areas that were damaged by erosion (Figure 1):

- Interior Levee Repairs - Station 150+00 to 152+50 where 250 linear feet of interior levee slope located northwest of Moses Lake was eroded
- Moses Lake Floodgate Protection - Stations 192+00 to 197+00 and 200+00 to 205+00 where the riprap and armoring system was eroded or displaced
- Levee Erosion Section One - Stations 205+00 to 278+00, 303+00 to 311+00, and 313+00 to 320+00, where levee erosion ranged from 5 to 15 feet

- Levee Erosion Section Two - Station 356+00 to 370+00, where levee erosion ranged from 40 to 50 feet
- Riprap Displacement - Stations 370+00 to 448+00 and 457+00 to 464+00 where the levee toe protection was damaged and riprap was displaced along the length of the levee



Figure 1: Texas City Levee Stationing and Proposed Repair Work

The Texas City FHPP encompasses and provides protection to Moses Lake which is located west of the project. This area contains salt marsh habitat typically dominated by smooth cordgrass (*Spartina alterniflora*), salt grass (*Distichlis spicata*), sea ox-eye daisy (*Borrichia frutescens*), Gulf cordgrass (*Spartina spartinae*), high-tide bush (*Iva frutescens*), and false willow (*Baccharis halimifolia*). Mud flats supporting glasswort (*Salicornia* spp.) also occur in the area. Areas of submerged aquatic vegetation (SAV) dominated by widgeon grass (*Ruppia maritima*) may be found growing in shallow waters and borrow areas located inside and adjacent to the levees (USACE, 1997).

The area west of the project also encompasses the Texas City Prairie Preserve (TCPP) which features over 2,300 acres of Gulf coastal prairie habitat. The site is located immediately west of the project site. Plants found on the preserve and surrounding Gulf coastal prairie habitat include big and little bluestem (*Schizachyrium scoparium*), indiagrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), eastern gammagrass (*Tripsacum dactyloides*), cordgrasses (*Spartina* spp.) and the rare coastal gayfeather (*Liatris acidota*) (The Nature Conservancy of Texas, 2009).

No wetlands or areas of SAV would be impacted by the proposed rehabilitation and repairs. The proposed work would occur within the authorized alignment and footprint of the Texas City FHPP to restore the project to its pre-storm conditions. All equipment and materials would be brought to the site via the levee top by vehicles. All work would be land based and would occur along the unvegetated rock riprap or sandy and mud shoreline or on the slopes of the project which are dominated by upland grasses that are routinely mowed. The upland vegetation along the levee system should recover to near-present conditions after construction.

2.0 SPECIES DESCRIPTIONS

Of the species listed in Table 1, only the brown pelican, bald eagle, Attwater's greater prairie-chicken, and sea turtles are likely occur in areas adjacent to the project.² However, these species are not known to directly utilize the Texas City HFPP due to lack of suitable habitat on the levee system. Descriptions of the species likely to occur in the vicinity of the project area follow.

2.1 ATTWATER'S GREATER PRAIRIE-CHICKEN

The Attwater's greater prairie-chicken is a ground-dwelling grouse of the coastal prairie ecosystem that was formerly abundant in parts of the coastal prairie of Texas, including Galveston County. One of the most endangered birds in Texas, the Attwater's greater prairie-chicken is known to occur in the nearby vicinity of the Federal Project area. These birds inhabit areas of tall grass coastal prairie. Prairie chickens breed, nest and brood young from late March to June. Suitable habitat for this species occurs within the TCPP approximately 0.25 mile west of the nearest proposed work area.

2.2 BROWN PELICAN

The brown pelican is a common bird of Texas coastal and near-shore areas and they occur in the Federal Project area. Foraging or resting area in bay waters in the vicinity of the project may become less attractive during construction because of increased noise and human activity, but the habitat would not be destroyed.

