

## APPENDIX D

### **Modeling Synopsis**

## **Appendix D Modeling Synopsis**

### **(Hydrology & Hydraulics Synopsis of MRGO Modeling Studies For Surge, Salinity and Shoreline Stability)**

**1. General** - This write-up reviews recent hydraulic modeling reports that document the effects of the Mississippi River-Gulf Outlet (MRGO) on the following factors:

- Storm surge.
- Salinity.
- Bank/shoreline stability.

A brief description of each modeling study is provided including assumptions, parameters, and results. The exhibits section at the end of this report includes excerpts of the conclusions of each modeling analysis.

**2. Storm surge modeling** – There are three modern modeling studies of the MRGO and adjacent tidal system for storm surge effects:

- Numerical Modeling of Storm Surge Effect of MRGO Closure; MRGO Reevaluation Study (EPA Sponsored), Westerink and Luettich Consulting, May 2004 (pre-Katrina).
- The Direct Impact of the Mississippi River-Gulf Outlet on Hurricane Storm Surge; URS for Louisiana Department of Natural Resources, February 2006.
- Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System, Interagency Performance Evaluation Task Force, Final Report, Volume IV, 26 March 2007 and Appendix 6 - Westerink, Ebersole, Winer; February 21, 2006.

These studies have all employed the ADvanced CIRCulation (ADCIRC) model developed by Westerink and Luettich. ADCIRC is a two-dimensional, depth-integrated, finite element, hydrodynamic circulation code for ocean shelves, coasts, and estuaries. The computational mesh used for the first two studies was the S08 mesh which includes 600,331 elements and 314,442 nodes. Node spacing in the S08 mesh varies from around 50 miles in open ocean areas to 330 feet in the New Orleans area. The most recent ADCIRC analysis, IPET, used a more detailed mesh identified as TF01.

The general conclusion of the three ADCIRC modeling studies is that the impact of the long, southeast-trending section of the MRGO on storm surge propagation into the New Orleans vicinity is very small. Thus, complete filling of the MRGO—or blockage or partial filling—will not provide significant *immediate, direct* mitigation of severe storm surge. The principal factor given for this result is that the added flow area provided by the MRGO is small compared to the expanse of flow area provided by the adjacent

estuaries and marshes during large surge events. Thus, the most noticeable impact occurs for small surge events where propagation over the marsh areas is not a factor.

Additional ADCIRC surge modeling is being conducted for the ongoing Federal Emergency Management Agency (FEMA) map modernization program. This will delineate surge elevations in the study area for flood insurance purposes.

Excerpts of the conclusions of each of the completed surge modeling studies are provided in Exhibit 1 of this report.

**3. Salinity modeling** - The MRGO is known to have had significant salinity impacts to Lake Pontchartrain and Lake Borgne starting in 1963 during initial construction through completion in 1968 and continuing to the present. TABS Multi Dimensional (TABS-MD) modeling studies at the USACE Engineer Research and Development Center (ERDC) have investigated the salinity impacts of the MRGO and various salinity management schemes such as freshwater diversions and salinity control structures. The models utilize a three dimensional code and apply tide, wind, and freshwater inflows representing the simulation periods. Three studies were reviewed for this report as follows:

- Salinity Changes in Pontchartrain Basin Estuary Resulting from Bonnet Carré Freshwater Diversion (ERDC/CHL TR-97-02), William McAnally, R.C. Berger, February 1997.
- Salinity Changes in Pontchartrain Basin Estuary, Louisiana, Resulting from Mississippi River-Gulf Outlet Partial Closure Plans with Width Reduction (ERDC/CHL TR-02-12), J. N. Tate, A. R. Carrillo, R. C. Berger, August 2002.
- Louisiana Coastal Area 3-D Hydrodynamic and Salinity Modeling, Jennifer N. Tate, S. Keith Martin, and Tate O. McAlpin, August 2006 Draft.

The February 1997 salinity modeling study considered the effects of freshwater diversions from the Mississippi River to Lake Pontchartrain by way of the Bonnet Carré spillway near New Orleans. Four conditions were modeled for April through August of a typical year:

- Base condition with no freshwater diversion.
- Diversions up to 20,000 cubic feet/second (cfs).
- Diversions up to 8,500 cfs.
- No diversions, but with the connections between the MRGO and Lake Borgne closed.

Some paraphrased conclusions:

- The estuary salinity profile responds very slowly to changes in freshwater inflow to Lake Pontchartrain.
- The MRGO is a significant contributor to salinity via connections to Lake Borgne.
- A Bonnet Carré discharge capacity of 30,000 cfs is required to achieve the desired salinity of 6 parts per thousand (ppt) in the Biloxi Marshes.
- Diversions to 20,000 cfs reduced salinities up to 4.2 ppt.

- Diversions up to 8,500 cfs reduced salinities up to 3.4 ppt.
- Closure of Lake Borgne-MRGO connections reduced salinities by up to about 2 ppt.
- It may be possible to approach target salinities by combining control of the MRGO salinity with freshwater diversions at reduced rates.

The August 2002 salinity modeling study considered the effects of three different combined depth and width reductions on the MRGO at La Loutre ridge as follows:

- Base condition with no constriction.
- Constricted to 20-ft depth and 200-ft width.
- Constricted to 16-ft depth and 160-ft width.
- Constricted to 12-ft depth and 125-ft width.
- Complete closure at La Loutre (from earlier 2001 study).

The combined depth and width reductions were more successful in reducing salinity than depth reductions alone. (Depth reductions were considered in an earlier 2001 study.) The narrowest reductions accomplished over half the effects of complete closure. The reductions also resulted in higher current velocities at the constriction that could negatively impact navigation. Extreme current velocities would occur through the constriction for occasional events driven by strong winds.

The final salinity modeling analysis reviewed for this synopsis (Tate, Martin, and McAlpin) was only available as a draft report. The modeling characterizes the salinity regime within the study area for a low, normal, and high runoff year from the local tributaries. The salinity results are described for four modeled years: 1983, 1985, 1996, and 2000.

On average the low flow years show higher salinities in Lake Pontchartrain than the high flow years due to less fresh water entering the system. Most of the monthly averages show variations of 6 - 10 ppt in the salinity in Lake Pontchartrain between the high flow year (2 - 4 ppt) and the low flow year (10 - 12 ppt). The 32 ppt contour tends to shift gulfward as the flow increases. When compared to freshwater flow into the system, the overall salinity variation is typical in that with less freshwater inflow the salinity of the system increases.

Excerpts of the conclusions of all three of the salinity modeling studies are provided in Exhibit 2 of this report.

**4. Bank/shoreline stability** - The MRGO is a confined, deep-draft navigation channel, so its banks can be impacted by wave attack from vessels moving with speed through the channel. The following study analyzing vessel effects was reviewed for this report:

*Mississippi River Gulf Outlet (MRGO) Hydraulic Engineering Study of Channel Bank and Shoreline Response to Deep Draft and Container Barge Traffic; Technical Memorandum, Vladimir Shepsis, Coast & Harbor Engineering for Louisiana Department of Natural Resources, August 26, 2005.*

The report presents modeling results of vessel effects on wave generation and bank erosion using proprietary models developed by Coast and Harbor Engineering. Model alternatives included a base condition of a fully loaded vessel traveling at 10 knots, and two alternative conditions where the same vessel is light loaded traveling at 10 knots and fully loaded traveling at 5 knots. The analysis showed that vessel speed was the predominant factor in wave generation and bank erosion. The report recommends that limiting velocities be determined for successive reaches along the entire channel as a method of reducing bank erosion.

**Exhibit 1**  
**ADvanced CIRCulation (ADCIRC)**  
**Storm Surge Modeling Studies**

# 1.1 - Numerical Modeling of Storm Surge Effect of MRGO Closure for MRGO Reevaluation Study (EPA Sponsored), Westerink and Luettich Consulting, May 2004.

(Slide Presentation, October 2003)

Numerical Modeling of Storm Surge Effect of MRGO Closure

**Summary**

An examination of the effect of a closure of the MRGO on storm surge elevations was conducted using the ADCIRC model. Nine scenarios consisting of combinations of slow, medium, fast forward speeds with weak, moderate, and strong intensities were run twice with identical input parameters except for the geometry of the MRGO near the La Loutre ridge where a hypothetical closure dike was placed for one set of runs and absent for the other set of runs. Hurricane Betsy wind fields were also run twice with the same grids. The difference in maximum storm surge elevation between the paired runs for the open MRGO and the MRGO with a closure was generally small. The maximum difference between the with and without MRGO closure was 0.54 feet.

**Purpose**

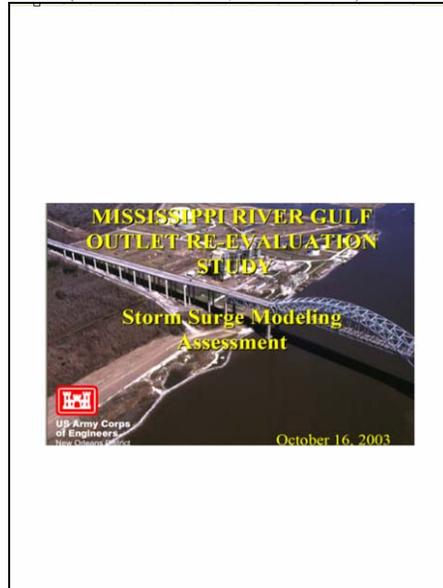
The purpose of this report is to present the results of the ADCIRC model runs made to assess the impact of the MRGO upon storm surge still water elevations. This includes a description of the model and the input parameters, a discussion of the reasons for selecting the ADCIRC model and the credentials of the independent contractor who made the model runs and the independent technical review committee.

**Model Description**

ADCIRC is an advanced circulation model specifically written for shelves, coasts and estuaries. ADCIRC is a two-dimensional depth integrated finite element based hydrodynamic circulation code. ADCIRC has the capability of modeling very large domains. The domain modeled in this study was all of the waters of the North Atlantic west of 60 West longitude including all of the Caribbean Sea and the Gulf of Mexico. The finite element grid allows for coarse resolution in open waters far from the area of interest and for finer grid resolution in the study area. The finite element grid allows for the model boundary to accurately follow the coast line and for narrow channels to be realistically incorporated into the grid.

ADCIRC has an efficient solution scheme that allows for very large domains. It is a very computationally intensive computer code. For the 600,000 plus element ADCIRC-NO grid used in this study being run on 128 processors on the Cray T3E, one day of simulation requires 2.1 hours of computer time. Thus, a simulation of 28 days, including tidal spin up, takes over 54 hours of computer time.

The details of the numerical scheme used in the ADCIRC model along with accuracy testing are provided in a series of reports and papers (Luettich et al., 1991b, 1994; Kolar et al., 1994a, 1994b, 1996; Westerink et al. 1992c, 1994b).



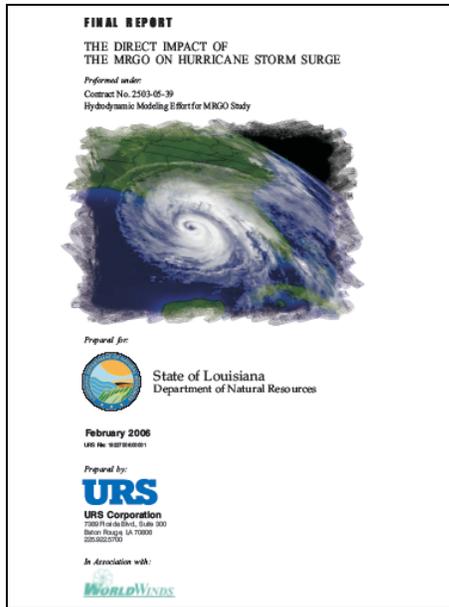
## Excerpts:

**Page 1: Summary** - An examination of the effect of a closure of the MRGO on storm surge elevations was conducted using the ADvanced CIRCulation (ADCIRC) model. Nine scenarios consisting of combinations of slow, medium, fast forward speeds with weak, moderate, and strong intensities were run twice with identical input parameters except for the geometry of the MRGO near the La Loutre ridge where a hypothetical closure dike was placed for one set of runs and absent for the other set of runs. Hurricane Betsy wind fields were also run twice with the same grids. The difference in maximum storm surge elevation between the paired runs for the open MRGO and the MRGO with a closure dike at La Loutre Ridge was generally small. The maximum difference between the with- and without-closure was 0.54 feet.

**Page 37: Conclusions** - The ADCIRC model was used to test the influence of the MRGO upon storm surge in the areas outside of the federal protection levees. Several storm scenarios were run twice with identical runs except for a closed MRGO for one run and an open MRGO for the other run. Except for the changed geometry, all other factors were the same for the two runs, i.e. same wind forcing, same input files, and same computer configuration, etc. Of the storm scenarios tested, the largest difference between the open and closed MRGO runs was 0.54 feet, which occurred in a small area near the hypothetical closure at the La Loutre ridge. The conclusion of this report has to be that the MRGO has a minimal influence upon storm surge propagation

## 1.2 - The Direct Impact of the Mississippi River Gulf Outlet on Hurricane Storm Surge

URS for Louisiana Department of Natural Resources, Feb 2006, Used S08 mesh. Tested closure barrier at Bayou La Loutre ridge and also with entire channel filled to +1 MSL.



### Excerpts:

#### Page ES-2: Major Conclusions -

- The MRGO channel does not contribute significantly to peak surge during severe storms, when the conveyance of surge is dominated by flow across the entire surface of the coastal lakes and marsh. Nor does the channel contribute significantly to wave run-up.
- Complete filling of the MRGO—or blockage or partial filling—will not provide significant *immediate, direct* mitigation of severe storm surge.
- For a few locations outside the Hurricane Protection System closure of the MRGO may reduce the peak surge for certain fast-moving, low-to-moderate storms, when the surge is not dominated by flow across the open lakes and marsh, and may modestly delay the onset of surge.

