

**ENVIRONMENTAL ASSESSMENT
FOR**

**REHABILITATION OF DAMAGED FLOOD CONTROL
WORKS**

**CLEAR CREEK SECOND OUTLET STRUCTURE, TEXAS
FEDERAL FLOOD CONTROL PROJECT**

**CLEAR CREEK
HARRIS COUNTY, TEXAS**

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

JUNE 2009

ENVIRONMENTAL ASSESSMENT

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CLEAR CREEK HARRIS COUNTY, TEXAS

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ENVIRONMENTAL ASSESSMENT

REHABILITATION OF DAMAGED FLOOD CONTROL WORKS CLEAR CREEK SECOND OUTLET STRUCTURE, TEXAS FEDERAL FLOOD CONTROL PROJECT CLEAR CREEK HARRIS COUNTY, TEXAS

1.0 PROPOSED ACTION

1.1 PROJECT DESCRIPTION

Clear Creek Flood Control Project

The Clear Creek Flood Control Project (FCP) is located along Clear Creek, in Galveston, Harris, and Brazoria Counties. The Clear Creek Federal FCP was authorized by Congress in the Flood Control Act of 1968 (Public Law 90-483, Section 203). The authorized project consisted of a 31-mile earthen channel extending from the mouth of Clear Lake at Galveston Bay to the Fort Bend County line. In 1982 the Phase I General Design Memorandum, including the Final Environmental Impact Statement, was signed by the Southwestern Division Engineer, thus authorizing the detailed design (United States Army Corps of Engineers (USACE), 1982). A formal agreement was signed in 1986 by the project sponsors (Harris County Flood Control District (HCFCD) and Galveston County) and the USACE to construct the 14-mile reach of the project downstream of Dixie Farm Road. However, only the Second Outlet Channel and Gate Structure (Second Outlet) elements of the proposed project were ever constructed as a result of concerns raised by the public, sponsors, and agencies regarding potential environmental effects associated with the proposed upstream channel modifications. A reevaluation of the project was initiated in 1999. The USACE is currently reformulating plans to reduce flood damages within the Clear Creek project area under a general reevaluation study.

Second Outlet

The Clear Creek Second Outlet is located between Clear Lake and Galveston Bay, immediately upstream of State Highway (SH) 146 in Seabrook, Harris County, Texas (Figure 1). The purpose of constructing the Second Outlet channel was to provide an additional outlet for flood flows associated with proposed upstream channel improvements to continue into Galveston Bay without aggravating flooding problems within Clear Lake. The Second Outlet channel was designed as a gated structure which is opened periodically during flooding events to mitigate induced flood flows from the Clear Creek FCP; the gates normally remain closed under normal flow conditions to ensure that Clear Lake does not experience an increase in water surface levels and salinities due to water flowing in from the bay during high tide or tidal surge events.

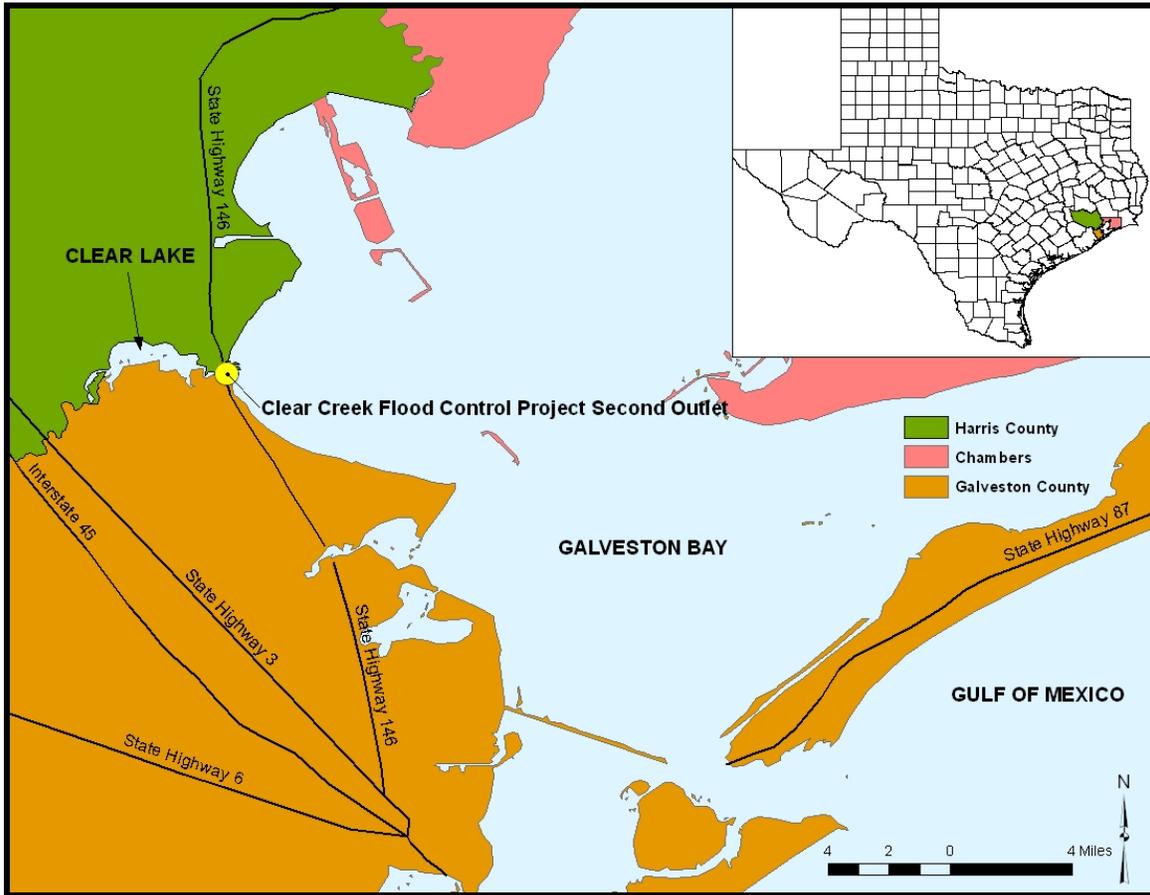


Figure 1. Project Vicinity Map – Clear Creek Flood Control Project Second Outlet.