2.3 SEA TURTLES

Green sea turtle. The green sea turtle was historically the most abundant sea turtle in Texas. Over harvesting and destruction of nesting habitat brought about a rapid decline, although this species can still be found on the seagrass meadows of the lower Laguna Madre. This species is most likely to occur in the southern bays of Texas where clear water and seagrass and algal beds are more abundant. It is not likely to occur along the upper Texas coast or in the project area.

² Other species listed on Table 1 are not likely to occur in the vicinity of the project due to lack of suitable habitat, known range limits, or they are presumed to be extinct (e.g. Eskimo curlew). There is no designated critical habitat for any of the listed species within the project area.

Hawksbill sea turtle. This turtle is extremely rare in Texas coastal waters and is not expected to be present in the project area.

Kemp's ridley sea turtle. The Kemp's ridley sea turtle migrates along the coast of Texas and is probably the most common sea turtle in Texas bays. It frequently enters bays to feed on shrimp, crab, and other invertebrates. This species is found in Galveston Bay and may be present in waters in the vicinity of the project.

Leatherback sea turtle. The leatherback turtle is rare along the Texas coast. It is a pelagic species that tends to keep to deeper offshore waters where it feeds primarily on jellyfish. There are no known aggregation sites or feeding areas in the project area and the species is not expected to be present.

Loggerhead sea turtle. The loggerhead sea turtle frequents the temperate waters of the continental shelf along the Atlantic coast and Gulf of Mexico, where it forages around rocks, coral reefs, and shellfish beds. Sub-adults also commonly enter Texas bays, lagoons, and estuaries. This species may be present in bay waters in the vicinity of the project.

3.0 EFFECTS OF THE PROPOSED ACTION ON LISTED SPECIES

The following sections provide the findings of Galveston District and species-specific avoidance, minimization, and conservation measures that support the effect determinations presented. Effect determinations are presented using the language of the ESA:

- *No effect* - the proposed action will not affect a federally listed species or critical habitat;
- *May effect, but not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial; or
- *Likely to adversely affect* - adverse effects to listed species and/or critical habitat may occur as a direct result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or completely beneficial. Under this determination, an additional determination is made whether the action is likely to jeopardize the continued survival and eventual recovery of the species.

3.1. THE ATTWATER'S GREATER PRAIRIE CHICKEN

The Attwater's greater prairie chicken inhabits coastal prairie habitat at the TCPP approximately 0.25 mile west of the Texas City HFPP levee. The proposed work sites involve work within maintained grassy areas of the levee and very shallow unvegetated shorelines along existing levee footprint to repair areas damaged by erosion during Hurricane Ike. All equipment and materials would be brought to the site via the levee top by vehicles. Project activities do not call for an intrusion upon the coastal prairie now serving as habitat for the prairie chicken. The closest work area (Interior Levee Erosion) would be isolated by water from the habitat the prairie chickens populate. Noise from the project is not expected to disturb breeding, nesting or brooding birds.

3.1.1 Avoidance, Minimization and Conservation Measures

To minimize any potential effects to the Attwater's greater prairie chicken, the following management measures would be implemented during construction:

1. Prior to construction work, the Contractor shall have all construction workers trained by qualified personnel to recognize Attwater's prairie chickens. The Contractor shall stop work in the event any prairie chickens are observed in the immediate project area and shall immediately notify the U. S. Fish and Wildlife Service (979-234-3021, extension. 13), The Nature Conservancy (409-941-9114), and the USACE (409-766-3131) of any sightings of prairie chickens in or near the immediate project area.
2. The Contractor shall ensure that no prairie chickens are affected by work activities and ensure that prairie chickens are not in the project area during construction. The Contractor shall designate and provide USACE with name of a point of contact (POC) who will act as a single point of contact responsible for communicating and reporting on any endangered species issues during construction.
3. Equipment required for the project shall be staged in upland areas within the existing project footprint and transported as needed to the work sites.
4. The number of vehicles transiting from staging areas to the project sites and within the project site shall be kept to a minimum and vehicle access shall be confined to existing roads according to the immediate needs of the proposed project.
5. Use of night lights shall be minimized, directed toward the construction activity area, and shielded from view outside of the construction activity area.