### 1.3 - IPET Volume IV and Appendix 6

Performance Evaluation of the New Orleans and Southeast Louisiana Hurricane Protection System, Interagency Performance Evaluation Task Force, Final Report, Volume IV, 26 March 2007 and Appendix 6 - Westerink, Ebersole, Winer; February 21, 2006.

#### **Excerpts:**

(MRGO/Reach 2 = from GIWW/MRGO confluence to the southeast)

**IPET Volume IV: Page 136** - Most concern seems to be focused on MRGO/Reach 2 that runs from the GIWW/MRGO confluence, just east of the Paris Road bridge, to the southeast (see Figure 93). Three previous studies have been performed to examine the influence of MRGO/Reach 2 on storm surge in New Orleans and vicinity (two initiated by the U.S. Army Corps of Engineers and one commissioned by the Louisiana Department of Natural Resources), in addition to work performed to examine this issue as part of the IPET study. All studies have reached the same conclusion. The change in storm surge induced by MRGO/Reach 2 (computed as a percentage of the peak surge magnitude) is greatest when the amplitude of the storm surge is low, on the order of 4 ft or less. In these situations, changes induced by the MRGO in the metropolitan New Orleans area are rather small in terms of absolute water surface elevation changes, 0.6 ft or less in all cases and less than 0.3 ft in most cases, but this amount can be as much as 25 percent of the peak surge amplitude when the amplitude is low. When the long wave amplitude is very low, the surge is more limited to propagation via the channels, and the MRGO has its greatest influence. Once the surge amplitude increases to the point where the wetlands become inundated, this section of the MRGO plays a diminishing role in influencing the amplitude of storm surge that reaches the IHNC. For storm surges of a magnitude produced by Hurricanes Betsy and Katrina which overwhelmed the wetland system, the influence of MRGO/Reach 2 on storm surge propagation is quite small. For Katrina the influence was only a few tenths of a foot at most in the IHNC and GIWW/MRGO in terms of absolute water surface elevation changes. These small changes represent only a few percent of the surge amplitude. When the expansive wetland is inundated, the storm surge propagates primarily through the water column over this much larger flooded area, and the channels become a much smaller contributor to water conveyance. For large surge-producing storm events, construction of the MRGO channel has little influence on water levels in the metropolitan New Orleans vicinity, and in the IHNC.

**Appendix 6: Page 5** - We have simulated Hurricane Katrina both with the MRGO/Reach 2 in place as well as with the MRGO/Reach 2 filled to surrounding bathymetric and topographic levels. The hydrodynamic computations were performed with the TF01 ADCIRC model of Southern Louisiana which is a refinement of the earlier S08 model with added details and resolution for the coastal floodplains of the north shore of Lake Pontchartrain, Mississippi and Alabama (Interagency Performance Evaluation Task Force, 2006).

**Appendix 6: Pages 5 & 6** - The simulation without the MRGO/Reach 2 results in very similar water levels in most of the domain for the Katrina event. Differences in the maximum Katrina event water levels with and without the MRGO in place are shown in Figures 4a and 4b. Notable differences with the MRGO Reach 2 channel in place are as follows: there is a reduction of water level of up to 0.2 ft at the entrance to the MRGO's inland cut; there is an increase of 0.3 to 0.4 ft in the marshes west of the MRGO in the region delineated by Pointe a la Hache, Carlisle, Stella, Caernarvon and Verret; a maximum increase of approximately 1.1 ft locally east of English Turn; in Lake Borgne along the MRGO there is a 0.1 to 0.2 ft increase; there is a 0.1 to 0.2 ft decrease along the St. Bernard Parish/Chalmette protection levee; and finally there is a 0.1 to 0.2 ft increase in a portion of the GIWW/MRGO/Reach 1. In all other regions, including in the IHNC, differences are less than 0.1 ft. In addition, the New Orleans and vicinity protection system is not impacted more than 0.2 ft. These results coincide with those from the earlier studies.

**Appendix 6: Page 6** - The reasons for the very limited influence of the MRGO/Reach 2 in the vicinity of New Orleans for strong storm events are clear. First, the MRGO does not influence the important preliminary east-west movement of water that drives the significant build up of surge in the early parts of the storm. Second, the northerly propagation of surge during the later stages of the storm are only minimally influenced by the MRGO because the increased hydraulic conveyance associated with the channel is very limited for large storms due to the large surge magnitude and especially due to the very large lateral extent of the high waters on the Mississippi-Alabama shelf that build up early on from the east. In addition, the propagation direction of this surge wave does not typically align with the MRGO and furthermore the southeasterly winds which align with the MRGO occur only very briefly.

The fact that all studies show a larger proportional influence of the presence of the MRGO/Reach 2 for low intensity (low peak surge magnitude) events is related to the fact that the proportional increase in conveyance due to Reach 2 is greater when the surge is small and the water levels in Breton Sound and Lake Borgne are generally low. This also explains why we see a more rapid drop in post-storm Lake Pontchartrain levels for large-scale events with the MRGO in place. Waters typically withdraw relatively rapidly from Breton Sound and Lake Borgne due to the direct connection to open waters. The total combined conveyance of the Rigolets, Chef Menteur Pass and the IHNC/GIWW/MRGO system is increased with the MRGO in place under the lower post-storm levels on the Mississippi-Alabama shelf.

**Exhibit 2**  
**Salinity Modeling Studies**

## 2.1 Salinity Changes in Pontchartrain Basin Estuary Resulting from Bonnet Carré Freshwater Diversion

(ERDC/CHL TR-97-02), William McAnally, R.C. Berger, February 1997.



### Excerpts:

**Page viii** - Numerical model experiments were performed to predict salinity changes that will occur in the Lake Pontchartrain basin estuary, Louisiana and Mississippi, as a result of proposed Mississippi River freshwater diversions through the Bonnet Carré Spillway near New Orleans. One purpose of the diversion is to reduce salinities in the Biloxi Marshes by 2 to 8 parts per thousand (ppt) in order to improve oyster productivity. A range of monthly salinities has been identified as the desired product of the project. Those salinities, called the Chatry salinities in this report, consist of a narrow band of “optimum” salinities and a somewhat wider band of “range limits.”

### Page 38 -

(CTH = Committee on Tidal Hydraulics)

- e. These results support the CTH suggestion that the Lake Borgne-MRGO connections make a major contribution to salinity of the basin. Totally closing them generated salinity reductions of about 2 ppt near Line 2, so some fraction of that reduction is probably attainable by applying some more limited measure of control to those outlets. Such a control could, in combination with Bonnet Carré diversions lower than those proposed in the original design, achieve or approach target salinities at or near Line 2. Control of the connections could range from rock or pile structures to simpler measures such as creation of dredged material sills and dams that are periodically replenished. Since the connections were represented schematically in the model, they should be evaluated in a revised model before a firm decision is made.

Diversion (MBPJ = Bonnet Carré scheme of 8,500 cfs in March and April and 2,000 cfs in November)

- f. Other salinity reducing measures suggested by the CTH could be used in combination with Bonnet Carré diversions on the order of MBPJ and Lake Borgne connections control to achieve target salinities, including the following:

- (1) Closing the IHNC at Seabrook or the MRGO south of Lake Borgne.
- (2) Constructing a jetty and sill in Lake Pontchartrain at the end of the IHNC to trap higher salinity intrusions during periods of stratification.
- (3) Artificial destratification of the MRGO by water or bubble curtains.
- (4) Supplemental freshwater diversions into the IHNC-MRGO via or adjacent to the Mississippi River lock.

## 2.2 Salinity Changes in Pontchartrain Basin Estuary, Louisiana, Resulting from Mississippi River-Gulf Outlet Partial Closure Plans with Width Reduction

(ERDC/CHL TR-02-12), J. N. Tate, A. R. Carrillo, R. C. Berger, Thibodeaux, B.J., August 2002.



### Excerpts:

**Page 6** - Monthly summaries of salinity for pre- and post-MRGO indicate that salinity has increased on the average by the following amounts:

- 1.1 ppt at Lake Pontchartrain, North Shore.
- 1.9 ppt at Lake Pontchartrain, Little Woods.
- 0.4 ppt at Pass Manchac near Ponchatoula.
- 2.3 ppt at Chef Menteur Pass near Lake Borgne.
- 4.5 ppt at Bayou La Loutre, Alluvial City.

**Results and Discussion** - The purpose of this investigation was to determine the effect of the combined depth and width closures of MRGO on salinities in Lake Pontchartrain, Lake Borgne, and Biloxi Marsh.

Tables 4-7 give the values for specific station locations (approximate). The spring months are representative of the low salinity period and the autumn months, the high salinity period. The complete closure results from the prior study are included in this report as well to make comparisons easier.

<b>Table 4 April Monthly Average Salinity (ppt) Changes</b>					
<b>Location</b>	<b>Base</b>	<b>200 ft by 20 ft</b>	<b>160 ft by -16 ft</b>	<b>125 ft by -12 ft</b>	<b>Closure</b>
Alluvial City	16.5	-1.8	-3.1	-3.9	-6.0
Chef Pass	8.4	-0.7	-1.1	-1.3	-1.7
Fenier	4.6	-0.2	-0.4	-0.4	-0.6
Little Woods	5.9	-0.8	-1.2	-1.4	-1.6
Martello Castle	15.1	-2.5	-3.9	-4.8	-6.6
North Shore	5.4	-0.5	-0.7	-0.8	-0.9
Pass Manchac	0.7	-0.1	-0.1	-0.1	-0.1
Pointe Aux Marchettes	13.9	0.1	-0.1	-0.2	-0.5

<b>Table 5 May Monthly Average Salinity (ppt) Changes</b>					
<b>Location</b>	<b>Base</b>	<b>200 ft by 20 ft</b>	<b>160 ft by -16 ft</b>	<b>125 ft by -12 ft</b>	<b>Closure</b>
Alluvial City	16.1	-1.6	-2.7	-3.5	-5.7
Chef Pass	8.9	-0.8	-1.3	-1.6	-2.2
Fenier	4.7	-0.3	-0.5	-0.6	-0.8
Little Woods	6.2	-1.0	-1.5	-1.7	-2.1
Martello Castle	15.1	-2.2	-3.5	-4.4	-6.6
North Shore	5.7	-0.6	-0.9	-1.0	-1.2
Pass Manchac	0.6	-0.1	-0.1	-0.1	-0.1
Pointe Aux Marchettes	14.3	0.0	-0.2	-0.3	-0.8

<b>Table 6 September Monthly Average Salinity (ppt) Changes</b>					
<b>Location</b>	<b>Base</b>	<b>200 ft by 20 ft</b>	<b>160 ft by -16 ft</b>	<b>125 ft by -12 ft</b>	<b>Closure</b>
Alluvial City	17.9	-1.9	-2.9	-3.5	-5.1
Chef Pass	10.5	-0.6	-0.9	-1.1	-1.6
Fenier	4.9	-0.6	-0.8	-1.0	-1.3
Little Woods	7.1	-1.0	-1.5	-1.8	-2.3
Martello Castle	16.7	-2.2	-3.3	-3.9	-5.4
North Shore	6.9	-0.5	-0.8	-1.0	-1.3
Pass Manchac	1.0	-0.1	-0.2	-0.2	-0.9
Pointe Aux Marchettes	15.8	-0.1	-0.2	-0.4	-0.8

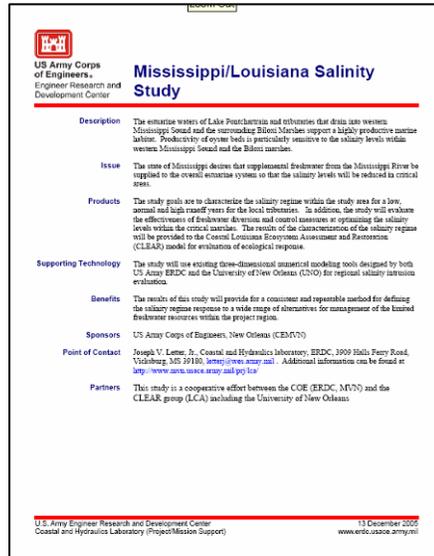
<b>Table 7 October Monthly Average Salinity (ppt) Changes</b>					
<b>Location</b>	<b>Base</b>	<b>200 ft by 20 ft</b>	<b>160 ft by -16 ft</b>	<b>125 ft by -12 ft</b>	<b>Closure</b>
Alluvial City	20.2	-2.3	-3.6	-4.4	-6.6
Chef Pass	11.7	-0.7	-1.1	-1.3	-1.9
Fenier	5.4	-0.7	-1.0	-1.2	-1.6
Little Woods	8.1	-1.4	-2.0	-2.4	-3.1
Martello Castle	19.3	-2.7	-4.2	-5.1	-7.2
North Shore	7.4	-0.6	-0.9	-1.0	-1.4
Pass Manchac	1.1	-0.2	-0.2	-0.3	-0.4
Pointe Aux Marchettes	17.3	-0.1	-0.3	-0.5	-1.1

**Page 20: Conclusions** - This investigation is concerned with various combinations of depth and width reduction of the MRGO channel from the Gulf of Mexico to the city of New Orleans. Historical records indicate that when the channel was built, the salinity in Lake Pontchartrain and Lake Borgne increased. A previous study concluded that the effects of depth reduction alone along the La Loutre Ridge in the MRGO were

insignificant in the reduction of the salinity in Lake Borgne and Lake Pontchartrain. This numerical model study used a sill along the same ridge near the connection of the MRGO to the Gulf of Mexico with an elevation of -20 ft mlw for a contraction width of 200 ft, -16 ft mlw for a 160-ft contraction, and -12 ft mlw for a 125-ft contraction. The study is intended to investigate the restoration of the historical salinity regime. The study includes the base condition of a fully open channel and the completely closed MRGO channel.