The Second Outlet Gated Structure consists of a 141-foot-wide, cast-in-place, reinforced concrete gated structure founded on battered timber piles. A steel sheet-pile cut-off wall prevents flow beneath the foundation slab. The top of the gates, in the normal closed position, are at elevation +6.0 in order to form a continuous barrier with the existing surrounding terrain. The sill elevation is at -15.0. All elevations refer to the National Geodetic Vertical Datum (NGVD) of 1929, formerly known as the Mean Sea Level Datum (MSL) of 1929. Six roller-type gates, 20 feet by 21 feet, are located on the downstream side of the structure. Each gate consists of a fabricated steel frame with a steel skin plate and is complete with a hoisting mechanism. The gates travel on steel rails recessed in the reinforced concrete structure wall. Each gate is hoisted by two identical vertical threaded stems and geared floor stands which are interconnected by a steel shaft and flexible couplings. The gates are equipped with commercial electrical power and with provisions for an emergency power supply by portable generator. The gate operating controls are located at the top of the gate superstructure (approximate elevation +28.0) to prevent submergence during high tides. The north tie-in levee provides vehicular access to the structure from State Highway 146, approximately 300 feet north of the west connecting road bridge exit, at a minimum elevation of +8.3 with a turn-around on the end of the levee near the approach wall. Power connections for the emergency generator

are located at the turn-around. Authorized personnel may access the structure at this location via the north approach wall during all weather conditions. The top of the south tie-in levee, approach wall, and access road have an elevation of +6.0 to match the existing surrounding terrain.

Gated Structure:

Gross Length: 141 feet
Clear Opening Length: 120 feet
Number of Piers (Interior): Five
Width of Piers: 4 feet
Maximum Width Between Piers: 20 feet
Natural Ground Elevation: +6.0 feet NGVD
Top of Superstructure: +28.0 feet NGVD

Gates:

Type of Gate: Roller
Number of Gates: Six
Width of Gates: 20 feet
Height of Gates: 21 feet
Top Elevation (Closed): +6.0 feet NGVD
Sill Elevation: -15.0 feet NGVD
Top Elevation (Open): +27.0 feet NGVD

1.2 PURPOSE AND NEED FOR PROJECT

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.

Based on National Weather Service data, the area in the vicinity of the Second Outlet received a total of 12.60 inches of rain from Hurricane Ike (three-day total from September 13-15, 2008, National Weather Service 2008); the average monthly precipitation for Houston for the month of September is only 4.09 inches. The level of Clear Creek, as measured at the United States Geological Survey (USGS) station near Friendswood increased from approximately 2 feet NGVD before the storm, to approximately 14 feet NGVD (USGS 2008). The high water mark established by FEMA at the Outlet Structure was recorded at 12.88 feet NGVD (Figure 2).

Following the storm's landfall, the Second Outlet was found to have significant damage at various locations as a result of high water levels and winds. Damages were sustained to three main areas of the second outlet structure: the gate structure, access roadway, and facility building (Figure 3). The combined storm surge, wave action, storm debris, and persistent high winds from Hurricane Ike were identified as the primary cause of damage. The damages for each area are described below and photographs of the damaged areas may be found in the Final Project Information Report Rehabilitation of Damaged Flood Control Works Clear Creek Second Outlet Structure, Texas Federal Flood Control Project Clear Creek Harris County, Texas (USACE, 2009). These damages, if not repaired, could potentially prevent the opening of the gates, resulting in flood damages during rainfall events.



Figure 2. Second Outlet Gated Structure.

Erosion of the Access Roadway

From the State Highway 146 (SH 146) right-of-way to the facility building, there was significant erosion of the access roadway base and surface. The access roadway surface was removed down to and including the geotextile fabric, which protected the integrity of the road surface by evenly distributing loads and reducing rutting, cracking and pothole; allowing water to drain through the surface aggregate or gravel to the subgrade material; and restricting mud from migrating into the surface aggregate which interferes with drainage. An existing maintenance contract with the HCFCF has

temporarily placed compacted material down to provide access to the gates. The geotextile fabric was not replaced in this process. Grade 2 rock riprap is currently being used to protect the roadway slopes.



Figure 3. Second Outlet Gated Structure, Facility Building and Access Road.

Facility Building

The foundation material for the facility building housing the diesel generator and the control instrumentation for the gates was eroded around the concrete footings approximately four to six inches around the complex and under the building structure, exposing the geotextile material. A 350-gallon solid waste container (i.e. sanitary sewage tank) was separated from its anchors and straps during the storm and was lost from the facility. Electrical power was lost when the weatherhead, conduit and wire were pulled off of the side of the building when a power pole was destroyed.

Gate Stem Covers, Handrails, and Catwalk

The various sections of the gate structure suffered significant damage during the storm. The combined force of the winds, wind-driven debris, and wave action shredded or tore away the stem covers for the six gates. The estimated high water mark at the site was approximately 11.5 feet elevation coming within inches of the United States Geological Survey (USGS) gage station monitoring equipment. Due to the wave action

and storm debris, the handrails were knocked loose and bent causing damage to the anchor bolts. Debris and wave action caused damage to the catwalk support (anchor) at the first gate. Concrete spalling was evident at the anchor bolts for both the handrails and the catwalk.

1.3 PROPOSED PROJECT

The Second Outlet would be repaired to return the facilities and structure to pre-storm conditions. All repairs would be made to current engineering design standards as follows:

- | | |
|--|---|
| Erosion of the Access Roadway | <ul style="list-style-type: none">• Repair road base and surface by replacing geotextile and coarse aggregate surface material |
| Facility Building | <ul style="list-style-type: none">• Repair building foundation by replacing geotextile and coarse aggregate surface material• Replace 350-gallon solid waste container (i.e. sanitary sewer tank)• Replace electrical weatherhead, conduit and wires on the side of the building to restore power to the facility building. |
| Gate Stem Covers, Handrails, and Catwalk | <ul style="list-style-type: none">• Replace damaged handrails and catwalk supports and anchors• Clean and regrease all gate stems• Replace all gate stem covers |

The repairs, including any access or laydown areas or borrow or disposal requirements, would be performed within the existing fee right-of-way of the project. Construction to initiate the repair work would begin in mid-August 2009; completion of all repair work is anticipated in mid-March 2010.

The total cost of the repairs to the Project is estimated to be \$329,532. The annualized cost of these repairs, including operations and maintenance, is estimated at \$17,015, with annual project benefits of \$142,500 and a benefit-to-cost ratio of 1.76 to 1.

2.0 ALTERNATIVES

Three alternatives were considered: No Action, Repair of the Damaged System to Pre-Storm Condition, including a Non-Erodable Road Surface, and Repair of the Damaged System to Pre-Storm Condition, including a Coarse Surface Roadway.

2.1 *ALTERNATIVE 1 – NO ACTION*

Alternative 1 – Under the No Action Alternative, the proposed rehabilitation and repair work would not occur. The Second Outlet would be unable to function as designed to alleviate upstream flooding in Clear Lake, and life and property would be at risk. This alternative was not considered to be acceptable since it does not fulfill the purpose and need of the project.