As a result of these measures, the project may affect, but is not likely to adversely affect the Attwater's greater prairie chicken.

3.2 BROWN PELICAN

Foraging brown pelicans are common along the Texas Coast and may be found in the project area. However, no nesting sites are located in the project area. Although the waters surrounding the project area may be used by pelicans for feeding or resting, these birds are highly mobile and are able to relocate to avoid disturbance from construction activities. Although there may be disturbance of feeding and displacement during construction, these are localized activities that would not negatively affect this species' feeding, nesting, or resting activities overall. We conclude that the project may affect, but is not likely to adversely affect the brown pelican.

3.3 SEA TURTLES

It is unlikely that leatherback and hawksbill sea turtles would occur in the project area. Turtles that may occur in bay waters near project area include the green, Kemp's ridley, and loggerhead sea turtles. The project involves work within maintained grassy areas of the levee and very shallow unvegetated shorelines along existing levee footprint to repair areas damaged by erosion during Hurricane Ike. No dredging is proposed, and the project operations would be entirely land based; all equipment and materials would be brought to the site via the levee top by vehicles. Thus, the project is expected to have no effect on these species.

4.0 CONCLUSIONS

Because of the nature of the expected project effects, the project will have no effect on sea turtles and may affect, but is not likely to adversely affect the brown pelican and Attwater's greater prairie chicken. The project will have no effect on any other federally listed threatened or endangered species or their critical habitat identified in this BA.

5.0 LITERATURE CITED

- National Marine Fisheries Service. 2009. Endangered and Threatened Species and Critical Habitats under the Jurisdiction of the NOAA Fisheries Service – Texas. <http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf>. Accessed 20090220.
- U.S. Fish and Wildlife Service. 2009. U.S. Fish and Wildlife Service Endangered Species List – Galveston County, Texas. www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm. Accessed 20090220.



Endangered and Threatened Species and Critical Habitats
under the Jurisdiction of the NOAA Fisheries Service



Texas

Listed Species	Scientific Name	Status	Date Listed
Marine Mammals			
blue whale	<i>Balaenoptera musculus</i>	Endangered	12/02/70
finback whale	<i>Balaenoptera physalus</i>	Endangered	12/02/70
humpback whale	<i>Megaptera novaengliae</i>	Endangered	12/02/70
sei whale	<i>Balaenoptera borealis</i>	Endangered	12/02/70
sperm whale	<i>Physeter macrocephalus</i>	Endangered	12/02/70
Turtles			
green sea turtle	<i>Chelonia mydas</i>	Threatened ¹	07/28/78
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	06/02/70
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	12/02/70
leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	06/02/70
loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	07/28/78
Fish			
smalltooth sawfish	<i>Pristis pectinata</i>	Endangered	04/01/03

Designated Critical Habitat

None

Species Proposed for Listing

None

Proposed Critical Habitat

None

¹ Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered

<http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf>



Texas

Candidate Species ²	Scientific Name
none	

Species of Concern ³	Scientific Name
Fish	
dusky shark	<i>Carcharhinus obscurus</i>
largetooth sawfish	<i>Pristis pristis</i>
night shark	<i>Carcharhinus signatus</i>
saltmarsh topminnow	<i>Fundulus jenkinsi</i>
sand tiger shark	<i>Carcharias taurus</i>
speckled hind	<i>Epinephelus drummondhayi</i>
Warsaw grouper	<i>Epinephelus nigritus</i>
white marlin	<i>Tetrapturus albidus</i>
Invertebrates	
ivory bush coral	<i>Oculina varicosa</i>

² The Candidate Species List has been renamed the Species of Concern List. The term "candidate species" is limited to species that are the subject of a petition to list and for which NOAA Fisheries Service has determined that listing may be warranted (69 FR 19975).