The salinity reduction in Lake Pontchartrain and Lake Borgne with the partial depth and width closure was much greater than that for the previous study of depth reduction alone. All of the closure plans reduced the salinities in the region and two of the three partial closure plans averaged salinity reductions that exceeded half of the complete closure reduction. The velocities in the contraction region did increase from the base plan. High wind events can cause large velocities in the MRGO contraction.

## 2.3 Louisiana Coastal Area 3-D Hydrodynamic and Salinity Modeling (Report in draft phase), Cooperative effort between ERDC, MVN, and the CLEAR group (LCA) including the University of New Orleans; August 2006 Draft.



### Excerpts:

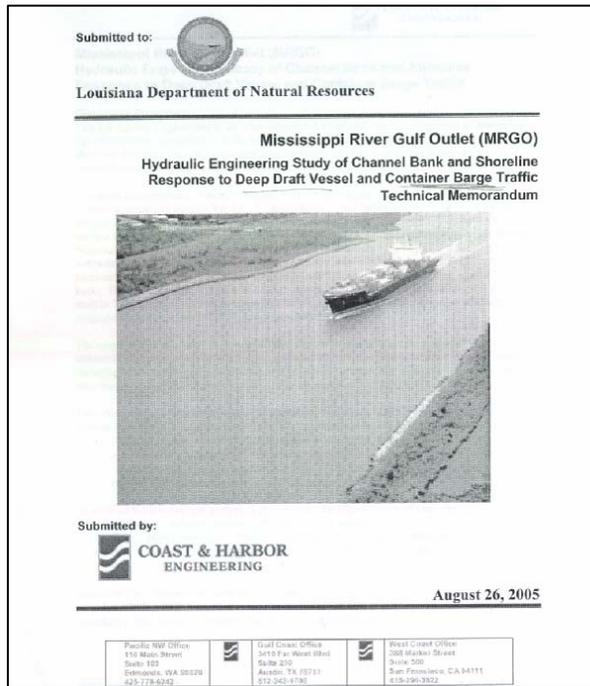
**Products** – The study goals are to characterize the salinity regime within the study area for a low, normal and high runoff year for the local tributaries. In addition the study will evaluate the effectiveness of freshwater diversion and control measures at optimizing the salinity levels within the critical marshes. The results of the characterizations of the salinity regime will be provided to the Coastal Louisiana Ecosystem Assessment and Restoration (CLEAR) model for evaluation of ecological response.

**Conclusions** - On average, the low flow years show higher salinities in Lake Pontchartrain than the high flow years due to less fresh water entering the system. Most of the monthly averages show variations of 6-10 ppt in the salinity in Lake Pontchartrain between the high flow year (2-4 ppt) and the low flow year (10-12 ppt). The 32 ppt contour tends to shift gulfward as the flow increases. The overall salinity variation when compared to freshwater flow into the system is typical in that with less freshwater inflow, the salinity of the system increases.

**Exhibit 3**  
**Channel Bank and Shoreline Erosion Modeling Studies**

### 3.1 Mississippi River Gulf Outlet (MRGO) Hydraulic Engineering Study of Channel Bank and Shoreline Response to Deep Draft and Container Barge Traffic

Technical Memorandum, Coast & Harbor Engineering for Louisiana Department of Natural Resources, August 26, 2005.



#### Excerpts:

**Executive Summary** – The study was conducted through simulation of the hydrodynamic effects using the advanced numerical computer models VH-LU (2-Dimensional vessel hydrodynamic long wave unsteady model) and VH-PU (3-Dimensional vessel hydrodynamic prop wash unsteady model).

Numerical modeling was conducted for observed conditions using a deep-draft container ship with a fully-loaded draft of 32 feet and cruising speed of 10 knots.

Results of the combined pressure field and bed erosion modeling showed that by reducing vessel draft from 32 feet to 24 feet, the pressure field erosion is reduced approximately 30%. This reduction is insufficient to prevent channel bottom and banks from scouring.

Results of the modeling have demonstrated that by reducing speed of the fully loaded deep-draft vessel from 10 knots to 5 knots, the pressure field erosion is reduced by more than 90%. This reduction results in almost no erosion of the channel banks.

Based on the results of the numerical modeling, the study has concluded that the most promising approach to reduce vessel impacts on the MRGO shoreline and bank erosion

would be to control vessel speeds in the channel to the level of below impact. This speed is preliminarily estimated at 5 knots for deep-draft vessels. However, it is likely that some areas of the channel may allow a higher vessel speed with no impact on the shoreline.

## APPENDIX E

### **Real Estate**

## REAL ESTATE APPENDIX

**Purpose:** The purpose of this study is to identify a comprehensive plan for de-authorizing deep-draft navigation on the Mississippi River-Gulf Outlet (MRGO) from the Gulf Intracoastal Waterway (GIWW) to the Gulf of Mexico as authorized in Public Law 109-234, the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006. This real estate appendix presents a preliminary plan for acquisition of lands, easements and rights-of-way necessary for construction of the closure structure and disposal of real estate interests acquired for the MRGO which are no longer needed.

**Project Sponsor:** The acquisition of LERRDs for the closure and access to the closure will be performed by a non-Federal sponsor. All cultural, environmental and HTRW clearances will be completed prior to acquisition.

**General Project Description:** The project is located in southeast Louisiana. The MRGO is a 76 mile channel that was constructed to provide a shorter route to the Gulf of Mexico from the Inner Harbor Canal and the Gulf Intracoastal Waterway. Construction of the MRGO began in 1958 and was completed in 1968. The Board of Commissioners of the Port of New Orleans was the entity that acquired the majority of the real estate rights for construction, operation, and maintenance of the original project. The Port in turn conveyed the rights to the United States of America. Some real estate rights were acquired directly by the United States. The real property interest acquired for the MRGO consisted of perpetual disposal easements and perpetual channel easements. A number of the perpetual disposal easements contained the right of revocation by notice of the landowner.

The Recommended Plan includes the total closure of the MRGO at Bayou LaLoutre. Construction of the closure structure will be at 100% federal expense (except real estate). This plan would end Federal operation and maintenance of the navigation channel; therefore, operation and maintenance of the closure structure will be performed by a non-federal entity at 100% non-federal expense. The Congressional direction to prepare a de-authorization plan for the MRGO also requires that the plan be fully consistent and integrated with the LACPR plan.

**Real Estate Interests:** The MRGO closure structure will be constructed over an area encumbered by a perpetual channel easement and a perpetual disposal easement in the name of the U.S. In order to construct the closure, this area will need to be acquired in Fee, Excluding Minerals (With Restriction on Use of the Surface); this is a standard estate. It is estimated that this acquisition for the closure structure will impact one to two ownerships.

As long as the channel remains a navigable waterway, public access should be freely available. As such, there would be no need for the non-Federal sponsor to acquire access rights over the channel. If, however, the canal becomes non-navigable, the non-Federal

sponsor would need to subsequently acquire the following estate over approximately 100 ownerships:

PERPETUAL ACCESS EASEMENT/SERVITUDE (adapted from the standard "Road Easement" estate in EC 405-1-11)

A perpetual non-exclusive easement and right-of-way in, on, over and across the land described as Tracts No(s) \_\_\_\_\_ for use by the \_\_\_\_\_ [non-federal sponsor], its representatives, assigns, agents, and contractors for access, together with the right to remove therefrom all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

It is assumed approval of this report constitutes approval of this non-standard estate.

If available, the navigation servitude will be asserted. All acquisition of private property for this project will be done in accordance with the provisions of Public Law 91-646, as amended. The cost of the acquisition will be minimal given that the underlying landowners hold very few remaining rights. All areas impacted by construction of the project are vacant; the project will not displace any persons, businesses or farms. At this time no facility relocations have been identified. Because the closure will be a rock closure, there is no need to acquire real estate interests for borrow. There are no oyster leases in the immediate area of the project. Estimated cost of acquiring fee interests (excluding minerals) for the closure over existing channel and disposal areas is \$21,000 based on October 2006 price levels. Additionally, if it becomes necessary for the non-Federal sponsor to acquire a perpetual access easement, the estimated cost for acquisition is \$1,255,000, bringing the total estimated acquisition cost to \$1,276,000 based on October 2006 price levels.

Since the original channel and disposal easements were specific to project purpose and intent as acquired for the MRGO deep-draft navigation project, these rights may not be utilized by the non-Federal sponsor. Therefore, with pending de-authorization of the original project, the United States will release the existing disposal and channel easements, including appurtenances. If consistent with State law, the District proposes a unilateral release to be accomplished in accordance with all applicable laws and regulations. The estimated administrative cost of disposing of the existing disposal and channel easements is \$125,000 based on October 2006 price levels.

**Landowner Attitude:** Landowners are in favor of the project.

**Environmental Issues:** Environmental studies are being conducted. No HTRW contamination is suspected.

## APPENDIX F

### **Fish and Wildlife Coordination Act Report**



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

646 Cajundome Blvd.  
Suite 400  
Lafayette, Louisiana 70506

September 27, 2007

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

Dear Colonel Lee:

Enclosed is the Final Fish and Wildlife Coordination Act Report on the Mississippi River-Gulf Outlet, Louisiana Deep Draft De-authorization Study. Copies of this report have been provided to the National Marine Fisheries Service and the Louisiana Department of Wildlife and Fisheries for their records. Their previous comments have been incorporated into the final report. This report is transmitted pursuant the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and constitutes the final report of the Secretary of the Interior required by Section 2(b) of that Act.

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

Sincerely,

James F. Boggs  
Acting Supervisor  
Louisiana Field Office

cc: LA Dept. of Wildlife and Fisheries, Baton Rouge, LA  
LA Dept. of Natural Resources (CRD & CMD), Baton Rouge, LA  
National Marine Fisheries Service, Baton Rouge, LA  
Fish and Wildlife Service, Atlanta, GA (AES)  
Environmental Protection Agency, Dallas, Tx  
Natural Resources Conservation Service, Alexandria, LA

**MISSISSIPPI RIVER-GULF OUTLET,  
LOUISIANA  
DEEP-DRAFT DE-AUTHORIZATION**

**FISH AND WILDLIFE COORDINATION ACT REPORT**



**U.S. FISH AND WILDLIFE SERVICE**

**ECOLOGICAL SERVICES**

**LAFAYETTE, LOUISIANA**

**SEPTEMBER 2007**

**MISSISSIPPI RIVER-GULF OUTLET,  
LOUISIANA  
DEEP DRAFT DE-AUTHORIZATION**

**FISH AND WILDLIFE COORDINATION ACT REPORT**

**SUBMITTED TO**

**NEW ORLEANS DISTRICT**

**U.S. ARMY CORPS OF ENGINEERS**

**NEW ORLEANS, LOUISIANA**

**PREPARED BY**

**CATHERINE BREAU, FISH AND WILDLIFE BIOLOGIST**

**U.S. FISH AND WILDLIFE SERVICE**

**ECOLOGICAL SERVICES**

**LAFAYETTE, LOUISIANA**

**SEPTEMBER 2007**

## EXECUTIVE SUMMARY

The U.S. Fish and Wildlife Service has prepared a Fish and Wildlife Coordination Act Report on the New Orleans District, U.S. Army Corps of Engineers' (USACE) Mississippi River-Gulf Outlet, Louisiana Deep Draft De-authorization Plan. The USACE is developing this plan as directed by the Congress in Public Law 109-234, the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006. The objective is to develop a comprehensive plan for de-authorizing deep-draft navigation on the MRGO from the Gulf Intracoastal Waterway to the Gulf of Mexico. The Service has coordinating with National Marine Fisheries (NMFS) and Louisiana Department of Wildlife and Fisheries (LDWF). Their comments are incorporated into this document. Enclosed (see Appendix A) is the LDWF comment letter to the USACE in regards to this project. The Service supports and agrees with all aspects of the LDWF comments and recommendations regarding monitoring. This Final Fish and Wildlife Coordination Act Report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The 76-mile long MRGO is located south and east of New Orleans. The channel begins 9.4 miles out in the Gulf of Mexico where it is authorized to a depth of 38 feet and a bottom width of 600 feet. These dimensions extend from mile -9.4 to mile 0 (bar channel). The authorized dimensions for the remaining 66 miles of the MRGO are a depth of 36 feet and a bottom width of 500 feet. From mile 0 to mile 23, it extends through the shallow waters of Breton Sound. This section of the MRGO is often referred to as the Sound Reach. From mile 23 to mile 60, the MRGO extends further to the north and west, through coastal wetlands. This section of the MRGO is often referred to as the Inland Reach. At mile 60 the MRGO connects with the GIWW, and the two run contiguously westward for six miles to the Inner Harbor Navigation Canal (IHNC), also called the Industrial Canal, in New Orleans. This section of the MRGO is often referred to as the GIWW Reach.

Nine alternatives for closing the MRGO to deep-draft navigation were evaluated. Some alternatives looked at maintaining shallow-draft navigation with the use of weirs or gates at Bayou La Loutre. Other alternatives looked at varying ways for complete closure including a total closure structure across the MRGO at Bayou La Loutre, a phased version of the total closure structure across the MRGO at Bayou La Loutre, restoring both banks of Bayou La Loutre across the MRGO, and filling in the entire channel. The final alternative looked at discontinuing all MRGO operations and maintenance activities.

The Tentatively Selected Plan (TSP) is to construct a total closure structure across the MRGO at Bayou La Loutre. The MRGO channel would be de-authorized for navigation. A total closure structure would be constructed just south of Bayou La Loutre and would tie in with the southern Bayou La Loutre ridge to totally block the MRGO channel. The structure would not allow

passage of vessels traveling the length of the MRGO. No additional Federal funds would be used to maintain the MRGO between the GIWW and the Gulf of Mexico. When originally evaluated it was expected that this project would request authority to maintain existing wetland protection features along the MRGO. However since the draft LEIS and FWCA report, the TSP was redefined (see Appendix B for the Services June 19, 2007 supplemental FWCA letter) to state the existing 9.9 miles of bank stabilization features and jetties will be deauthorized, but remain in place without continued operations and maintenance. Other features of the plan will remain the same.