2.2 *ALTERNATIVE 2 – REPAIR OF THE DAMAGED SYSTEM TO PRE-STORM CONDITION, INCLUDING A NON-ERODABLE (CONCRETE) ROAD SURFACE*

Repair to pre-storm conditions would include: repair of the access roadway base and non-erodable (concrete) surface material to prevent future damage; replacement of the foundation material under the facility building; replacement of the 350-gallon solid waste container; repair and replacement of the electrical weatherhead, conduit and wires on the side of the building; replacement and repair of the damaged handrails and catwalk supports and anchors on the structure; and cleaning and re-greasing of the gate stems and replacement of the gate stem covers.

2.3 *ALTERNATIVE 3 – REPAIR OF THE DAMAGED SYSTEM TO PRE-STORM CONDITION, INCLUDING A COARSE SURFACE ROADWAY*

Repair to pre-storm conditions would be as described in Alternative 2, except a coarse base of crushed rock similar to that which existed prior to Hurricane Ike would be used to repair/replace the roadway surface.

2.4 *COMPARISON AND EVALUATION OF ALTERNATIVES*

It has been determined that without the repairs the Second Outlet would be unable to function as designed to alleviate upstream flooding in Clear Lake, and life and property would be at risk. Thus, Alternative 1, No Action, was not considered to be acceptable.

Repairing the Second Outlet to the pre-storm conditions and including a non-erodable (concrete) roadway surface (Alternative 2) would restore functionality to the structure and facilities, but the cost to incorporate a concrete road was considered too high.

Alternative 3, repairing the Second Outlet to pre-storm conditions using a coarse roadway surface (i.e. crushed rock), would restore functionality to the Second Outlet structure and facilities. Furthermore, a coarse surfaced roadway would still provide adequate access to the facility and would be the least cost alternative. Therefore, this alternative was determined to be the selected plan to repair the Second Outlet.

3.0 AFFECTED ENVIRONMENT

3.1 PROJECT AREA

The Second Outlet is a man-made channel connecting Clear Lake to Galveston Bay by way of Seabrook Slough in Seabrook, Harris County, Texas. The purpose of constructing the Second Outlet channel was to provide an additional outlet for flood flows associated with proposed upstream Clear Creek FCP channel improvements to continue into Galveston Bay without aggravating flooding problems within Clear Lake. Although the project site is located within Harris County, for the purposes of addressing the affected environment and impacts in this EA, resources potentially affected in both Harris and Galveston Counties area addressed, as appropriate, since Galveston County is located immediately to the south and adjacent to the project site.

The climate of the study area is subtropical. Winds are usually from the southeast with an average speed of about 10–15 miles per hour. Mean temperatures may range from the low 60s (degrees Fahrenheit) in December and January to the low 90s in the summer months. The average annual rainfall in the area is around 51 inches, with monthly precipitation averaging from three to six inches (World Climate, 2007). The study area has experienced major floods, some resulting from tropical storms, and others due to major rainfall events. Major storm events that have affected the study area include Tropical Storm Claudette (July 1979), Tropical Storm Allison (June 2001), and Hurricane Rita (2005) and Hurricane Ike (2008).

Developed areas in the vicinity of the project are located both north and south of the Second Outlet along SH 146 within the cities of Seabrook (Harris County) and Kemah (Galveston County), Texas. Development consists primarily of single and multi-family residential developments, and commercial developments (yacht basins, marinas, restaurants, hotels, etc.).

3.2 VEGETATION

The area surrounding the Second Outlet is mostly open water or developed. Small patches of tidal marsh habitat dominated by smooth cordgrass (*Spartina alterniflora*) may be found growing in shallow waters along the edges of the Second Outlet access road and facilities building, and in similar nearby areas within Clear Lake and Seabrook Slough.

The area of the project footprint has been highly impacted by the construction of the Second Outlet. Vegetation is typically dominated by mostly upland grasses, such as Bermuda grass (*Cynodon dactylon*), which may be found in similar areas along roadways. The project the area is routinely maintained by mowing.

3.3 WILDLIFE

The area in the vicinity of the Second Outlet supports migratory and year-round populations of waterfowl, shorebirds and wading birds. Birds that may be found in the area include Bald eagle, Osprey, pelicans, a variety of gulls and terns (*Laridae* family), and herons and egrets (*Ardeidae* family).

Mammals which may be found in the vicinity of the project area include nutria (*Myocaster coupus*), squirrel (*Sciurus sp.*), skunk (family *Mustelidae*), rabbit (*Sylvilagus spp.*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), coyote (*Canis latrans*), armadillo (*Dasypus novemcinctus*), and various species of mice and rats.

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 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.

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*), 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 National Marine Fisheries Service (NMFS). Based upon information provided in the 2005 amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the GMFMC and 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 located within the waters of Clear Lake and Galveston Bay in the vicinity of the project include the wetlands and estuarine mud and water column. However, the proposed work on the Second Outlet would not result in impacts to EFH, since no work would be performed in or affecting the water. Therefore, EFH consultation is not required.

3.5 THREATENED AND ENDANGERED SPECIES

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) considered the threatened or endangered species in Table 1 as possibly occurring in Harris and Galveston Counties. 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, and sea turtles are known to occur in areas adjacent to the project. Additionally, there is no critical habitat located within or adjacent to the project area.

Table 2 lists additional state-listed rare species that may potentially occur at or near the project area as a resident or migrant. These species are not likely to occur in the project area and would not be affected by the project; additionally, these species have no Federal standing and will not be considered further.

3.6 CULTURAL RESOURCES

The Clear Creek FCP, including the Second Outlet, has been previously coordinated with the Texas State Historic Preservation Officer (SHPO). The Second Outlet project has been found to be highly disturbed by previous construction. Further cultural resource surveys and coordination are not required because the proposed work sites have no potential for significant historic properties.

3.7 AIR QUALITY AND NOISE

3.7.1 AIR QUALITY

The project area occurs in Harris and Galveston Counties, Texas. These counties are 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 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. The planning and implementation of these State Implementation Plan (SIP) requirements incorporate the effects of population and industrial growth, technology changes, and national or statewide control measures. Counties in the HGB Nonattainment Area affected under this status are Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller.

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

Common Name	Scientific Name	Status	
		USFWS ¹ County by County List ²	NMFS ³ List for State of Texas
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

PLANTS

Texas prairie-dawn flower	<i>Hymenoxys texana</i>	E	NA
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¹ USFWS, 2009. www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm

² Only the bald eagle and Texas prairie-dawn flower are listed by USFWS as threatened or endangered in Harris County; all above species identified by the USFWS except the Texas prairie-dawn flower are listed as threatened or endangered for Galveston County.

³ 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.

* Species of Concern are listed in this table but not in the BA, these species are not likely to occur in the project area and therefore will not be affected by the project.