³ Species of Concern are not protected under the Endangered Species Act, but concerns about their status indicate that they may warrant listing in the future. Federal agencies and the public are encouraged to consider these species during project planning so that future listings may be avoided.

<http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf>



U.S. Fish & Wildlife Service

Endangered Species List

[Back to Start](#)

List of species by county for Texas:

Counties Selected: Galveston

Select one or more counties from the following list to view a county list:

- Anderson
- Andrews
- Angelina
- Aransas
- Archer

[View County List](#)

Galveston County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
Atwater's greater prairie-chicken	<i>Tympanuchus cupido atwateri</i>	Birds	E				Info
bald eagle	<i>Haliaeetus leucocephalus</i>	Birds	DM				Info
brown pelican	<i>Pelecanus occidentalis</i>	Birds	DM, E				Info
Eskimo curlew	<i>Numenius borealis</i>	Birds	E				Info
green sea turtle	<i>Chelonia mydas</i>	Reptiles	E, T				Info
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Reptiles	E				Info
Kemp's ridley sea turtle	<i>Leptochelys kempi</i>	Reptiles	E				Info
leatherback sea turtle	<i>Dermochelys coriacea</i>	Reptiles	E				Info
loggerhead sea turtle	<i>Caretta caretta</i>	Reptiles	T				Info
piping Plover	<i>Charadrius melodus</i>	Birds	E, T			Final	Info

Roberts, Terrell W SWG

From: Donna_Anderson@fws.gov
Sent: Monday, March 30, 2009 11:30 AM
To: Murphy, Carolyn E SWG
Cc: Roberts, Terrell W SWG
Subject: Draft Environmental Assessment for Emergency Repairs to Texas City and Vicinity Texas Hurricane Flood Protection Project

Ms. Murphy,

Thank you for your correspondence and Draft Environmental Assessment for the Emergency Repairs to Texas City and Vicinity Texas Hurricane Flood Protection Project dated February 2009. You have requested our concurrence with the U.S. Army Corps of Engineers' (COE) determination that the proposed project in Galveston County, Texas are not likely to adversely affect any federally listed threatened or endangered species under our jurisdiction.

The U.S. Fish and Wildlife Service (Service) concurs with the COE's determination that the project is not likely to adversely affect any federally listed threatened or endangered species under our jurisdiction. This concurrence is based on a review of the project information and Service files, and is contingent upon implementation of the avoidance and minimization measures developed by the COE for this project. If the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Our comments are provided in accordance with the provisions of the Endangered Species Act of 1973 (87) Stat. 884, as amended; 16 U.S.C. 703 et seq.

The NOAA Fisheries Protected Resource Branch (David Bernhart, 727/551-5767) should be contacted for information on listed species under their jurisdiction.

Please contact me at the number below if you have questions or need further assistance.

Donna Anderson
Wildlife Biologist
USFWS Clear Lake Ecological Service Office
17629 El Camino Real, Suite 211
Houston, Texas 77058
Office: 281/286-8282
Fax: 281/488-5882

3/30/2009

APPENDIX C 401 CERTIFICATION WAIVER

Buddy Garcia, *Chairman* -
Larry R. Soward, *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

Ms. Carolyn Murphy
U.S. Army Corps of Engineers
Galveston District CESWG-PE-RE
P.O. Box 1229
Galveston, Texas 77553-1229

Re: USACE Emergency Repair and Restoration to Hurricane Ike Damaged Infrastructure.

Dear Ms. Murphy:

This letter is in response to the Texas Commission on Environmental Quality (TCEQ) review of preliminary information regarding the Emergency repairs to Clear Creek Federal Flood Control Project (FCP) Second Outlet Structure, White Oak Bayou FCP, The Galveston Seawall and Groins, and the Port Arthur, Freeport, and Texas City and Vicinity Hurricane and Shore Protection Projects. As currently proposed, the work will only restore the projects to pre-storm levels, with no improvements or expansion of the existing projects.