The TSP would have positive effects on fish and wildlife resources by restoring the salinity and circulation patterns to more historic conditions. As originally evaluated, the TSP was determined to have 2036 net AAHUs and 3503 net acres after the 50 year project life based on the WVA for closure alternative of the re-evaluation study. However, without operation and maintenance of the existing bank stabilization features and jetties, those features are expected to subside below the waterline within 10 years. The revised TSP is expected to have a net gain of 3043 acres (a decrease of 460 acres from the previous TSP) at the end of the 50-year project life.

The TSP would reduce salinity stratification in Lake Pontchartrain and alleviate some of the dead zone. Consequently, large Rangia clams and other sessile benthos would increase in size and abundance to levels similar to those throughout the lake. This would benefit fish and wildlife, as well as the Gulf Sturgeon and SAVs that are valuable to EFH, fish and waterfowl. Fish and wildlife abundance and distribution should remain approximately as it is today. Construction of a total closure structure across the MRGO at Bayou La Loutre would result in the conservation and protection of about 250 acres of marsh through minimization of vessel erosion, thereby facilitating a positive effect on to wildlife resources. The loss of future beneficial use of dredged material may cause a minor future negative impact to fish and wildlife. The reconnection of the Bayou La Loutre ridge across the MRGO will once again recreate wildlife access that historically existed for the entire ridge and marshes on both sides of the MRGO. If the MRGO is not deauthorized, the ongoing marsh loss in the basin would likely accelerate, subsequently contributing to a correlating but slight decline in benefits to fish and wildlife.

The Service does not object to the construction of the proposed project, provided that the following fish and wildlife conservation measures are implemented concurrently with project implementation:

1. The Service and NMFS should be provided an opportunity to review and submit recommendations on the draft plans and specifications on the MRGO total closure structure addressed in this report.
2. Coordination should continue with the Service and NMFS on detailed contract specifications to avoid and minimize potential impacts to manatees and Gulf sturgeon.

3. Once the MRGO is deauthorized Breton Island NWR would no longer benefit from placement of dredged material on or adjacent to the island. Many of Louisiana's barrier islands are used for nesting by brown pelicans and as wintering areas by the piping plover. As barrier islands decline, so declines those and other species' habitats.

The Service recommends the Corps either retain authority to dredge between MRGO mile 3.4 to mile -2.0 (see note), for restoration purposes only, to continue placement on or adjacent to Breton Island NWR to benefit brown pelicans, piping plovers, and other shorebirds or to seek additional funding through other environmental restoration authorities, such as Section 206, as amended to maintain Breton Island NWR for those species.

*Note:* Shoal material removed from the MRGO Mile 3.4 to Mile -2.0 Breton Sound and Bar Channel dredging reaches is placed at Breton Island for barrier island restoration purposes as part of the project Federal Standard.

4. If the proposed project has not been constructed within 1 year or if changes are made to the proposed project, the USACE should re-initiate Endangered Species Act consultation with the Service.
5. The area in and around the closure structure and key locations from the closure structure and north as far as Lake Maurepas, if possible, should be monitored to sufficiently determine the hydrologic effects of the closure and to document the changes in circulation patterns, salinity changes, and changes to the dead zone which is about 100 square miles in Lake Pontchartrain with the Industrial Canal as the focal point. The Service and NMFS should be involved in the development of a monitoring plan and in review of the data.
  - a. It should be noted that the USACE concurred with our fourth recommendation requesting monitoring of the project. However, the USACE states that concurrence would be accomplished through existing monitoring programs rather than through project specific monitoring. The Service would like to further recommend the USACE to reconsider including monitoring as part of this project even if for a short time and limited area in and around the closure structure. As an alternative the USACE could supplement an existing agencies monitoring program. For example, the Louisiana Department of Environmental Quality's quarterly samples (e.g., Bayou Dupre, IHNC, Causeway, and Rigolets) could be sample every two months for two years following the total structure closure. The gathered data would be extremely useful for addressing assumptions about the system response to the closure structure and identifying any potential adverse impacts.

6. The USACE should investigate and seek legislative approval (e.g., project specific, Continuing Authority Program Section 206, etc.) to maintain the existing 9.9 miles of bank stabilization features and jetties that provide erosion protection benefits.

- a. It should be noted that the USACE concurred with this fifth recommendation. However, the USACE states concurrence may be accomplished through investigations under other authorities. The Service encourages the USACE to reconsider modifying the TSP to include maintenance for the shoreline protection features for at least 1 more maintenance cycle, especially on the north bank of the MRGO at the MRGO/Lake Borgne interface. Even though the total closure structure will greatly reduce vessel traffic erosion, wind and small boat wave erosion are still expected to occur from both the MRGO and Lake Borgne. The shoreline protection features are beneficial to protecting the critical wetlands between the MRGO and Lake Borgne. Protecting those wetlands is not only beneficial to fish and wildlife resources of the area but the 4<sup>th</sup> supplemental Congressional mandate for the MRGO bank stabilization project are to repair, construct or provide measures or structures necessary to protect, restore or increase wetlands, to prevent saltwater intrusion or storm surge in the MRGO area. If shoreline protection features are not maintained at least until other authorities can assume the responsibility, sustainability of those critical wetlands and the protection they provide to the Greater New Orleans area would be at risk. If the stabilization features will not be maintained, then indicators to aid navigation should be installed.

Provided that the above recommendations are included in the feasibility report and related authorizing documents, the Service will support further planning and implementation of the TSP.

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## **INTRODUCTION**

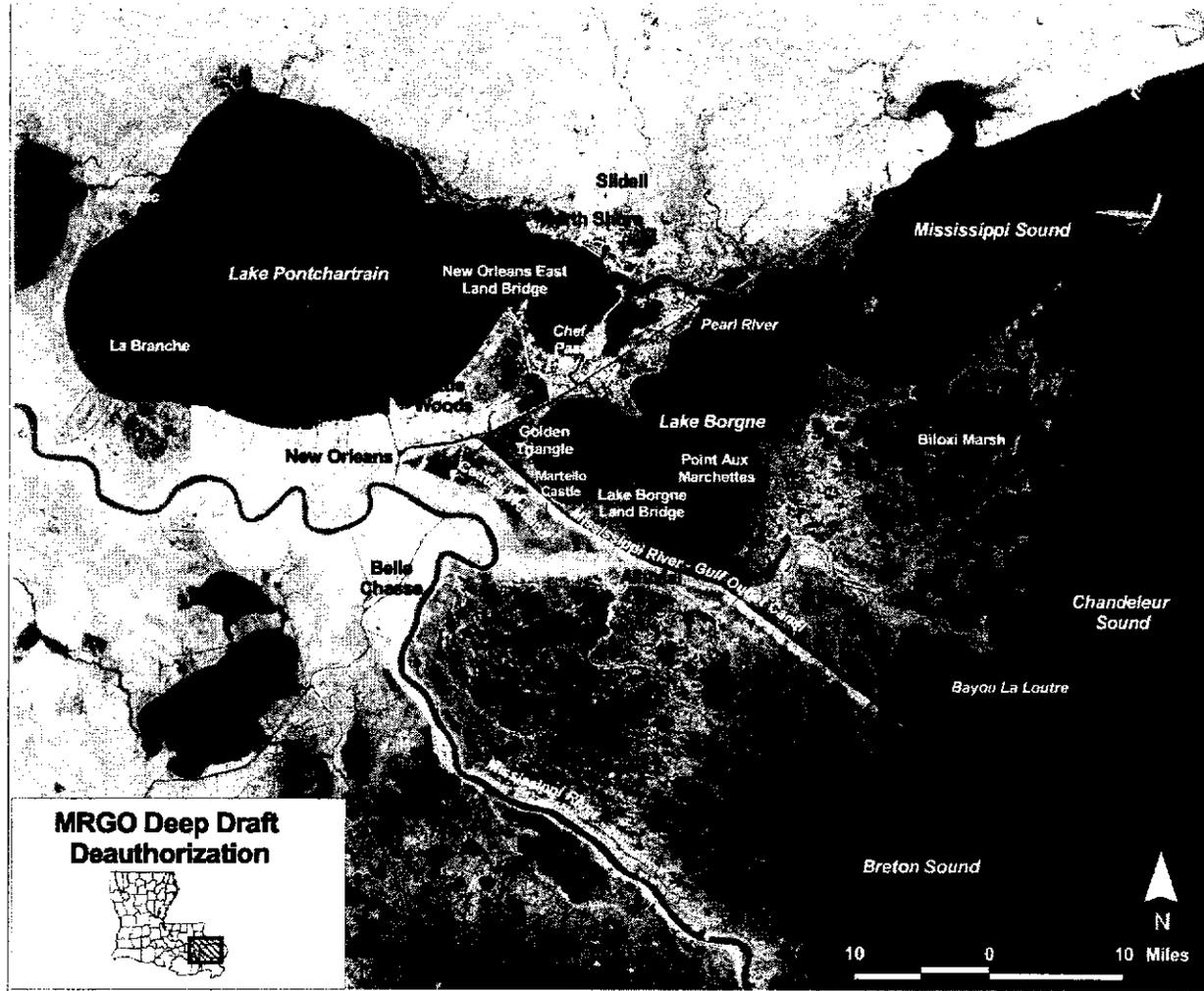
The Mississippi River-Gulf Outlet (MRGO) is a 76-mile long man-made waterway authorized by the River and Harbor Act of 1956 (P.L. 84-455) and the Water Resources Development Acts of 1976, 1986, and 1996. The channel provides for deep-draft navigation from the Gulf of Mexico to the tidewater port facilities in New Orleans, Louisiana. Construction of the deep-draft channel was initiated in 1958, opened to traffic in 1963, and enlarged to the authorized dimensions (36 feet deep and 500 feet wide) by 1968. The channel was dredged through the shallow bays, coastal marshes and cypress swamps of Plaquemines, St. Bernard and eastern Orleans Parishes, Louisiana. The U.S. Army Corps of Engineers (USACE), as directed by Congress (Public Law 109-234, the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006), is developing a comprehensive plan for de-authorizing deep-draft navigation on the MRGO from the Gulf Intracoastal Waterway (GIWW) to the Gulf of Mexico as well as other opportunities for hurricane storm damage protection and ecosystem restoration.

This report contains a description of the existing fish and wildlife resources of the project area, discusses future with- and without-project habitat conditions, identifies fish and wildlife-related impacts of the proposed project, and provides recommendations for the Tentatively Selected Plan (TSP). This document constitutes the report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

## **DESCRIPTION OF STUDY AREA**

The 76-mile long MRGO is located south and east of New Orleans (figure 1). The channel begins 9.4 miles out in the Gulf of Mexico where it is authorized to a depth of 38 feet and a bottom width of 600 feet. These dimensions extend from mile -9.4 to mile 0 (bar channel). The authorized dimensions for the remaining 66 miles of the MRGO are a depth of 36 feet and a bottom width of 500 feet. From mile 0 to mile 23, it extends through the shallow waters of Breton Sound. This section of the MRGO is often referred to as the Sound Reach. From mile 23 to mile 60, the MRGO extends further to the north and west, through coastal wetlands. This section of the MRGO is often referred to as the Inland Reach. At mile 60 the MRGO connects with the GIWW, and the two run contiguously westward for six miles to the Inner Harbor Navigation Canal (IHNC), also called the Industrial Canal, in New Orleans. This section of the MRGO is often referred to as the GIWW Reach.

**Figure 1. The Project Area for the Mississippi River Gulf Outlet Deep Draft Deauthorization.**



## **FISH AND WILDLIFE RESOURCES**

### **Description of Habitats**

The MRGO traverses wetlands and marshes in Plaquemines, St. Bernard and eastern Orleans Parishes. Construction of the channel has altered circulation patterns along its length between Breton Sound and Lake Borgne, resulting in steep increases in salinity along its route. Prior to construction of the MRGO channel, the Bayou La Loutre ridge provided a basin hydrologic boundary that limited the flow of saline water from the Breton Sound into Lake Borgne.

Previously, tidal flow into Lake Borgne was dominated by flow from the Mississippi Sound. After MRGO construction the dominant tidal flow into Lake Borgne switched to Breton Sound. The MRGO is a deep channel that provides a more direct flow of more saline, higher density water inland and allows any freshwater surpluses to exit at low tide and be replaced by the inflow of more saline water at high tide. In addition, spoil from dredging the MRGO channel was deposited in a continuous strip along the channel's southwestern side, interrupting the circulation patterns of the natural waterways that transected the length of the channel. Recent salinity data from LDEQ monitoring stations, where available, indicate that the influence of the channel in these areas remains today. The salinity gradient along the channel appear to be primarily determined by the distance of influx from the more saline source waters.

Changes in vegetation communities in the project area were observed after completion of the MRGO. Prior to construction of the MRGO, the freshwater wetlands had survived "eat-outs", hurricanes, droughts, subsidence, and construction of trenasses for access of duck hunters and trappers as long as the fresh water sheet flow hydrologic regime remained relatively intact, but construction of the MRGO altered the salinity and hydrologic regime beyond their tolerance. The MRGO changed regional hydrology and affected the flow, type, direction, and salinity of the water in addition to changing the tidal amplitude and duration. The MRGO channel was primarily responsible for the large increase in artificial water bodies (canals and impoundments) between 1956 (1,748 acres) and 1978 (11,123 acres). Until the MRGO was constructed, the only brackish water source to the Central Wetlands (figure 1) area was Lake Borgne.