TABLE 2. POTENTIAL STATE-LISTED THREATENED AND ENDANGERED SPECIES FOR HARRIS AND GALVESTON COUNTIES, TEXAS¹

Common Name	Scientific Name	Status	County	
			Galveston	Harris
PLANTS				
Texas prairie dawn-flower	<i>Hymenoxys texana</i>	E		X
FISH				
Creek chubsucker	<i>Erimyson oblongus</i>	T		X
BIRDS				
American peregrine falcon	<i>Falco peregrinus anatum</i>	E	X	X
Arctic peregrine falcon	<i>Falco peregrinustundrius</i>	T	X	X
Attwater's greater prairie-chicken	<i>Tympanuchus cupido attwateri</i>	E	X	
bald eagle	<i>Haliaeetus leucocephalus</i>	T	X	X
brown pelican	<i>Pelecanus occidentalis</i>	E	X	X
Eskimo curlew	<i>Numenius borealis</i>	E	X	
piping plover	<i>Charadrius melodus</i>	T	X	
red-cockaded woodpecker	<i>Picoides borealis</i>	E		X
reddish egret	<i>Egretta rufescens</i>	T	X	
white-faced ibis	<i>Plegadis chihi</i>	T	X	X
white-tailed hawk	<i>Buteo albicaudatus</i>	T	X	X
whooping crane	<i>Grus Americana</i>	E	X	X
wood stork	<i>Mycteria Americana</i>	T	X	X
REPTILES				
alligator snapping turtle	<i>Macrochelys temminckii</i>	T	X	X
green sea turtle	<i>Chelonia mydas</i>	T	X	X
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	X	
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E	X	
leatherback sea turtle	<i>Dermochelys coriacea</i>	E	X	X
loggerhead sea turtle	<i>Caretta caretta</i>	T	X	X
Houston toad	<i>Bufo houstonensis</i>	E		X

smooth greensnake	<i>Opheodrys vernalis</i>	T		X
Texas horned lizard	<i>Phrynosoma cornutum</i>	T	X	X
timber rattlesnake	<i>Crotalus horridus</i>	T	X	X
MARINE MAMMALS				
West Indian manatee	<i>Trichechus manatus</i>	E	X	
TERRESTRIAL MAMMALS				
Louisiana black bear	<i>Ursus americanus luteolus</i>	T	X	X
Rafinesque's big-eared bat	<i>Corynorhirus rafinesquii</i>	T		X
red wolf	<i>Canis rufus</i>	E	X	X

¹Texas Parks and Wildlife Department (2009a and 2009b).

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 and Harris Counties for 2001 (EPA, 2009).

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

Galveston County Air Emissions Inventory - 2001						
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
Harris County Air Emissions Inventory - 2001						
Source Category	CO (tpy)	NOX (tpy)	PM10 (tpy)	PM2.5 (tpy)	SO2 (tpy)	VOC (tpy)
Area	53,008	7,087	116,559	25,330	129	35,188
Point Source	40,210	76,751	6,099	5,404	42,942	29,089
Highway Vehicles	588,992	81,798	2,175	1,538	2,022	55,177
Off-Highway	361,646	81,759	4,409	4,048	10,873	21,864
SUBTOTAL	1,043,786	247,395	129,242	36,320	55,966	214,404
TOTAL	1,137,221	301,500	145,632	41,989	70,197	234,210

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 Second Outlet project is located within a highly developed residential and commercial area. Noise sources in the area include commercial and recreational boats, residential and commercial vehicular traffic from within the immediate areas of the cities of Seabrook and Kemah, and residential and commercial vehicles using SH 146 as a thoroughfare to commute or transport products among the various municipalities and ports along the western shore of Galveston Bay.

3.8 *WATER QUALITY*

Clear Lake Channel, Segment 2421A, is a 0.33-mile (from its confluence with Galveston Bay to SH 146) tidally influenced channel connecting Clear Lake with Galveston Bay. The TCEQ designated uses for Clear Lake Channel 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 Clear Lake Channel (TCEQ, 2008a).

The Upper Galveston Bay (Segment 2421_02) is a 48.20 square mile area which includes tidal waters within the western portion of the bay. The designated uses for the western portion of Upper 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 was a concern due to elevated nitrate, chlorophyll-a and total phosphorus levels (TCEQ, 2008a) attributed to non-point sources associated with urban runoff and storm sewers and point sources associated with municipal discharges (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 and point sources associated with municipal discharges (TCEQ 200b). Shellfish harvesting from the waters adjacent to the project area is restricted (DSHS, 2008a). A 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).

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 Upper 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, eight 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

The Second Outlet is situated in the vicinity of the cities of Seabrook and Kemah, Texas. As of 2007, the population of Seabrook, Texas, was around 11,182 persons (Sperling's Best Places, 2009a) compared to 9,443 persons in 2000 (U.S. Census Bureau, 2009a). The population is comprised mostly of White persons (89 percent) followed by Asians persons (3 percent), persons claiming their race as 'Other' (6 percent), and Black or African American persons (2 percent) (Sperling's Best Places, 2009a). Less than 1 percent of the population is either Native American, Hawaiian or Pacific Islander (U.S. Census Bureau, 2009a; Sperling's Best Places, 2009a). About 13 percent of the people in Seabrook claim Hispanic ethnicity (Sperling's Best Places, 2009a).

In 2007, the median age of persons living in Seabrook was 37.7. Around 53 percent are married and 15 percent are divorced. Of persons age 25 years and over living in Seabrook, about 93 percent are high school graduates (or equivalent); 30 percent have attained a bachelor's degree and 12 percent have received graduate or professional degrees. (Sperling's Best Places, 2009a).

Over 50 percent of the population in Seabrook works in sales, office and professional (or related) occupations. The 2007 average per capita income in Seabrook was \$35,017 (Sperling's Best Places, 2009a). The unemployment rate in Seabrook is 3.8 percent, with job growth of 2.26 percent. Future job growth over the next ten years is predicted to be 25.36 percent. (Sperling's Best Places, 2009a).

In 2007, the population of Kemah, Texas, was around 2,475 persons (Sperling's Best Places, 2009b) compared to 2,330 persons in 2000 (U.S. Census Bureau, 2009b). The population in 2007 was comprised mostly of White persons (69 percent) followed by persons claiming their race as 'Other' (20 percent), Black or African American persons (5 percent), Asian persons (4 percent) and Native American persons (1 percent) (Sperling's Best Places, 2009b). Less than 1 percent of the population is Hawaiian or Pacific Islander (U.S. Census Bureau, 2009a; Sperling's Best Places, 2009b). About 29 percent of the people in Kemah claim Hispanic ethnicity (Sperling's Best Places, 2009b).