Recognizing that the impacts from the proposed work are minor and temporary, and in order to expedite these Hurricane Ike recovery efforts, the TCEQ waives the Clean Water Act Section 401 certification for these projects.

If you require additional information or further assistance, please contact Mr. Mark Fisher, Water Quality Assessment Section, Water Quality Division (MC-150), at (512) 239-4586.

Sincerely,

A handwritten signature in cursive script that reads "L'Oreal W. Stepney".

L'Oreal W. Stepney P.E., Director
Water Quality Division

LWS/MF/sp

APPENDIX D 404(b)1 EVALUATION

EVALUATION OF SECTION 404(b)(1) GUIDELINES (SHORT FORM)

PROPOSED PROJECT: EMERGENCY REPAIRS TO THE TEXAS CITY AND VICINITY TEXAS HURRICANE FLOOD PROTECTION PROJECT, GALVESTON COUNTY, TEXAS

	Yes	No*
1. Review of Compliance (230.10(a)-(d))		
A review of the proposed project indicates that:		
a. The placement represents the least environmentally damaging practicable alternative and, if in a special aquatic site, the activity associated with the placement must have direct access or proximity to, or be located in the aquatic ecosystem, to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative).	X	
b. The activity does not appear to:		
1) Violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act;	X	
2) Jeopardize the existence of Federally-listed endangered or threatened species or their habitat; and	X	
3) Violate requirements of any Federally-designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies).	X	
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, an economic values (if no, see values, Section 2)	X	
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see Section 5)	X	

	Not Applicable	Not Significant	Significant*
2. Technical Evaluation Factors (Subparts C-F) (where a 'Significant' category is checked, add explanation below.)			
a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)			
1) Substrate impacts		X	
2) Suspended particulates/turbidity impacts		X	
3) Water column impacts		X	
4) Alteration of current patterns and water circulation	X		
5) Alteration of normal water fluctuation/hydroperiod	X		
6) Alteration of salinity gradients	X		
b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)			
1) Effect on threatened/endangered species and their habitat	X		
2) Effect on the aquatic food web		X	

3) Effect on other wildlife (mammals, birds, reptiles and amphibians)		X	
	Not Applicable	Not Significant	Significant*
2. Technical Evaluation Factors (Subparts C-F) (where a 'Significant' category is checked, add explanation below.)			
c. Special Aquatic Sites (Subpart E)			
1) Sanctuaries and refuges	X		
2) Wetlands	X		
3) Mud flats	X		
4) Vegetated shallows	X		
5) Coral reefs	X		
6) Riffle and pool complexes	X		
d. Human Use Characteristics (Subpart F)			
1) Effects on municipal and private water supplies	X		
2) Recreational and Commercial fisheries impacts		X	
3) Effects on water-related recreation		X	
4) Aesthetic impacts		X	
5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves	X		

	<i>Yes</i>
3. Evaluation of Dredged or Fill Material (Subpart G)	
a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material (check only those appropriate)	
1) Physical characteristics	X
2) Hydrography in relation to known or anticipated sources of contaminants	
3) Results from previous testing of the material or similar material in the vicinity of the project	
4) Known, significant sources of persistent pesticides from land runoff or percolation	
5) Spill records for petroleum products or designated (Section 311 of Clean Water Act) hazardous substances	
6) Other public records of significant introduction of contaminants from industries, municipalities or other sources	
7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	

List appropriate references:

1)

	Yes	No
b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and placement sites and not likely to degrade the placement sites, or the material meets the testing exclusion criteria.	X	

	Yes
4. Placement Site Delineation (230.11(f))	
a. The following factors as appropriate, have been considered in evaluating the placement site:	N/A
1) Depth of water at placement site	
2) Current velocity, direction, and variability at placement site	
3) Degree of turbulence	
4) Water column stratification	
5) Discharge vessel speed and direction	
6) Rate of discharge	
7) Fill material characteristics (constituents, amount, and type of material, settling velocities)	
8) Number of discharges per unit of time	
9) Other factors affecting rates and patterns of mixing (specify)	