Habitat maps from 1956 imagery showed that the project area consisted of 49.2% open water, 38.2% non-fresh marsh, 4.4% fresh marsh, 3.0% swamp, 2.6% forest, and 0.1% shrub/scrub habitat. By 1978, habitat maps showed water had increased to 54.6% and shrub/scrub habitat had increased to 3.5% largely due to construction of the MRGO channel and adjacent dredge material retention-hurricane protection area. Fresh marsh and swamp had virtually disappeared (89 acres and 390 acres, respectively) and non-fresh marsh had decreased to 36.4%. Vegetation sampling, pre- and post-construction, revealed that species composition at one site in the Central Wetlands area between the MRGO and the Bayou La Loutre natural levee ridge decreased from eight prominent species (*Spartina patens*, *Distichlis spicata*, *Alternanthera philoxeroides*, *Spartina cynosuroides*, *Scirpus robustus*, *Spartina alterniflora*, *Sagittaria lancifolia*, *Polygonum punctatum*) to two species (*Spartina patens* and *Spartina alterniflora*) between 1959 and 1967 as salinities increased (Früge' 1980, Coastal Environments, Inc. 1982:29). Local inhabitants reported that the sawgrass marshes in this area were replaced by wiregrass and that wiregrass began to grow on exposed areas as the baldcypress trees died.

Habitat maps prepared from 1988/90 imagery showed that water area increased to 57% (260,614 ac) and fresh marsh increased to 1% (4632 acres) from 1978-1988, primarily as a result of conversion of shrub/scrub habitat on impounded areas of the MRGO retention area. Non-fresh marsh habitat (brackish and saline marshes) continued to decrease (33.1%) as a result of subsidence and erosion along the northeast side of the MRGO channel. Only 86 acres of cypress

swamp remained by 1988. Overall, the rate of land loss decreased from a rate of 1113 acres/year between 1956 and 1978 to 922 acres/year between 1978 and 1990.

It is debated whether the MRGO could have been responsible for the introduction of higher salinities in the Lake Maurepas area that partially aided in the decline of cypress swamp in that area. The 1956 habitat imagery showed approximately 25% of the eastern two-thirds of the Lake Pontchartrain Lake Maurepas Basin was in forestland in 1956, of that bald cypress swamp comprised the majority (16 %). Much of the swamp had been clear-cut from the late nineteenth century through the mid-twentieth century and there was re-growth in most areas. Swamp habitat decreased between 1956 and 1978 to 14% (1978 habitat imagery) and again to 11% by 1988 (1988 habitat imagery). Much of the decrease in swamp area is thought to be due to stressed on the trees from increased salinities and impounded conditions that converted the cypress to shrub/scrub, fresh, or intermediate marsh (Gary Shaffer, per. Comm. 2002). Others point out that salt water has been regularly provided to Lake Pontchartrain via the Rigolets and the Chef Pass for thousands of years. Additionally, studies of salinity databases over the past 50 years demonstrate that salinity trends in Lake Maurepas and Lake Pontchartrain did not change between 1946 and 1998 (Wiltenmuth 2000). Tate et al. in 2002 postulated that salinity had stabilized in Lakes Maurepas and Pontchartrain. As marsh loss continues in the MRGO and Biloxi marshes the potential for increased salinities exist which may add to the continued rapid loss of Maurepas swamps.

By the year 2000, the submerged aquatic vegetation in Lake Pontchartrain had diminished by 75 percent. Direct armoring of much of the shoreline, reduced water clarity, increased nutrients and shrimp trawling in shallow areas were probably the cause (Lake Pontchartrain Basin Foundation 2006). Common species were *Ruppia* and *Vallisneria*.

Before Hurricane Katrina, the Coast 2050 report (LCWCR and WCRA 1999) predicted that between 2000 and 2050, 45,400 acres of marsh could be lost in the Pontchartrain Basin. It is likely that Hurricane Katrina deposited a measurable amount of sediment throughout the Pontchartrain Basin area (Turner 2006). Regardless of that, the Pontchartrain Basin apparently lost 12,160 acres of wetlands between fall 2004 and October 2005. Habitat analysis indicates that over 640 acres each of forested wetlands and fresh marsh was converted to open water. About 2,560 acres of intermediate marsh, 3,840 acres of brackish marsh, and 4,480 acres of saline marsh also became open water (USGS-NWRC-BRPO 2002). Thus, the total amount of marsh lost as a result of Hurricane Katrina was over one third the total predicted wetland losses in this basin for the next 50 years. The storm surge and strong winds from Hurricane Katrina also severely damaged the Chandeleur and Breton Islands and adjacent seagrass beds according to the U.S. Geological Service (USGS).

As stated above, Tate et al. 2002 suggest salinity has stabilized since the MRGO was built and initial changes in salinity resulted. They expected some increase in the Lake Borgne region and surrounding marshes so it is possible that saline marsh could move inward along the east bank of

MRGO. Since hurricane Katrina, the remaining wooded areas have become disturbed. The future without this project (continuation of the existing deep draft channel with authorized depth and width) as the MRGO is dredged to maintain the authorized depth the dredged material from that channel could be used beneficially to create about 2,200 acres of marsh in the next 50 years. However, during the same time, deep-draft navigation could cause erosion on the east bank, resulting in the loss of 5,000 acres of marsh, possibly causing a net loss of about 2,800 acres of marsh.

### **Fisheries Resources**

Lake Pontchartrain was studied by Thompson and Fitzhugh (1985) who described it as having a strong freshwater component before MRGO with freshwater fish comprising 33 percent of the species, marine fishes 30 percent and estuarine-marine species 20 percent. However, estuarine-marine species dominated the lake in numbers of individuals. Prior to the construction of the MRGO, data sampling from 1959 to 1961 characterized the fish in this marsh and bayou area as being dominated by the economically important estuarine-marine species of spot, Atlantic croaker, anchovy, sea trout, and menhaden (Rounsefell 1964). The relative abundance patterns of fish species reflected a gradient of increasing salinity from the low salinity waters of Lake Borgne to the higher salinity waters of Breton Sound.

With the construction of the MRGO came a trend of the emergence of predominately marine species. Estuarine fishes still remained dominant in the area, along with a few freshwater fishes that are likely to be found in marine conditions. Fontenot and Rogillio (1970) sampled Lake Borgne and the Biloxi Marshes from 1960-1968. They reported an overall increase in salinity in the early 1960's. Of the 22 species of freshwater fish caught early in the study, 10 species disappeared by the end of the study. Ecological affinities were evenly distributed with 32 percent freshwater, 29 percent estuarine-marine and 29 percent marine. The six important sport fish in the area, spotted sea trout, Atlantic croaker, black drum, red drum, spot and sheepshead, were not influenced by the increased salinity. While studying Lake Pontchartrain, Thompson and Fitzhugh (1985) found that species diversity declined dramatically after the MRGO was created.

Commercial shrimp landing data compiled by NMFS in the vicinity of Lake Borgne and outer areas toward Breton and Chandeleur Sounds (Mark Schexnayder, LSU, personal communication) show that the reported white shrimp landings exceeded brown shrimp landings throughout most years prior to the construction of MRGO (1956 to 1963). Blue crabs were most abundant in the open, low salinity waters (Rounsefell 1964) of Lake Borgne and became progressively less abundant as salinity increased toward Breton Sound. Rounsefell (1964) predicted that blue crab densities would decline in the project area as a result of increasing salinity. After construction of the MRGO, commercial shrimp landings data for the combined areas of Lake Pontchartrain and Lake Borgne showed that white shrimp landings declined abruptly from 1963 to 1965 and remained below pre-construction landings in most years until 1984 (NMFS web site <http://www.nmfs.noaa.gov/>). At the same time, reported landings of brown shrimp increased and

exceeded white shrimp landings in nearly every year from 1967 through the 1980s. NMFS annual shrimp landings data from 1988 to the present illustrate a continuing trend of brown shrimp landings exceeding those of white shrimp in the combined areas of Lake Pontchartrain and Lake Borgne, as well as in the outer areas toward Breton and Chandeleur Sounds.

Pre-MRGO, much of the lake Pontchartrain bottom was disturbed by dredging for *Rangia* clams. Large clams were generally found only near the edges of the lake where dredging did not occur. Benthic species along the MRGO, generally considered as pioneer species due to frequent disturbance (vessel traffic and dredging), were taken less frequently in 1978 than in 1953-54, suggesting possible deterioration of these communities. Shell dredging ceased in 1990 and the benthos was expected to improve. However, the dead zone that has developed due to high salinity from MRGO entering the lake adversely affected benthos. There are no large *Rangia* clams in the 1/6 of the lake often affected by the dead zone in the spring and summer. Other sessile benthic organisms are probably killed or stressed during the hypoxic events.

In evaluating pre- and post-construction of the MRGO oyster abundance and harvest, it was found that there is no readily available quantitative data on oyster occurrence or harvest identified for the study area.

Future without Deauthorization of the MRGO would mean during maintenance dredging, turbidity would temporarily increase. Fish could avoid the turbid area. Benthos would be destroyed by actual dredging and by spoil disposal in the sound. However, populations could return in a few months. Some shallow-water benthos would be destroyed during marsh creation, but could be replaced with the benthos typical of a brackish or saline marsh. In Lake Pontchartrain, large *Rangia* clams would remain absent from the "dead zone". As stated in the habitat description above, there could be a net loss of about 2,800 acres of marsh. Salinities in the basin are not likely to change significantly. Fishery abundance and distribution should remain at the current status.

### **Essential Fish Habitat**

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

updated and revised in 2005 and became effective in January 2006 (70 FR 76216). NMFS administers EFH regulations. Categories of EFH in the project area includes the estuarine waters and substrates of the MRGO channel cut and adjacent water bottoms from the Gulf of Mexico to Mile 60. Substrates include mud bottoms, some of which have been dredged and re-deposited. It also includes the all of Lake Pontchartrain and much of the surrounding marsh. Estuarine categories include estuarine emergent wetlands, mangrove wetlands, submerged aquatic vegetation, estuarine water column, and mud, sand and shell water bottoms. Marine areas include water column, non-vegetated bottoms, and continental shelf features.

EFH has been designated in the project area for Gulf stone crab, brown shrimp, white shrimp, red drum, blacktip shark, and bonnethead shark. Coastal wetlands also provide nursery and foraging habitat that supports economically important marine fishery species such as spotted seatrout, sand seatrout, southern flounder, Atlantic croaker, spot, gulf menhaden, striped mullet, white mullet, silversides, killifish, kingfish, pompano, scaled sardines, anchovies, and blue crab. Some of these species serve as prey for other fish species managed under the Magnuson-Stevens Act by the GMFMC (e.g., mackerels, snappers, and groupers) and highly migratory species managed by NMFS (e.g., billfishes and sharks). These wetlands also produce nutrients and detritus, important components of the aquatic food web, which contribute to the overall productivity of the Pontchartrain basin estuary and nearshore Gulf of Mexico.

As mentioned under Description of Habitats above, Hurricane Katrina caused the apparent loss of 12,160 acres of wetlands in the Pontchartrain Basin. The storm surge and strong winds from Hurricane Katrina also severely damaged the Chandeleur and Breton Islands and adjacent seagrass beds, all valuable EFH.

Under future without project conditions (continuation of the existing deep draft channel to authorized depth), bottom habitat would be temporarily disturbed during dredging and open water disposal in the Sound Reach. Marsh could be created with dredged material in similar amounts to pre-Katrina; wake and wave erosion would also continue. There could be a net loss of about 2,800 acres of marsh, all valuable EFH. In addition, the eastern half of Lake Pontchartrain would continue to have reduced seagrass beds.

### **Wildlife Resources**

Prior to construction of the MRGO, the interior fresh to intermediate wetlands had high value for furbearing animals and waterfowl. Kerlin (1979) described the pre-MRGO wetlands of St. Bernard Parish, south of Lake Borgne, as being "second only to the marshes of the lower Mississippi River Delta in importance to waterfowl in southeastern Louisiana." Approximately 250,000 waterfowl wintered in these marshes.

One of the most damaging aspects of project-induced losses of intermediate marsh was the elimination of valuable waterfowl wintering habitat. The marshes south of Lake Borgne were

among the most important waterfowl wintering areas in Louisiana prior to project construction. These marshes were of particular importance to lesser snow geese, mallard, green-winged teal, and lesser scaup. According to biologists of the Louisiana Wildlife and Fisheries Commission (LWFC), that area is now of greatly reduced value to the above species, with the exception of lesser scaup, due to reduced habitat quality brought about by salinity intrusion and associated marsh deterioration. Between 1969 and 1978, wildlife surveys recorded less than 20,000 annual wintering waterfowl in an area that had previously supported 250,000 individuals.

Currently avian inhabitants of the study area include nine species of wading birds, more than five species of seabirds, four species of shorebirds, six species of songbirds, and several raptor species. The areas north and south of the MRGO are used as wintering habitat for low to moderate numbers of dabbling and diving ducks. Only the eastern Lake Borgne-Biloxi marshes support high numbers of diving ducks in winter. The number of ducks using these areas has been steady to decreasing over the past 10 to 20 years, except in the wetlands around Lake Lery and Caernarvon where populations have been steady to increasing in abundance (LCWCR and WCRA 1999).

Through the year 2050 (LCWCR and WCRA 1999), half of the dabbling duck species abundance in the marshes north of the Bayou La Loutre ridge are projected to remain steady while the other half are projected to decrease in abundance. Over half (54%) of the diving ducks will remain steady in abundance and 46% will decrease by the year 2050 in this area. South of the Bayou La Loutre ridge, 38% of dabbling and diving ducks are projected to increase in abundance and 62% will decrease by the year 2050.