In 2007, the median age of persons living in Kemah was 37.6. Around 54 percent are married and 16 percent are divorced. Of persons age 25 years and over living in Seabrook, about 85 percent are high school graduates (or equivalent); 21 percent have attained a bachelor's degree and 8 percent have received graduate or professional degrees. (Sperling's Best Places, 2009b).

Around 80 percent of the population in Kemah works in management, including business or financial operations, service occupations, or sales, office and professional (or related) occupations (with about equal percentages in each). The 2007 average per capita income in Kemah was \$28,249 (Sperling's Best Places, 2009b) compared to \$23,373 in 1999 (U.S. Census Bureau, 2009b). The unemployment rate in Kemah is 4 percent, with job growth of 2.26 percent. Future job growth over the next ten years is predicted to be 24.23 percent. (Sperling's Best Places, 2009b).

3.11 ENVIRONMENTAL JUSTICE

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, 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 (2007) estimated average household incomes for the cities of Seabrook and Kemah are around \$35,017 and \$28,249, respectively (Sperling's Best Places, 2009a and 2009b), which are well above the 2008 HHS poverty guideline.

The land surrounding Clear Lake and Galveston Bay in the vicinity of the Second Outlet is either highly commercialized 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 Harris County, Texas (Soil Conservation Service, 1976) soils that occur in the vicinity of the Second Outlet are classified within the following soil series: Harris clay (Ha) and Ijam soils (Is). According to Soil Survey Geographic Database (SSURGO) information acquired from the Natural Resources Conservation Service (NRCS), these soils 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

Recreational activities within the study area are oriented toward water-based activities such as fishing, swimming, windsurfing, boating, birding, and other aquatic-based recreation. The fishing industry is important to the area economy as a source of recreation, as a draw for tourism, and for commercial fishing enterprises. The Clear Lake area is considered to have the nation's third-largest concentration of pleasure boats, and is a very strong industry within the local economy. Other water-based sports/activities that are popular within the area include water skiing, personal watercraft, windsurfing, rowing, canoeing, and kayaking. Both recreational and commercial boaters are served by hundreds of marine businesses around Clear Lake that provide bait and fuel, ropes and sails, anchors, nets, engine and boat repairs, and skis and lifejackets.

Birding is also a popular activity along the Texas Gulf coast that attracts many tourists. TPWD and Texas Department of Transportation (TxDOT) have jointly sponsored the development of the Great Texas Coastal Birding Trails. Within the study area, one birding loop has been identified, the Clear Lake Loop. The Clear Lake Loop is one of several trails within the Upper Texas Coast Birding Trail (a subset of the Great

Texas Coastal Birding Trail), and includes McHale and Hester Garden Parks, both located on the east side of SH 146 within one mile of the project (TPWD, 1999).

3.14 ROADWAYS AND TRAFFIC

Major roadways within the study area include SH 146, which provides access north and south of the project area; Nasa Road 1, located immediately north of the project area which provides east-west access between I-45 and the project area; and League City Parkway (SH 96), located south of the project area, which also provide east-west access between Interstate Highway 45 and the project area. The Second Outlet structure and facilities can be accessed from the access roadway located on the north side of the Second Outlet Channel along southbound SH 146. Vehicular traffic in the area consists of a mixture of local area and urban residents, and commercial and industrial vehicles associated with the various ports and petrochemical industries along Galveston Bay, and tourism.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE

4.1 IMPACTS ON THE PROJECT AREA

In 1982, the USACE prepared a Final Environmental Impact Statement for the Clear Creek FCP (USACE, 1982). The proposed repairs to the Second Outlet structure and facilities are within the existing project limits which have been highly disturbed by previous construction and rehabilitation activities. The currently proposed work activities would involve minor and temporary impacts to the regularly maintained upland grass area along the access road and surrounding the building facilities within the existing project footprint.

4.2 IMPACTS ON VEGETATION

No wetlands would be impacted by the proposed rehabilitation and repairs. The proposed work would occur within the existing footprint of the Second Outlet structure and facilities to restore the project to its pre-storm conditions. All equipment and materials would be brought to the site via existing access road.

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 disturbed 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 impacts to EFH would occur as a result of the project. Therefore, EFH consultation is not required.

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 and 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 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 and that 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 E.

Vehicles and equipment required to transport and place materials to repair damages to the Second Outlet structure and facilities would be the primary source of noise from the proposed activities. All equipment and materials would be brought to the site by vehicles via the Second Outlet facility access road located on the north side of the Second Outlet Channel, along south-bound SH 146.

Noise associated with earth-moving equipment presents a short-term impact during the construction phase which is expected to occur from mid-August 2009 through mid-March 2010. During construction, noise 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 affects would occur as a result of noise during construction.

4.8 IMPACTS ON WATER QUALITY

All repair work will occur within the existing footprint of the project. Repairs to the access road and building facility foundations would restore the features to pre-storm conditions and do not involve work or placing fill into the water or along the shorelines. Therefore, no impacts to water quality in the area are anticipated.

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 Second Outlet 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 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 (i.e. mid-August 2009 through mid-March 2010) and should be minor. Furthermore, there are many comparable substitute recreation sites readily available within the surrounding area of Clear 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. Temporary disruptions to traffic along SH 146, which is primarily commercial (public and private docks, marinas, restaurants, etc.), 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

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Impacts include both direct effects (caused by the action and occurring at the same time and place as the action), and indirect effects (caused by the action but removed in distance and later in time, and reasonably foreseeable). Historically, the project vicinity has experienced increased residential and commercial development and growth – consisting primarily of hotels, marinas and yacht basins, piers, boardwalks and restaurants – which resulted in decreased quality of environmental resources such as air and water, as well as alteration or loss of aquatic resources such as shallow bay bottom habitat and wetlands. Construction of the Second Outlet resulted in similar alterations of shallow bottom and wetland habitat within the

area; however these impacts were fully offset through the construction of additional wetland habitat along the east shoreline of SH 146 in Seabrook Slough. As a result of the past development activities, environmental resources, such as wetlands, in the vicinity of the project are currently limited to a few acres of fringe tidal marsh along the remaining undeveloped shorelines.

Projects that may contribute to overall cumulative effects in the immediate project vicinity include the proposed widening of SH 146 from Red Bluff Road to FM 518, the Seabrook Wetlands Restoration Project and completion of various marina and waterfront development projects (e.g. Blue Dolphin Marina, Jennings Island and Endeavor Marina/Highrise Developments) associated with continued residential and commercial development and growth in the area. However, it is assumed that these projects would adhere to state and federal regulations which require no significant effect to environmental resources or mitigation of affected resources. Some proposed actions, such as the Seabrook Wetlands Restoration Project, are would have positive effects on environmental resources.