List appropriate references:

	Yes	No
b. An evaluation of the appropriate factors in 4a above indicates that the placement site and/or size of mixing zone are acceptable.	N/A	

	Yes	No
5. Actions to Minimize Adverse Effects (Subpart H)		
All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.	X	

List actions taken:

- (1) Selecting a disposal site that has been used previously for dredged/fill material discharge; and
- (2) Selecting a disposal site at which the substrate is composed of material similar to that being discharged, such as discharging sand on sand or rock on rock.

	Yes	No*
6. Factual Determination (230.11)		
A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:		
a. Physical substrate at the placement site (review Sections 2a. 3, 4, and 5 above)	X	
b. Water circulation, fluctuation and salinity (review Sections 2a. 3, 4, and 5)	X	
c. Suspended particulates/turbidity (review Sections 2a. 3, 4, and 5)	X	
d. Contaminant availability (review Sections 2a. 3, and 4)	X	
e. Aquatic ecosystem structure and function (review Sections 2b and c, 3, and 5)	X	
f. Placement site (review Sections 2, 4, and 5)	X	
g. Cumulative impacts on the aquatic ecosystem	X	
h. Secondary impacts on the aquatic ecosystem	X	

7. Evaluation Responsibility
a. This evaluation was prepared by: Andrea Catanzaro Position: Biologist

8. Findings	Yes
a. The proposed placement site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines.	X
b. The proposed placement site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines with the inclusion of the following conditions:	

List of conditions:

c. The proposed placement site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reason(s):	
1) There is a less damaging practicable alternative	
2) The proposed discharge will result in significant degradation of the aquatic ecosystem	
3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem	

<u>2/21/2009</u> Date	 CAROLYN MURPHY Chief, Environmental Section
--------------------------	--

NOTES:

* A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

Negative responses to three or more of the compliance criteria at the preliminary stage indicate that the proposed projects may not be evaluated using this "short form" procedure. Care should be used in assessing pertinent portions of the technical information of items 2a-e before completing the final review of compliance.

Negative response to one of the compliance criteria at the final stage indicates that the proposed project does not comply with the Guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

Appendix E TCMP Consistency Evaluation

**COMPLIANCE WITH GOALS AND POLICIES - SECTION 501.34(a)-(b)
LEVEE AND FLOOD CONTROL PROJECTS**

**EMERGENCY REPAIRS
TO
TEXAS CITY AND VICINITY
TEXAS HURRICANE FLOOD PROTECTION PROJECT
GALVESTON COUNTY, TEXAS**

Section 501.34 Levee and Flood Control Projects

(a) Drainage, reclamation, channelization, levee construction or modification, or flood- or floodwater-control infrastructure projects shall be designed, constructed, and maintained to avoid the impoundment and draining of coastal wetlands to the greatest extent practicable. If impoundment or draining of coastal wetlands cannot be avoided, adverse effects to the wetlands shall be mitigated in accordance with the sequencing requirements in §501.23 of this title.

Compliance: *The Texas City and Vicinity Hurricane Flood Protection Project (HFPP) is an existing Federal levee/flood control project. The proposed work involves repairs to the Texas City and Vicinity HFPP to restore areas of the levee system that were damaged by erosion during Hurricane Ike to pre-storm cross-sections and/or conditions. The proposed repairs will not involve any new drainage, reclamation, channelization, levee construction or modification, or cause any new impoundment or draining of coastal wetlands.*

(b) TCEQ rules and approvals for the levee construction, modification, drainage, reclamation, channelization, or flood- or floodwater-control projects, pursuant to the Texas Water Code, §16.236, shall comply with the policies in this section.