Game mammals of these marshes and few remaining forested wetlands in the inland area include swamp rabbit, raccoon, and fox/gray squirrels. Non-game mammals include opossum, nine-banded armadillo, and several species of bats, rodents, and insectivores. Furbearers, supported in large numbers in this area, included muskrat, mink, nutria, river otter, and raccoons which were staples of the Louisiana fur industry. The most productive muskrat marshes, based on harvest records (USFWS 1960, Wicker et al. 1982), were in the marshes south of Bayou Bienvenue, near Proctor Point, between Lake Borgne and the Bayou St. Malo ridge and east of the Violet Canal. Mink catches were good in the marshes south of Bayou Bienvenue. Nutria harvests were average in the Bayou Bienvenue marshes. During the 1956-1960 seasons, fur harvests included 640,000 muskrats, 15,000 nutria, 1000 river otter, 800 raccoon and 600 mink.

After construction of the MRGO, wildlife surveys showed a noticeable decline in the productivity of these wetlands. Canals and dredged material not only physically destroyed the wetlands and disrupted natural drainage patterns, but they also provided access to the vast marshes for hunting, trapping, and fishing. Biologists also noted that the elevated MRGO spoil areas constituted additional habitat for deer, rabbits and other mammals and feeding and nesting areas for birds (Valentine 1984). Kerlin (1979) report noted "available records also indicate a drastic decline in fur production in St. Bernard Parish. This decline is also largely attributed to

saltwater intrusion and a corresponding reduction in carrying capacity for fur animals such as muskrat and nutria.

According to the Coast 2050 report (LCWCR and WCRA 1999), furbearing animals in the area north of the Bayou La Loutre ridge (nutria, muskrat, mink, otter and raccoon) inhabit the marshes and upland habitats in low numbers. They have decreased in abundance over the past 10 to 20 years, and this trend is projected to continue through the year 2050. South of the Bayou La Loutre ridge, furbearing animals (mink, otter, and raccoon) are low in abundance in open water, moderate in salt marsh and high in brackish marsh habitat. Their abundance has ranged from steady to decreasing over the past 10 to 20 years but is expected to remain steady through the year 2050.

Alligators prefer fresh to low salinity marshes. North of the Bayou La Loutre ridge they are present in low numbers and have decreased in abundance over the last 10 to 20 years (LCWCR and WCRA, 1999). This trend is projected to continue through 2050. South of the Bayou La Loutre ridge, alligators are present in moderate to low numbers but have increased in abundance over the past 10 to 20 years. Projections show half of the population presently remaining steady, but are expected to increase in abundance through 2050.

As described under Description of Habitats section above, the future-without de-authorization of the MRGO to deep-draft navigation could result in a loss of about 2,800 acres of marsh which provides important habitat for waterfowl and furbearers. This could lead to fewer numbers of certain species. Salinities in the basin are not likely to change.

### **Threatened and Endangered Species**

Federally listed threatened (T) and endangered (E) species and/or their designated critical habitat occurring in the study area include the brown pelican (E), piping plover (T) and its designated critical habitat, Gulf sturgeon (T), bald eagle (T), and West Indian manatee (E). Several species of threatened/endangered sea turtles are also known to forage in the coastal waters of the study area. Those species include the loggerhead sea turtle (T), Kemp's ridley Sea turtle (E), green sea turtle (T), leatherback sea turtle (E), and hawksbill sea turtle (E).

Brown pelicans (*Pelecanus occidentalis*) are common breeding residents of Breton Island and forage in the waters of Breton and Chandeleur Sounds. During the 2006 survey, post-Hurricane Katrina, no brown pelican nests were found on West Breton Island (Hess and Linscombe unpublished). The nearest nest observed in 2006 was on Pelican Point, Baptiste Collete and North Island. However, brown pelicans may forage in the shallow estuarine waters of the lower portions of the MRGO and use sand pits and offshore sand bars as resting and roosting areas. Major threats to this species include chemical pollutants, colony site erosion, disease, and human

disturbance. Without deauthorization, beneficial use of dredged material would continue on Breton Island and this area could be available for use by brown pelicans.

The piping plover (*Charadrius melodus*), as well as its designated critical habitat, occur along the Louisiana coast. Piping plovers winter in Louisiana, and may be present for 8 to 10 months, arriving from the breeding grounds as early as late July and remaining until late March or April. The study area encompasses Critical Habitat Unit LA-7 which includes portions of the Louisiana shoreline from Breton Islands and Chandeleur Island chain, including Breton, Grand Gosier, and Curlew Islands and the Chandeleur Island chain. At the time of designation, that Unit consisted of approximately 7,700 acres. Specifically, piping plover critical habitat within Unit 7 includes "...The entire islands where primary constituent elements occur to MLLW (mean low low water)." The most recent (January-February 2001) survey coordinated by the USFWS recorded no piping plovers at the mouth of the MR-GO. The species may occasionally use exposed flats in the area, especially on and near the Chandeleur Islands and Breton Island. Without deauthorization, beneficial use of dredged material would continue on Breton Island and this area could be available for use by wintering piping plovers.

The Gulf sturgeon (*Acipenser oxyrinchus desotoi*) is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf coast between the Mississippi River and the Suwannee River, Florida. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Spawning occurs in coastal rivers between late winter and early spring (i.e., March to May). Adults and sub-adults may be found in those rivers and streams until November, and in estuarine or marine waters during the remainder of the year. Sturgeon less than two years old appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters.

On March 19, 2003, the Fish and Wildlife Service and NMFS published a final rule in the Federal Register (Volume 68, No. 53) designating critical habitat for the Gulf sturgeon in Louisiana, Mississippi, Alabama, and Florida. Designated critical habitat near the project area include Lake Pontchartrain east of the Causeway and Lake Borgne. The potential exists for Gulf sturgeon to be within the MRGO through access from Breton Sound, Lake Borgne, and the GIWW. Habitat alterations such as those caused by water control structures that limit and prevent spawning, poor water quality, and over-fishing have negatively affected this species. In addition, the "dead zone" in eastern Lake Pontchartrain could adversely affect this critical habitat by reducing the amount of benthic organisms.

Bald eagles (*Haliaeetus leucocephalus*) nest in Louisiana from October through mid-May. Eagles typically nest in bald cypress trees near fresh to intermediate marshes or open water in the southeastern parishes. Although no nests are known to occur within the study area, unknown nest sites may potentially exist because eagles may have constructed new nests in hurricane-damaged areas since Hurricane Katrina, and because eagles may build more than one nest in their

breeding territory. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (i.e., organochlorine pesticides and lead).

West Indian manatees (*Trichechus manatus*) have been occasionally observed along the Louisiana Gulf coast during the summer months. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Cold weather and outbreaks of red tide may also adversely affect these animals. Manatees have been sighted within the MRGO, and are known to travel long distances up coastal waterways from the Gulf of Mexico. On July 9, 2001, a manatee was observed passing safely through the IHNC Lock and into the Mississippi River. Manatees are usually within Louisiana coastal waterways only during the warm weather/warm water months.

Endangered and threatened sea turtles forage in the nearshore waters, bays and sounds of Louisiana. NMFS is responsible for aquatic marine threatened or endangered species (including the Gulf sturgeon). Eric Hawk (727/570-5312) in St. Petersburg, Florida, should be contacted for information concerning those marine species.

The USACE determined, in their July 11, 2007 letter, that the MRGO Deep Draft Deauthorization project would not likely adversely affect any listed species and/or critical habitat. The Service provided concurrence with that determination in a letter dated September 25, 2007.

## **EVALUATION METHODOLOGY**

Because of the short study schedule and the existence of the readily available and extensively developed analysis of similar alternatives examined under the MRGO re-evaluation study, benefits were taken from that re-evaluation study and utilized by this study. Evaluation of project-related impacts on fish and wildlife resources for the re-evaluation study was conducted using the Wetland Value Assessment (WVA) methodology developed for the evaluation of proposed coastal wetland projects. The WVA is similar to the Service's Habitat Evaluation Procedures (HEP), in that habitat quality and quantity are measured for baseline conditions and predicted for future without-project and future with-project conditions. Separate models were used for brackish marsh and saline marsh. Instead of the species-based approach of HEP, each WVA model utilizes an assemblage of variables considered important to the suitability of that habitat type for supporting a diversity of fish and wildlife species. As with HEP, the WVA allows a numeric comparison of each future condition and provides a quantitative estimate of project-related impacts to fish and wildlife resources.

The WVA models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to optimum conditions to provide an index of habitat quality.

Habitat quality is estimated and expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of: 1) a list of variables that are considered important in characterizing fish and wildlife habitat; 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and 3) a mathematical formula that combines the Suitability Indices for each variable into a single value for wetland habitat quality, termed the Habitat Suitability Index (HSI). The WVA models assess the suitability of each habitat type for providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. This standardized, multi-species, habitat-based methodology facilitates the assessment of project-induced impacts on fish and wildlife resources.

The product of an HSI value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU). The HU is the basic unit for measuring project effects on fish and wildlife habitat. Future HUs change according to changes in habitat quality and/or quantity. Results are annualized over the project life to determine the Average Annual Habitat Units (AAHUs) available for each habitat type.

The change (increase or decrease) in AAHUs for each future with-project (FWP) scenario, compared to future without-project (FWOP) conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the habitat being evaluated; a net loss of AAHUs indicates that the project is damaging to that habitat type.

Using the WVA methodology, impact assessments were conducted by the interagency Habitat Evaluation Team (HET) from the MRGO re-evaluation study based on field inspections, wetland loss data, knowledge of the area, and experience with similar projects. Where engineering details were unavailable, assumptions by the HET were based on a worst-case scenario (e.g. reduction in shoreline erosion rate for future with project).

## **DESCRIPTION OF TENTATIVELY SELECTED PLAN**

### **Alternatives Considered**

Nine alternatives for closing the MRGO to deep-draft navigation were evaluated. Some alternatives looked at maintaining shallow-draft navigation with the use of weirs or gates at Bayou La Loutre. Other alternatives consisted of varying complete closure structures including a total closure structure across the MRGO at Bayou La Loutre, a phased version of the total closure structure across the MRGO at Bayou La Loutre, restoring both banks of bayou La Loutre across the MRGO, and filling in the entire channel. The final alternative looked at discontinuing all MRGO operations and maintenance activities but does not include a closure.

All options which included maintenance of the MRGO channel for shallow draft navigation, which is not included in the existing authorization, were eliminated based on economic analysis. Analysis indicates that it is not cost effective to maintain shallow-draft navigation on the channel between the GIWW and the Gulf of Mexico. The total average annual costs for the various shallow-draft options (including construction and maintenance dredging) ranged between \$6 million and \$9 million. Estimated annual benefits associated with maintaining shallow-draft depths are approximately \$3.7 million.

The options for complete closure by restoring both banks of Bayou La Loutre were eliminated because they would achieve similar environmental and navigation results as a total closure structure across the MRGO, but with nearly twice the cost. The option for filling in the entire channel was eliminated because it would take well over 300 million cubic yards of dredged material needed to fill the channel. It is uncertain where the amount of material needed to fill the channel could be found, especially at a time when vast quantities of material are needed to restore hurricane protection levees and create wetland habitats throughout coastal Louisiana. In addition, the cost of creating marsh in a place that is up to 40-feet deep is estimated to be at least eight to ten times the cost of creating marsh in an area 5-feet deep. Creation of marsh would reduce land loss rates in the lower Pontchartrain Basin, benefit wildlife, fisheries and threatened and endangered species, but there are likely far less costly ways to obtain the same benefits.

The phased construction of a total closure structure across the MRGO at Bayou La Loutre would require the deauthorization of the MRGO channel for navigation. The first phase would construct a total rock closure containing a weir 125-feet wide by 14-feet deep. Once complete, the first phase of construction would allow the passage of vessels with a draft of 12 feet or less. The depth of the MRGO channel would be monitored. Once any reach of the channel filled in to a depth of less than 14-feet, Phase II (total rock closure by filling the weir with rock) construction would begin. It is estimated that some reaches of the MRGO would become impassible to vessels greater than 12-foot draft by approximately 2014. This alternative yields more economic benefits and slightly fewer environmental benefits than the tentatively selected plan.

The alternative to discontinuing all MRGO operations and maintenance activities or to essentially abandon the channel was considered to have the greatest net economic benefits but yields the fewest environmental benefits.

### **Tentatively Selected Plan**

The Tentatively Selected Plan (TSP) is to construct a total closure structure across the MRGO at Bayou La Loutre. The MRGO channel would be de-authorized for navigation. A total closure structure would be constructed just south of Bayou La Loutre and would tie in with the southern Bayou La Loutre ridge to totally block the MRGO channel. The structure would not allow passage of vessels traveling the length of the MRGO. No additional Federal funds would be used to maintain the MRGO between the GIWW and the Gulf of Mexico. When originally evaluated

it was expected that this project would request authority to maintain existing wetland protection features along the MRGO. However since the draft LEIS and FWCA report, the TSP was redefined (see Appendix B for the Services June 19, 2007 supplemental FWCA letter) to state the existing 9.9 miles of bank stabilization features and jetties will be deauthorized, but remain in place without continued operations and maintenance. Other features of the plan will remain the same.

Complete closure with a total closure structure across the MRGO was selected because it yields the greatest environmental benefits and is compatible with the IHNC Lock and the ecosystem restoration goals of the Louisiana Coastal Protection and Restoration (LACPR) plan. It would also be implemented in a shorter timeframe than the phased option. These factors outweigh the disadvantages of the TSP which are slightly lower average annual net economic benefits (navigation) and potential unquantified erosion and O&M impacts to alternative waterways due to diverted vessel traffic.

It is envisioned that the total closure structure would be constructed of clay fill material dredged nearby, transported by barge, and deposited un-compacted, underwater. Rock starter dikes would be constructed first to contain the clay fill material. Average side slopes for the total closure structure could be as shallow as 10-foot horizontal:1-foot vertical. As a result, the base of the total closure structure is expected to be approximately 960 feet in cross-section at the channel thalweg. Since that fill material would be un-compacted, a sheet pile cut-off wall would be installed to stop seepage below the total closure structure. The total closure structure will be rock armored to prevent erosion. Several feet of settlement could be expected both during and after construction, so the total closure structure should be overbuilt to allow for this consideration.