Impacts of the proposed action consist of temporary impacts to the natural and human environment, with overall positive benefits to the socioeconomic environment. The project is not expected to induce development since this plan would result in restoring the existing Second Outlet and associated facilities to pre-hurricane conditions. The Second Outlet repair work is expected to have minor temporary local impacts to recreation and wildlife from construction related noise, and traffic due to increased construction equipment. These resources are expected to fully 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. Cumulative impacts from the proposed project, when added to the consequences of past, existing, and reasonably foreseeable future projects, are not expected to have significant adverse effects within the project 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 Clear Creek Project, which includes the Second Outlet, is documented in the Clear Creek, Texas, Flood Control, Final Environmental Impact Statement which can be found in the May 1982 Clear Creek, Texas Flood Control Preconstruction Authorization Planning Report (USACE, 1982). The proposed work involves repairs to the Second Outlet structure and facilities to restore areas 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. A copy of the draft EA was provided to the USFWS and NMFS for their review and comment.

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 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-STEVENSON 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 impacts to living marine resources or EFH would occur as a result of the project. EFH consultation is not required.

7.6 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 D. The proposed work involves

repairs to the Second Outlet to restore areas 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 will be coordinated with the Coastal Coordination Council for compliance with the TCMP.

7.7 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 will be provided to the USFWS and NMFS for review and comment along with this EA.

7.8 CLEAN AIR ACT OF 1972, AS AMENDED

The Environmental Protection Agency established nationwide air quality standards to protect public health and welfare. The State of Texas has adopted the National Ambient Air Quality Standards as the state's air quality criteria. 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 E.

7.9 CLEAN WATER ACT OF 1977, AS AMENDED

Not applicable. The proposed project would not result in the discharge of dredged or fill material into waters of the U.S. 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).

7.10 EXECUTIVE ORDER 11990 – PROTECTION OF WETLANDS

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

7.11 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.

7.12 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.

7.13 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-disaster conditions.

7.14 MEMORANDUM OF AGREEMENT (MOA) WITH THE FAA TO ADDRESS AIRCRAFT-WILDLIFE STRIKES - THIS MOA WAS EXECUTED BETWEEN THE FEDERAL AVIATION ADMINISTRATION, THE U.S. AIR FORCE, THE U.S. ARMY, THE U.S. ENVIRONMENTAL PROTECTION AGENCY, THE U.S. FISH AND WILDLIFE SERVICE, AND THE U.S. DEPARTMENT OF AGRICULTURE

Through this MOA, the agencies establish procedures necessary to coordinate their missions to more effectively address existing and future environmental conditions contributing to aircraft-wildlife strikes throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety, while protecting the Nation's valuable environmental resources. A search was made to determine the proximity of airports to the project site. There are no airports located within five statute miles of the proposed repairs. The nearest airport is Ellington Field, located more than 8 miles away. Therefore, the risk of aircraft-wildlife strikes is considered to be negligible, and no further coordination is required.

8.0 CONCLUSIONS

As a result of public and agency review, two letters were received commenting on the proposed project, one from Texas Parks and Wildlife Department and one from the U.S. Fish and Wildlife Service (USFWS). The USFWS raised two issues: that all demolished materials should be removed from the site and placed in an approved disposal site and that demolition should be confined to the project footprint as much as possible. The USACE shall dispose of all demolished materials in an approved disposal site and the USACE shall take all prudent and reasonable steps to confine demolition activities to the project footprint (see Appendix A for the complete letters and responses). The following

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

- Wetlands would not be impacted by this project.
- Wildlife may be temporarily affected by minor impacts during repairs.
- Fisheries and EFH would not be impacted by this project. EFH consultation is not required.
- 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 no impact to water quality from the proposed repairs.
- 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.
- There are no airports within 5 miles of the damaged area
- 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.

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APPENDIX A - PROJECT COORDINATION



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

June 2, 2009

NOTICE OF AVAILABILITY

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

CLEAR CREEK SECOND OUTLET STRUCTURE, HARRIS COUNTY, TEXAS AND WHITE OAK BAYOU FEDERAL FLOOD CONTROL PROJECT, HARRIS COUNTY, TEXAS

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 Clear Creek Second Outlet Structure and the White Oak Bayou Federal Flood Control Projects 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 consistent with current designs and sound engineering principles. The proposed work will not result in an expansion of the 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 Clear Creek Second Outlet Structure and the White Oak Federal Flood Control Project. The proposed rehabilitation work will include repairs that will restore these projects to pre-storm conditions. If these projects are left in their current condition, 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 DESCRIPTION AND LOCATION

Clear Creek Flood Control Project Second Outlet Structure, Harris County, Texas

The Clear Creek FCP is located along Clear Creek, in Galveston, Harris, and Brazoria Counties. The 31 mile earthen channel begins at the mouth of Clear Lake on Galveston Bay. Included in the project was the construction of a gated Second Outlet Structure located immediately upstream of State Highway 146 in Seabrook, in Harris County, Texas. The Second Outlet, which normally remains closed, was built to accommodate the rise in water levels within Clear Lake caused from the increased flood flows from Clear Creek as a result of upstream channel modifications.

White Oak Bayou Federal Flood Control Project, Harris County, Texas

The White Oak Bayou FCP is located along White Oak Bayou, in northwest Houston, Harris County, Texas. The project was designed to provide protection to the project area from flooding events. The project consisted of clearing, straightening, enlarging, and partial concrete lining of the trapezoidal, earthen channel along 10.7 miles between the confluence of Buffalo and White Oak Bayous to Cole Creek.

DESCRIPTION OF REHABILITATION AND REPAIR WORK

Clear Creek Flood Control Project Second Outlet Structure

Following Hurricane Ike's landfall, the Second Outlet Structure was found to have significant damage at various locations as a result of the combined storm surge, wave action, storm debris and persistent high winds. Damage to the project included damage to the outlet structure access roadway, facility building, structure catwalks, handrails, and gate stem covers. Repairs will restore the Second Outlet Structure to its pre-storm condition. Repair to pre-storm conditions would include: repair of the roadway base and surface to current engineering design standards; replacement of the foundation material under the facility

building; replacement of the 350-gallon solid waste container; repair and replacement of the electrical weatherhead, conduit and wires on the side of the building; replacement and repair of the damaged handrails and catwalk supports and anchors on the structure; and cleaning and re-greasing of the gate stems and replacement of the gate stem covers. The Second Outlet Structure, channel and facilities are shown in Figure 1.



Figure 1. Clear Creek Flood Control Project Second Outlet Structure.

White Oak Bayou Flood Control Project

The White Oak Bayou FCP area received 16.09 inches of rain between September 13 and 15, 2008 from Hurricane Ike. This rain event resulted in severe damage to the concrete lining in the area near Yale and Interstate 10; there is now a substantial risk of slope failure to both the concrete-lined slope and the uphill earthen slope (Figure 2). The U.S. Army Corps of Engineers is proposing to repair these damages, returning the project to pre-storm conditions.