Compliance: *The Texas City Hurricane Flood Protection Project (HFPP) is an existing Federal levee/flood control project. The proposed work involves repairs to the Texas City and Vicinity HFPP to restore areas of the levee system that were damaged by erosion during Hurricane Ike to pre-storm cross-sections and/or conditions. The proposed repairs will not involve any new levee construction, modification, drainage, reclamation or channelization.*



Coastal Coordination Council

P.O. Box 12873 ♦ Austin, Texas 78711-2873 ♦ (800) 998-4GLO ♦ FAX (512) 475-0680

Chairman

Jerry Patterson
Texas Land Commissioner



Members

Karen Hixon
Parks & Wildlife Commission
of Texas

Jose Dodier
Texas State Soil & Water
Conservation Board

Edward G. Vaughan
Texas Water Development Board

Ned Holmes
Texas Transportation Commission

Elizabeth Jones
Railroad Commission of Texas

H. S. Buddy Garcia
Texas Commission on
Environmental Quality

Robert R. Stickney
Sea Grant College Program

Robert "Bob" Jones
Coastal Resident Representative

James R. Matz
Coastal Business Representative

George Deshotels
Coastal Government
Representative

Bob McCan
Agriculture Representative



Ben Rhame
Council Secretary

Jesse Solis, Jr.
Permit Service Center
Corpus Christi
1-866-394-3578

Permit Service Center
Galveston
1-866-394-7664

March 5, 2009

Colonel David Weston
US Army Corps of Engineers
PO Box 1229
Galveston Texas 77553-1229

**Re: Emergency Repairs to Texas City and Vicinity – Texas Hurricane Flood Protection Project
CMP #: 09-0110-F2**

Dear Colonel Weston:

Pursuant to Section 506.20 of 31 TAC of the Coastal Coordination Act, the project referenced above has been reviewed for consistency with the Texas Coastal Management Program (CMP).

It has been determined that there are no significant unresolved consistency issues with respect to the project. Therefore, this project is consistent with the CMP goals and policies.

Sincerely,

A handwritten signature in cursive script that reads "Tammy S. Brooks".

Tammy S. Brooks
Consistency Review Coordinator
Texas General Land Office

cc: Carolyn Murphy, COE

Appendix F Air Conformity Determinations

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

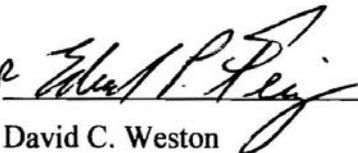
Project/Action Name: Emergency Repairs under PL 84-99 (Flood Control and Coastal Emergency Act) to Galveston Seawall and Groins, and the Port Arthur, Freeport, and Texas City and Vicinity Hurricane and Flood Protection Projects, Texas.

Project/Action Point of Contact: Carolyn Murphy
Chief, Environmental Section
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229, Galveston, TX 77553

General Conformity under the Clean Air Act, Section 176 has been evaluated for the projects described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to these projects because the projects are exempt actions under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analyses which might otherwise be required and the actions cannot be delayed due to overriding concerns for public health and welfare, especially in view of the upcoming hurricane season.

The projects are not considered regionally significant under 40 CFR 93.153(i).

Supporting documentation appears in the Project Information Reports and National Environmental Policy Act documentation for these actions.

for 

David C. Weston
Colonel, Corps of Engineers
District Commander

24 FEB 09
Date

ADDENDUM
GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action Name: Emergency Repairs under PL 84-99 (Flood Control and Coastal Emergency Act) to Galveston Seawall and Groins; Port Arthur, Freeport, and Texas City and Vicinity Hurricane and Flood Protection Projects; Clear Creek Second Outlet; White Oak Bayou; and North Padre Island Storm Damage Reduction and Environmental Restoration Project, Texas.

Project/Action Point of Contact: Carolyn Murphy
Chief, Environmental Section
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229, Galveston, TX 77553

General Conformity under the Clean Air Act, Section 176 has been evaluated for the seven projects described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to these projects because the projects are exempt actions under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analyses which might otherwise be required and the actions cannot be delayed due to overriding concerns for public health and welfare, especially in view of the upcoming hurricane season.