Authority would be requested for monitoring and remediating environmental impacts such as increased erosion along alternative navigation routes. Specifically, monitoring would note any increased erosion that may occur along bayou La Loutre and other waterways due to diverted vessels. Monitoring would also be conducted to document changes in salinity, habitat, water circulation patterns, and other environmental indicators in the Pontchartrain basin.

## **PROJECT IMPACTS**

Project-related wetland impacts may occur either directly through construction and/or indirectly through hydrologic alterations. Net impacts, expressed in AAHUs, reflect the net effect of both direct and indirect benefits/impacts on emergent marsh, SAV, and shallow open-water components of the habitat. As originally evaluated, the TSP was determined to have 2036 net AAHUs and 3503 net acres (Table 1) after the 50 year project life based on the WVA for closure alternative of the re-evaluation study. However, without operation and maintenance of the existing bank stabilization features and jetties, those features are expected to subside below the waterline within 10 years. The revised TSP is expected to have a net gain of 3043 acres (a

decrease of 460 acres from the previous TSP) at the end of the 50-year project life. While conducting that WVA, the HET assumed land loss rates in the Golden Triangle (Figure 1) and the central wetlands to be reduced slightly (around 10%) because of the expected reduction in salinity and a 75% reduction in shoreline erosion rate along the MRGO without vessel traffic. Essentially no wake erosion would occur since there would be very little traffic on the closed channel. Without significant wave erosion on the MRGO an estimated 250 acres of marsh will not be lost. However, there would be no beneficial use of dredged material throughout the MRGO, from Breton Island to the inland reaches.

**Table 1. Net AAHUs and net acres for the seven areas evaluated for the closure in the MRGO re-evaluation study.**

	<b>Net AAHUs</b>	<b>Net Acres</b>
<b>Eloi Bay Analysis Unit 1.</b>	448	233
<b>Eloi Bay Analysis Unit 2.</b>	80	807
<b>South Lake Borgne Analysis Unit 1.</b>	344	652
<b>South Lake Borgne Analysis Unit 2.</b>	407	1514
<b>Central Wetlands Analysis Unit 2.</b>	82	21
<b>Central Wetlands Analysis Unit 1.</b>	504	276
<b>Jean Louis Robin Analysis Unit.</b>	172	0
	2036	3503

In 2000, Tate (Tate et al., 2002) modeled what effects reducing the channel depth would have on salinity within the Lake Pontchartrain basin (Table 2). They determined that totally closing the MRGO would provide the greatest reduction in salinity (Table 1). It would return salinity toward the historical conditions throughout the basin. As long as the MRGO is open, there is a dead zone of about 100 square miles in Lake Pontchartrain with the Industrial Canal as the focal point. It is caused by high salinity water from the MRGO entering the lake and becoming highly stratified. This area is essentially devoid of large *Rangia* clams and probably deficient in other benthic organisms. Many fish tend to avoid this type of area because of the low dissolved oxygen and lack of prey. The hypoxic area is most prevalent during the warm months of the late spring, summer and early fall. Closure of the MRGO would reduce salinities and associated salinity stratification, thus helping to reduce the development of low dissolved oxygen zones in Lake Pontchartrain. A total closure structure might also help reduce salinity spikes at Pass Manchac.

**Table 2. Comparison of Modeled Salinities.**

Location	April, May, Sept, Oct Average Monthly Parts Per Thousand		
	Base Salinity	Shallow Draft Alternative Salinity Change	Tentatively Selected Plan Salinity Change
Pass Manchac	0.6-1.1	-0.1 to -0.3	-0.1 to -0.9
Frenier	4.6-5.4	- 0.4 to -1.2	-0.6 to -1.3
North Shore	5.4-7.4	-0.8 to -1.0	-0.9 to -1.4
Little Woods	5.9-8.1	-1.4 to -2.4	-1.6 to -3.1
Chef Menteur	8.4-11.7	-1.3 to -1.6	-1.7 to -2.2
Martello Castle	15.4-19.3	-3.9 to -5.1	-5.4 to -7.2
Alluvial City	16.5-20.2	-3.9 to -4.4	-6.0 to -6.6
Pt aux Marchettes	13.9-17.3	-0.2 to -0.5	-0.5 to - 1.1

(Source: Data compiled from Tate et al. 2002)

Although data are not available to permit quantifying changes in vegetation, it is unlikely that the changes in salinities for closure could cause any large-scale changes in vegetation types within the Pontchartrain Basin. Closure might allow intermediate marsh to develop on the north shore of Lake Pontchartrain in the spring. Closure could probably allow intermediate salinity ranges to develop inland in some years. A total closure structure would return saline areas to brackish at all months between Martello Castle and Bayou La Loutre. The land bridge east of MRGO should convert from saline to brackish marsh most years. In the Central Wetlands, there could be conversion to intermediate marsh near the Forty Arpent Levee and more cypress might regenerate.

### **Wildlife Resources**

With a total closure structure constructed across the MRGO at Bayou La Loutre, the prevented loss of about 250 acres of marsh from reduced vessel erosion would have a positive impact to wildlife. The loss of future beneficial use of dredged material may cause a minor future negative impact to wildlife. However, with the closure, the overall increase of 3503 acres from decreased wave erosion and salinity changes will benefit wildlife. The reduction of salinity above the total closure structure could improve portions of the project area slightly for waterfowl and furbearers. The reconnection of the Bayou La Loutre ridge across the MRGO will once again allow wildlife the access that historically existed for the entire ridge and marshes on both sides of the MRGO. If the MRGO is not deauthorized, it could continue to accelerate the ongoing marsh loss in the basin and thus could accelerate a slight decline in wildlife.

## **Fisheries Resources**

The estuarine dependent recreational and commercial fisheries of Louisiana are expected to decline dramatically at some point in the future as wetland loss of coastal Louisiana continues. If the MRGO is not deauthorized, it could contribute to the ongoing marsh loss and thus could accelerate this anticipated decline. Once the closure is in place and portions of the basin north of the total closure structure would become slightly less saline, it is expected that fishery abundance and distribution should remain approximately as it is today. It is probable that the six most important sport fish could be present in the same numbers as they are now. As salinity stratification in Lake Pontchartrain is reduced, alleviating some of the dead zone, large Rangia clams and other sessile benthos would increase in size and abundance to levels similar to those throughout the lake. Fish access, compared to pre-MRGO conditions, will not be impacted by the proposed channel closure. Alternate fish access routes around the proposed closure include Bayou La Loutre, the back levee canal, Lena Lagoon, Lake Athanasio, Alabama Bayou, etc. The closure structure will act as a submerged structure for some fish to utilize. Placement of the closure structure could destroy about 10 acres of benthic habitat.

## **Essential Fish Habitat**

There could be destruction of about 10 acres of EFH on the bottom of the MRGO at the closure structure location. Passage for brown and white shrimp, sharks and red drum up and down MRGO should not be blocked by the closure structure, as discussed above. With implementation of the TSP, the decreased marsh loss will be beneficial to EFH in that there will be less loss contributing to the overall decline of EFH. Increases in EFH are not expected. Where as, without deauthorization of the MRGO and its closure, the continued wetland decline in the area could accelerate the ongoing EFH loss. However, the effect the closure structure may have on reducing the salinity stratification and shrinking the dead zone in Lake Pontchartrain could increase Rangia clam abundance which, as filter feeders, would help reduce the turbidity of the lake thus making the water clarity more suitable for SAV, a valuable EFH.

## **Threatened and Endangered species**

Brown pelicans are not likely to be found nesting in the construction footprint of this project but any brown pelicans that might occur in the project area during construction and maintenance could temporarily be displaced to nearby suitable habitat. Though brown pelicans are not presently nesting, and have not nested in the recent past on Breton Island, the potential future loss of available habitat is expected since Breton Island will no longer be replenished with dredged material from the MRGO bar channel.

Should salinity decreases result in cypress swamp regeneration in the central wetlands, the availability of new bald eagle nesting habitat may increase in this area. Since bald eagles normally nest in the highest (i.e., usually oldest) trees this may not occur for many years.

Piping plovers that use Breton Island would potentially lose future wintering habitat on the remains of Breton Island as the island naturally degrades since maintenance dredging in the Sound would cease.

Passage for Gulf sturgeon and manatees up and down MRGO should not be blocked by the closure structure. There are several alternate routes such as Bayou La Loutre, the back levee canal, Lena Lagoon, Lake Athanasio, Alabama Bayou, etc. The dead zone, discussed above, covers a great deal of the sturgeon critical habitat in lake Pontchartrain. By closing the MRGO with the total closure structure, salinity north of the structure would be reduced and the hypoxic area would shrink. This would improve the dissolved oxygen of the area and increase the abundance of benthic invertebrates that are food for the Gulf sturgeon, thus, improving critical habitat for the sturgeon.

With deauthorization of the MRGO, the taking of sea turtles by hopper dredging at the bar channel would no longer continue.

## **FISH AND WILDLIFE CONSERVATION MEASURES**

Coastal marshes are considered by the Service to be aquatic resources of national importance due to their increasing scarcity and high habitat value for fish and wildlife within Federal trusteeship (i.e., migratory waterfowl, wading birds, other migratory birds, threatened and endangered species, and interjurisdictional fisheries). Because of the Services' close coordination with the USACE on this project, and because the project is expected to have an overall benefit to the marshes of the Pontchartrain basin, the Service has no conservation measures to offer at this time.

## **SERVICE POSITION AND RECOMMENDATIONS**

The Tentatively Selected Plan has the potential for restoring some of the historic circulation patterns and reducing saltwater intrusion in the Pontchartrain basin that will benefit fish and wildlife resources. The Service feels the revised TSP will result in a significant gain in habitat for fish and wildlife resources over the project life. The Service regrets the loss of 460 acres of wetlands over the project life compared to the previous TSP and encourages the USACE to investigate opportunities to prevent and/or minimize this loss. The Service does not object to the construction of the proposed project, provided that the following fish and wildlife conservation measures are implemented concurrently with project implementation:

1. The Service and NMFS should be provided an opportunity to review and submit recommendations on the draft plans and specifications on the MRGO total closure structure addressed in this report.
2. Coordination should continue with the Service and NMFS on detailed contract specifications to avoid and minimize potential impacts to manatees and Gulf sturgeon.
3. Once the MRGO is deauthorized Breton Island NWR would no longer benefit from placement of dredged material on or adjacent to the island. Many of Louisiana's barrier islands are used for nesting by brown pelicans and as wintering areas by the piping plover. As barrier islands decline, so declines those and other species' habitats.

The Service recommends the Corps either retain authority to dredge between MRGO mile 3.4 to mile -2.0 (see note), for restoration purposes only, to continue placement on or adjacent to Breton Island NWR to benefit brown pelicans, piping plovers, and other shorebirds or to seek additional funding through other environmental restoration authorities, such as Section 206, as amended to maintain Breton Island NWR for those species.

*Note:* Shoal material removed from the MRGO Mile 3.4 to Mile -2.0 Breton Sound and Bar Channel dredging reaches is placed at Breton Island for barrier island restoration purposes as part of the project Federal Standard.

4. If the proposed project has not been constructed within 1 year or if changes are made to the proposed project, the USACE should re-initiate Endangered Species Act consultation with the Service.
5. The area in and around the closure structure and key locations from the closure structure and north as far as Lake Maurepas, if possible, should be monitored to sufficiently determine the hydrologic effects of the closure and to document the changes in circulation patterns, salinity changes, and changes to the dead zone which is about 100 square miles in Lake Pontchartrain with the Industrial Canal as the focal point. The Service and NMFS should be involved in the development of a monitoring plan and in review of the data.
  - a. It should be noted that the USACE concurred with our fourth recommendation requesting monitoring of the project. However, the USACE states that concurrence would be accomplished through existing monitoring programs rather than through project specific monitoring. The Service would like to further recommend the USACE to reconsider including monitoring as part of this project even if for a short time and limited area in and around the closure structure. As an alternative the USACE could supplement an existing agencies monitoring program. For example, the Louisiana Department of Environmental Quality's

quarterly samples (e.g., Bayou Dupre, IHNC, Causeway, and Rigolets) could be sample every two months for two years following the total structure closure. The gathered data would be extremely useful for addressing assumptions about the system response to the closure structure and identifying any potential adverse impacts.

6. The USACE should investigate and seek legislative approval (e.g., project specific, Continuing Authority Program Section 206, etc.) to maintain the existing 9.9 miles of bank stabilization features and jetties that provide erosion protection benefits.
  - a. It should be noted that the USACE concurred with this fifth recommendation. However, the USACE states concurrence may be accomplished through investigations under other authorities. The Service encourages the USACE to reconsider modifying the TSP to include maintenance for the shoreline protection features for at least 1 more maintenance cycle, especially on the north bank of the MRGO at the MRGO/Lake Borgne interface. Even though the total closure structure will greatly reduce vessel traffic erosion, wind and small boat wave erosion are still expected to occur from both the MRGO and Lake Borgne. The shoreline protection features are beneficial to protecting the critical wetlands between the MRGO and Lake Borgne. Protecting those wetlands is not only beneficial to fish and wildlife resources of the area but the 4<sup>th</sup> supplemental Congressional mandate for the MRGO bank stabilization project are to repair, construct or provide measures or structures necessary to protect, restore or increase wetlands, to prevent saltwater intrusion or storm surge in the MRGO area. If shoreline protection features are not maintained at least until other authorities can assume the responsibility, sustainability of those critical wetlands and the protection they provide to the Greater New Orleans area would be at risk. If the stabilization features will not be maintained, then indicators to aid navigation should be installed.

Provided that the above recommendations are included in the feasibility report and related authorizing documents, the Service will support further planning and implementation of the TSP.