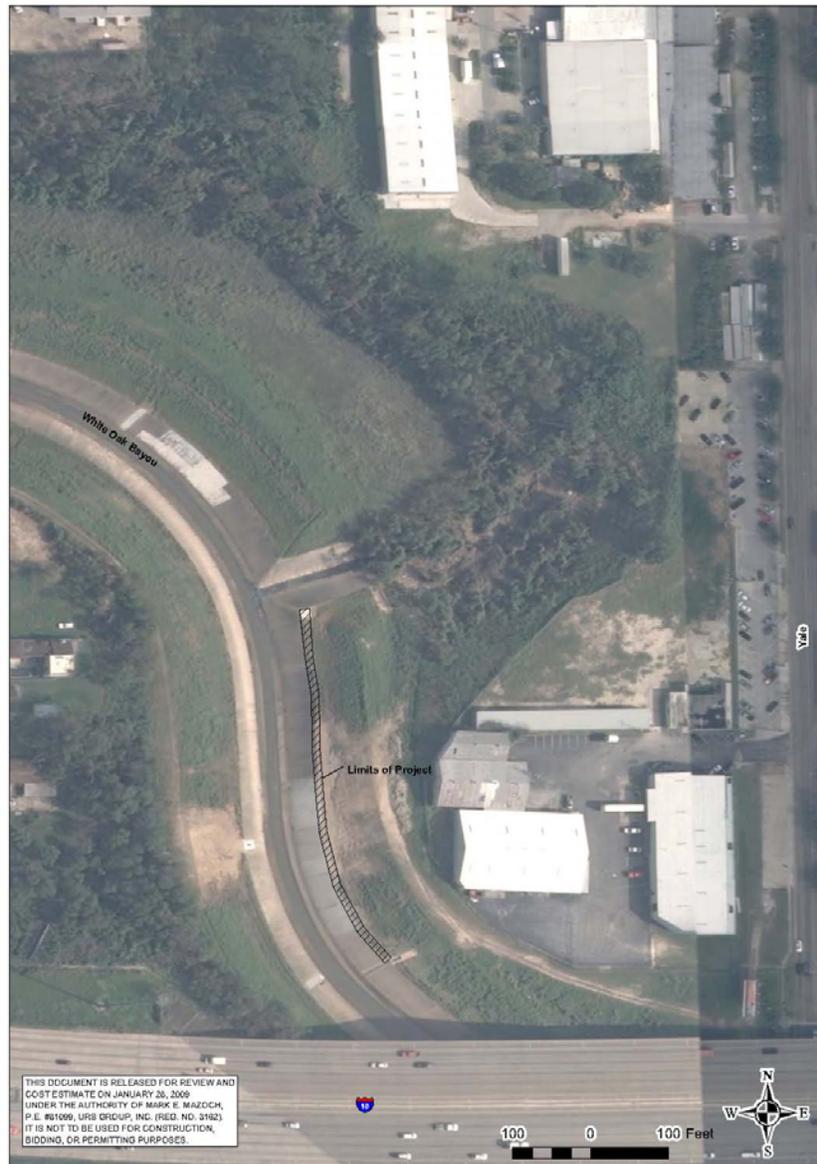


Figure 2. White Oak Bayou Flood Control Project

COMPLIANCE WITH LAWS AND REGULATIONS

Draft Environmental Assessments (EAs) are being coordinated with the U.S. 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. The Biological Assessments (Appendix B of the Draft EAs) conclude that the projects are not likely to adversely affect the 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 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 review by and coordination 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 this project 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), 30 TAC 101.30(c)(5)(A), 40 CFR 93.153(e)(2), and 30 TAC 101.30 (c)(5)(B).

The proposed activities will be coordinated with the State Historic Preservation Officer (SHPO). Our initial determination is that the proposed actions do not have the potential to effect historic properties.

The following is a partial list of Federal, State, and local agencies with which this activity is 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

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 written 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 impact of these repair projects are requested to mail their comments within 10 days of the date of this notice 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.

The comments should make specific reference to the individual projects 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 this activity. Any questions concerning the proposed action may be directed to Ms. Carolyn Murphy at (409) 766-3044, or the email address above.



Richard Medina
Chief, Planning Branch



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Division of Ecological Services
17629 El Camino Real #211
Houston, Texas 77058-3051
281/286-8282 / (FAX) 281/488-5882



June 10, 2009

Carolyn Murphy
Department of the Army
Galveston District, Corps of Engineers
P.O. Box 1229
Galveston, Texas 77551

Dear Ms. Murphy,

Thank you for the opportunity to review the Notice of Availability for the U.S. Army Corps of Engineers, Galveston District Environmental Assessment for Emergency Repairs to Clear Creek Second Outlet Structure, Harris County, Texas and White Oak Bayou Federal Flood Control Project, Harris County, Texas, dated June 2, 2009.

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Environmental Assessments for both projects. Under the Endangered Species Act, when a call of "no effect" is made on a project, it is not necessary for the Service to respond or provide concurrence. The responsibility of determining a "no effect" finding lies with the project proponent and should be well documented in your project files. In the event the scope of the project changes, or additional information on the distribution of trusted species or designated critical habitat becomes available, threats to listed species should be assessed again and a determination made accordingly. After review of the proposed project, the Service recommends the following:

- All demolished materials, including concrete materials should be removed from the site and placed in an approved disposal site. Any material left at the site may be hazardous to the fish and wildlife in the area.
- Demolition should be confined to the project footprint as much as possible. In the event any debris enters a channel or water body, the material should be removed immediately.

The Service understands the need for the emergency repair work at these two sites and appreciates the opportunity to comment on these projects in order to minimize impacts to fish and wildlife resources in the area. The Service encourages early coordination on all projects and looks forward to coordination on this and others in the future. Please contact staff biologist Donna Anderson at 281/286-8282 if you have questions concerning these recommendations.

Sincerely,

Stephen D. Parris
Field Supervisor, Clear Lake ES Field Office

Response to Comments

Thank you for your comments.

The USACE shall make sure all demolished materials, including concrete materials are removed from the site and placed in an approved disposal site. No material shall be left at the site.

The USACE shall take all reasonable and prudent steps to confine demolition activities to the project footprint. If any debris enters a channel or water body, the materials shall be removed immediately.



Life's better outside.™

June 11, 2009

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

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John D. Parker
Lufkin

Lee M. Bass
Chairman-Emeritus
Fort Worth

Carter P. Smith
Executive Director

Re: Draft Environmental Assessment for Emergency Repairs to the Clear Creek Second Outlet Structure, Harris 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

Response to Comments

Thank you for you comments.