On February 24, 2009 I issued a Clean Air Act General Conformity Record of Non-Applicability which exempted the first four projects listed above, effective through September 13, 2009. In light of the complexities of execution of emergency repairs for these projects, I have now further determined for the reasons stated above that it is appropriate to extend this exemption pursuant to 40 CFR 93.153(e)(2) and 30 TAC 101.30(c)(5)(B) for an additional six months, through March 13, 2010. The extended exemption is also determined applicable to the last three projects listed above to likewise address complexities in repair execution.

The projects are not considered regionally significant under 40 CFR 93.153(i). Supporting documentation appears in the Project Information Reports and National Environmental Policy Act documentation for these actions.

 4 APR 2009

David C. Weston
Colonel, Corps of Engineers
District Commander

Date

Appendix G

**Comments And Responses To The Public Notice And Draft
Environmental Assessment**

RESPONSE TO COMMENTS

FINAL ENVIRONMENTAL ASSESSMENT

EMERGENCY REPAIRS TO TEXAS CITY AND VICINITY TEXAS HURRICANE FLOOD PROTECTION PROJECT GALVESTON COUNTY, TEXAS



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue S
St. Petersburg, Florida 33701-5511

March 18, 2009

Ms. Carolyn Murphy
Chief, Environmental Section
Department of the Army, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

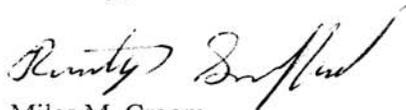
Dear Ms. Murphy:

The NOAA National Marine Fisheries Service (NMFS) has reviewed the Draft Environmental Assessment for the "Emergency Repairs to Texas City and Vicinity Texas Hurricane Flood Protection Project Galveston County, Texas" transmitted by your letter of February 25, 2009. We have reviewed the proposed plans and associated essential fish habitat assessment and NMFS concurs with the Corps of Engineers' determination that the proposed project will not have substantial adverse affect living marine resources or on areas that have been designated as essential fish habitat for Federally managed fisheries. Therefore, NMFS has no comments to provide regarding the proposed plans and no further consultation with NMFS is required.

1

If we may be of further assistance, please contact or Mr. Rusty Swafford of our Galveston Facility at (409) 766-3699.

Sincerely,


Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division



National Marine Fisheries Service Letter, March 18, 2009

Comment No.

Response

1

Comment noted. Thank you.



Life's better outside.™

February 27, 2009

District Engineer
U.S. Army Engineer District, Galveston
ATTN: CESWG-PE-PR, Ms. Carolyn Murphy
P.O. Box 1229
Galveston, Texas 77553-1229

Commissioners

Peter M. Holt
Chairman
San Antonio

T. Dan Friedkin
Vice-Chairman
Houston

Mark E. Bivins
Amarillo

J. Robert Brown
El Paso

Ralph H. Duggins
Fort Worth

Antonio Falcon, M.D.
Rio Grande City

Karen J. Hixon
San Antonio

Margaret Martin
Boerne

John D. Parker
Lufkin

Lee M. Bass
Chairman-Emeritus
Fort Worth

Carter P. Smith
Executive Director

Re: Draft Environmental Assessment for Emergency Repairs to Texas City and Vicinity Texas Hurricane Flood Protection Project Galveston County, Texas

Dear Ms. Murphy,

The Texas Parks and Wildlife Department has reviewed the proposed project plans. The work as described should not have significant adverse impact on fish and wildlife resources.

Questions can be directed to Mike Morgan at (281) 534-0146 or Jamie Schubert at (281) 534-0135 in Dickinson, Texas.

Sincerely,

Rebecca Hensley
Regional Director, Ecosystem Resources Program
Science and Policy Branch
Coastal Fisheries Division

RH:WJS:MNM

1

Texas Parks and Wildlife Department Letter, February 27, 2009

Comment No.

Response

1

Comment noted. Thank you