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

BIOLOGICAL ASSESSMENT
FOR
REHABILITATION OF DAMAGED FLOOD CONTROL WORKS
CLEAR CREEK SECOND OUTLET STRUCTURE, TEXAS
FEDERAL FLOOD CONTROL PROJECT
CLEAR CREEK
HARRIS COUNTY, 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 Clear Creek Flood Control Project (FCP) Second Outlet gated structure, facilities and access road. The Clear Creek Federal FCP, which included the Second Outlet channel and gated structure, was authorized by Congress in the Flood Control Act of 1968 (Public Law 90-483, Section 203). The project sponsor for the proposed action is Harris County Flood Control District.

This BA evaluates the potential impacts the proposed repairs to the Second Outlet 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, 2009a and 2009b; NMFS, 2009). Additional federally protected species are listed by the Texas Parks and Wildlife Department as potentially occurring in Harris and Galveston Counties. 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 IN HARRIS AND GALVESTON COUNTIES, TEXAS

Common Name	Scientific Name	Status	
		USFWS ¹ County by County List ²	NMFS ³ List for State of Texas
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, 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
PLANTS			
Texas prairie-dawn flower	<i>Hymenoxys texana</i>	E	NA

¹ USFWS, 2009a and 2009b.

² Only the bald eagle and Texas prairie-dawn flower are listed by USFWS as threatened or endangered in Harris County; all above species identified by the USFWS except the Texas prairie-dawn flower are listed as threatened or endangered for Galveston County.

³ NOAA/NMFS, 2009.

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

Following the storm's landfall, the Second Outlet (Figure 1) was found to have significant damage at various locations as a result of high water levels and winds. Damages were sustained to three main areas of the second outlet structure: the gate structure, access roadway, and facility building. The combined storm surge, wave action, storm debris, and persistent high winds from Hurricane Ike were identified as the primary cause of damage.



**Figure 1. Clear Creek Flood Control Project
Second Outlet Structure, Facilities and Access Road.**

The Second Outlet would be repaired to return the facilities and structure to pre-storm conditions. All repairs would be made to current engineering design standards as follows:

- | | |
|--|--|
| Erosion of the Access Roadway | <ul style="list-style-type: none"> • Repair road base and surface by replacing geotextile and coarse aggregate surface material |
| Facility Building | <ul style="list-style-type: none"> • Repair building foundation by replacing geotextile and coarse aggregate surface material • Replace 350-gallon solid waste container • Replace electrical weatherhead, conduit and wires on the side of the building to restore power to the facility building. |
| Gate Stem Covers, Handrails, and Catwalk | <ul style="list-style-type: none"> • Replace damaged handrails and catwalk supports and anchors • Clean and regrease all gate stems • Replace all gate stem covers |

All repairs would be performed within the existing footprint of the project.

The area surrounding the Second Outlet is mostly open water or developed. Small patches of tidal marsh habitat dominated by smooth cordgrass (*Spartina alterniflora*) may be found growing in shallow waters along the edges of the Second Outlet access road and facilities building, and in similar nearby areas within Clear Lake and Seabrook Slough. The area of the project footprint has been highly impacted by the construction of the Second Outlet. Vegetation within the footprint of the project is typically dominated mostly upland grasses, such as Bermuda grass (*Cynodon dactylon*), which may be found in similar areas or along roadways. The project the area is routinely maintained by mowing.

No wetlands would be impacted by the proposed rehabilitation and repairs. The proposed work would occur within the authorized alignment and footprint of the Second Outlet structure, facilities building and access roadway to restore the project to its pre-storm conditions. All equipment and materials would be brought to the site via the existing access roadway by vehicles. No work in the water or dredging is proposed; the project operations would be entirely land-based or from the surfaces of the existing gated structure; all equipment and materials would be brought to the site via the existing access road. The upland vegetation, which consists of mowed grass, along the access roadway 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, and sea turtles are likely occur in areas adjacent to the project.¹ However, these species are not known to directly utilize the Second Outlet facilities due to lack of suitable habitat. Descriptions of the species likely to occur in the vicinity of the project area follow.

2.1 BROWN PELICAN

The brown pelican is a common bird of Texas coastal and near-shore areas and they occur in the project area. Foraging or resting area in bay waters in the vicinity of the project may become less attractive during construction (i.e. mid-August 2009 through mid-March 2010) because of increased noise and human activity, but the habitat would not be destroyed.

2.2 SEA TURTLES

The green sea turtle was historically the most abundant sea turtle in Texas. Over fishing 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.

¹ 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.

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

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.

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.

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 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.

3.2 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 the project area include the green, Kemp's ridley, and loggerhead sea turtles. The project involves work to the existing Second Outlet gated structure and to the existing authorized footprint of maintained grassy or rock-paved areas of the Second Outlet access roadway and facilities building to repair areas damaged by erosion during Hurricane Ike. No work in the water or dredging is proposed; the project operations would be entirely land based or from the surfaces of the existing gated structure; and all equipment and materials would be brought to the site via the existing access road. 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. 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. 2009a. U.S. Fish and Wildlife Service Endangered Species List – Galveston County, Texas. www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm. Accessed 20090220.

U.S. Fish and Wildlife Service. 2009b. U.S. Fish and Wildlife Service Endangered Species List – Harris 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
 Galveston

[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

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 TCMP Consistency Evaluation

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

REHABILITATION OF DAMAGED FLOOD CONTROL WORKS

**CLEAR CREEK SECOND OUTLET STRUCTURE, TEXAS
FEDERAL FLOOD CONTROL PROJECT**

**CLEAR CREEK
HARRIS 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 Clear Creek Flood Control Project (FCP) is an authorized Federal flood control project. The proposed work involves repairs to the Second Outlet structure and facilities to restore areas of the Second Outlet structure, facility building and access roadway that were damaged during Hurricane Ike to pre-storm 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 Clear Creek Flood Control Project (FCP) is an authorized Federal flood control project. The proposed work involves repairs to restore areas of the Second Outlet structure, facility building and access roadway that were damaged during Hurricane Ike to pre-storm conditions. The proposed repairs will not involve any new levee construction, modification, drainage, reclamation or channelization.*

Appendix E - Air Conformity Determination

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

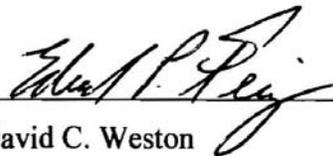
Project/Action Name: Emergency Repairs under PL 84-99 (Flood Control and Coastal Emergency Act) to Galveston Seawall and Groins, and the Port Arthur, Freeport, and Texas City and Vicinity Hurricane and Flood Protection Projects, Texas.

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  24 FEB 09

Date
David C. Weston
Colonel, Corps of Engineers
District Commander

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

Date
David C. Weston
Colonel, Corps of Engineers
District Commander