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**APPENDIX A**

**Louisiana Department of Wildlife and Fisheries comment letter to the USACE  
on the MR0GO Deep Draft Deauthorization Project**



KATHLEEN BADIOEUX BLANCO  
GOVERNOR

State of Louisiana

BRYANT O. HAMMETT, JR.  
SECRETARY

DEPARTMENT OF WILDLIFE AND FISHERIES  
OFFICE OF SECRETARY

31 August, 2007

Mr. Sean Mickal  
CMVN-PM-RS  
Environmental Department  
U.S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160

RE: Draft Legislative Environmental Impact Statement (DLEIS) - Mississippi River-Gulf Outlet (MRGO) Deep-Draft De-authorization Study

Dear Mr. Mickal:

The Louisiana Department of Wildlife and Fisheries (LDWF) is the state agency responsible for management of the state's renewable natural resources including all wildlife and aquatic life. The Department's mission is to manage, conserve, and promote wise utilization of Louisiana's renewable fish and wildlife resources and their supporting habitats through replenishment, protection, enhancement, research, development, and education for the social and economic benefit of current and future generations; to provide opportunities for knowledge of and use and enjoyment of these resources; and to promote a safe and healthy environment for the users of the resources. With this in mind, LDWF staff have reviewed the Draft Legislative Environmental Impact Statement (DLEIS) - Mississippi River-Gulf Outlet (MRGO) Deep-Draft De-authorization Study and provide the follow comments.

Currently Louisiana is experiencing rapid changes due to a wide range of natural and anthropogenic influences. Many of these changes have already negatively affected fish and wildlife resources in the coastal regions of the state. Existing navigation channels have exacerbated wetland loss and diminished access to critical habitat for estuarine species that rely on the area for some portion of their lifecycle.

LDWF's concerns about the impacts to fish, wildlife and habitats resulting from construction and maintenance of the MRGO are a matter of public record. The DLEIS notes that 5,324 acres immediately adjacent to the channel have been lost since construction of MRGO channel along with a decline in fish and wildlife in the area. LDWF is in basic agreement with the Tentatively Selected Plan (TSP) for a complete closure of the channel. Under the Tentatively Selected Plan, that portion of the MRGO channel from mile 60 at the southern bank of the GIWW to the Gulf

of Mexico would be de-authorized for all navigation use. The MRGO channel (mile 66 - 60), the Michoud Canal Project, and the IHNC Lock Replacement Project would remain authorized. As part of the Plan, a total closure structure would be built of rock at the south ridge of Bayou La Loutre in St. Bernard Parish, Louisiana. The structure would connect the two sides of the ridge, a distance of approximately 950 feet. Closure should greatly benefit the surrounding area and alleviate the direct effects of the channel on the Pontchartrain estuary, e.g., expansion of the hypoxic-anoxic zone in the Lake, and the erosion issues associated with vessel traffic on the MRGO itself.

The USACE proposes to abandon all channel features constructed for purposes of shoreline protection, levee protection, and channel protection (i.e., jetties and foreshore protection). The USACE also predicts that these abandoned hard structures will subside below the water line. Therefore, LDWF recommends that either navigational aids be maintained on all abandoned channel features to insure that they pose no hazard to navigation or that all such structures be removed entirely.

The USACE acknowledges the indirect impacts associated with the local recreational and commercial fishing fleet having to find alternative routes around the Bayou La Loutre structure, but the DLEIS does not discuss them at length or attempt to quantify them. Considering the deteriorated state of marsh in the areas adjoining the present MRGO, impacts to smaller water bodies could be significant. The DLEIS notes, "Some vessels may choose to utilize Bayou La Loutre, a Federally authorized channel, to access Chandeleur Sound and numerous waterways in the Biloxi Marshes following installation of a total closure structure on the MRGO channel.", and further, "Although the potential number of vessels that would use Bayou La Loutre and the potential impacts of diverted vessel traffic along the waterway cannot be quantified at this time, the overall environmental benefits of the Tentatively Selected Plan will far outweigh any potential impacts to Bayou La Loutre. Vessel traffic and shoreline erosion rates are monitored along Bayou La Loutre and other Louisiana waterways under private, state, and Federal efforts to implement coastal restoration plans." There are no data presented to justify this statement, and while we agree that there are overall environmental benefits to the closure as the USACE has described it, substituting one environmental problem for another in this fragile area of Louisiana's coast is not acceptable. The State Comprehensive Coastal Restoration and Protection Master Plan (2007) notes, "In addition, actions must be taken to avoid increased erosion in nearby waterways should shallow draft and recreational traffic circumvent the closure structure." De-authorization of Bayou La Loutre may be necessary to prevent it from becoming a traffic thoroughfare in the future (i.e. increase depth to accommodate vessels unable to use MRGO). It may also increase shoreline erosion within the channel. By not attempting to estimate the effects of rerouted vessel traffic, the USACE has shifted the burden of the cost of repairing, protecting, maintaining those substitute waterways to local and state entities. We find this unacceptable, and we strongly urge that the cost of protecting Bayou La Loutre and other area waterways be included as part of the deauthorization plan.

As stated in the DLEIS, the waterway is currently heavily used by recreational fisherman and small commercial fishing boats to access Breton Sound and other inland bays and lakes.

Therefore, LDWF recommends that the USACE provide a boat launch, immediately south of the proposed closure structure on the right descending bank of the MRGO as an alternative access route. A boat launch at this location will also relieve some of the anticipated increase in vessel utilization of Bayou La Loutre, an increase in use that will adversely impact the shoreline of Bayou La Loutre.

The draft Fish and Wildlife Coordination Act report recommended, among other things, that the area in and around the total closure structure and key locations from the total closure structure and north as far as Lake Maurepas, if possible, should be monitored to sufficiently determine the hydrologic effects of the closure and to document the changes in circulation patterns, salinity changes, and changes to the hypoxic-anoxic (H-A) zone, which is about 100 square miles in Lake Pontchartrain with the Industrial Canal as the focal point. The USACE responded that, "Concurrence ... would be accomplished through existing monitoring programs rather than through project specific monitoring. Monitoring of coastal wetlands and associated parameters occurs as part of existing, well-developed coastal restoration programs in Louisiana. Efforts include programs of the Federal government under the USACE and USGS, state efforts under the Louisiana Department of Natural Resources, and private programs executed in academic studies, environmental organizations, and through efforts of land owners and businesses. These efforts collect environmental data that is utilized in developing plans and projects to protect and restore coastal habitats in the state. Specific parameters monitored in the MRGO project area under these programs include wetlands loss and water quality elements. This information collection would capture some of the effects of the proposed total closure structure and allow other programs to address environmental restoration opportunities as they arise. Project specific monitoring is not included in the tentatively selected plan for this MRGO de-authorization study."

The LDWF finds this response unacceptable. Total closure of the MRGO is a large project in an environmentally sensitive area. Additional project specific monitoring is needed, both to assess the possible impacts on hydrology and estuarine circulation and material movement as well as the possible impacts on fish and wildlife. The USACE has expressed support of the concept of adaptive management in large comprehensive planning efforts for the Louisiana Coastal Area, and in the in-press Louisiana Coastal Area Protection and Restoration Plan. "Adaptive management" as envisioned by USACE and state and federal coastal planners establishes a feed back mechanism linking construction/implementation of plan elements to results of those actions. Monitoring, of course, is the link; monitoring of this closure should include pre and post closure conditions, and include parts of Bayou La Loutre in the plan. The LDWF strongly urges that project specific monitoring be implemented and that resulting data be used per the adaptive management strategy espoused by the USACE to manage the constructed project, and to provide critical information for future projects.

In addition, the total closure structure across the MRGO will force incoming tides and storm surges through and into other existing waterways as they approach the Bayou La Loutre Ridge. Therefore, LDWF recommends that the USACE monitor and maintain the integrity of the southern bank of Bayou La Loutre to insure the integrity of this natural ridge. If monitoring

indicates that the closure structure results in substantial increases in volumes and/or velocities flowing through these other waterways, maintenance of the bankline will be necessary. Maintenance may include, but is not limited to, construction of plugs across manmade canals, shoreline protection features, and beneficial use of spoil material.

The DLEIS also provides five alternative routes for shallow draft vessels to use when the Inner Harbor Navigation Canal Lock is congested or inoperable. Three of the five entail a route from Baptiste Collette Bayou through some portion of the Breton Sound and into 1. Chandeleur Sound and up to Mississippi Sound to rejoin the GIWW; 2. north up to the back retainer canal on the south side of the MRGO spoil area and up to Bayou La Loutre at Hopedale to enter the MRGO and travel up to rejoin the GIWW in the vicinity of Michoud; and 3. Mississippi River to Baptiste Collette Bayou and into Breton Sound and north up to the mouth of Bayou La Loutre in Bay Eloi and then through Bayou La Loutre to enter the MRGO and travel up to rejoin the GIWW in the vicinity of Michoud. The area described is part of Louisiana's public oyster seed ground area, and as a general policy the Department is opposed to additional dredging in the public oyster seed grounds. Any route through Breton Sound from Baptiste Collette has the potential to impact valuable reef complexes. If a route through Breton Sound is chosen, it should remain well east of the marsh islands and LDWF should be consulted in route determination.

The USACE estimates that the TSP could reduce a "significant percentage" of the 1,863 acres of marsh predicted to be lost in the future without project scenario. Because one of the more egregious impacts of the construction of the MRGO was salinity intrusion into surrounding marshes through the channel, plugging of the channel at Bayou La Loutre should aid in alleviating continued saltwater intrusion. The DLEIS states that because of this aid, closure of the channel could decrease marsh salinities in the area to a value closer to historic conditions. We caution against any plan that will cause this decrease to occur in a short time frame. A gradual shift in salinity will allow more time for the fishery to be able to adapt to the changes. Changes in the flow regime through the MRGO could also affect existing project areas such as the Caernarvon outfall areas. Changes may also be documented in the Department of Health and Hospitals' shellfish pollution harvest area restrictions. Future restoration measures are also proposed for the area, such as the Violet Siphon, that would also influence the salinity regime. If and when those measures are constructed and implemented, we ask that the USACE include LDWF staff in development of their operational and monitoring plan.

Additionally, some of the information in the report on existing conditions concerning wildlife and fisheries species seems to be dated. All of the cited literature dates from the 1970's and 1980's. More current information is available and should be used.

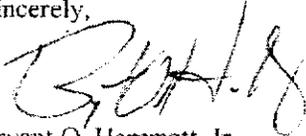
With the strong potential for development of deep draft navigation across coastal Louisiana, LDWF strongly recommends that those impacts from proposed deep draft navigation projects be cumulatively evaluated with the historical impacts associated with MRGO. The MRGO navigation project provides one model that has data documenting the impacts resulting from a deep draft navigation channel cutting across wetland habitats. Future project designs and plans should be developed in conjunction with planned and existing coastal restoration projects such as

Page 5  
Mr. Mickal  
DLEIS for MRGO Deep Draft De-authorization Study

the LCA, the state's Comprehensive Coastal Protection and Restoration Plan, and the federal LACPR planning.

Thank you for the opportunity to comment on this important project. If you have any questions about our comments please contact Manuel Ruiz at 225-765-2373 or [mruiz@wdf.louisiana.gov](mailto:mruiz@wdf.louisiana.gov).

Sincerely,



Bryant O. Hammett, Jr.  
Secretary

cc:

Brandt Savoie - LDWF  
John E. Roussel - LDWF  
Karen Foote - LDWF  
Phil Bowman - LDWF  
Mike Windham - LDWF  
Heather Finley - LDWF  
Kyle Balkam - LDWF  
Manuel Ruiz - LDWF  
NOAA  
USFWS  
EPA  
LDNR  
CPRA Integrated Planning Team

**APPENDIX B**

**US Fish and Wildlife Service June 19, 2007 Supplemental FWCA letter for  
MRGO Deep Draft Deauthorization**

June 19, 2007

Colonel Richard P. Wagenaar  
District Commander  
U.S. Army Corps of Engineers  
Post Office Box 60267  
New Orleans, Louisiana 70160-0267

Dear Colonel Wagenaar:

Please reference the Mississippi River-Gulf Outlet (MRGO), Louisiana Deep Draft De-authorization Plan. The U.S. Army Corps of Engineers (USACE) is developing this plan as directed by the Congress in Public Law 109-234, the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 and has recently redefined the Tentatively Selected Plan (TSP). The primary difference between the previous and new TSP relates to the existing 9.9 miles of bank stabilization features and jetties that will be deauthorized, but remain in place without continued operations and maintenance. Without operations and maintenance, those features are expected to subside below the waterline within 10 years. Other features of the plan will remain the same. The U.S. Fish and Wildlife Service (Service) provided recommendations on the previously proposed TSP to the USACE in an April 20, 2007, Fish and Wildlife Coordination Act Report. This letter supplements that report and is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and constitutes the report of the Secretary of the Interior as required by Section 2(b) of that Act.

A description of the study area and a discussion of the significant fish and wildlife resources (including habitats) that occur within that study area are contained in our April 2007 report. For brevity, that information and discussion is incorporated by reference herein.

Our previous report recommended that:

1. The Service should be provided an opportunity to review and submit recommendations on the draft plans and specifications on the MRGO total closure structure addressed in this report.
2. Coordination should continue with the Service and NMFS on detailed contract specifications to avoid and minimize potential impacts to manatees and Gulf sturgeon.

3. If the proposed project has not been constructed within one year or if changes are made to the proposed project, the USACE should re-initiate Endangered Species Act consultation with the Service.
4. The area in and around the closure structure and key locations from the closure structure and north as far as Lake Maurepas, if possible, should be monitored to sufficiently determine the hydrologic effects of the closure and to document the changes in circulation patterns, salinity changes, and changes to the dead zone which is about 100 square miles in Lake Pontchartrain with the Industrial Canal as the focal point.

Based on information provided on June 15, 2007, describing the new TSP and through emails and personal communications with USACE, National Marine Fisheries Service, U.S. Environmental Protection Agency, Louisiana Department of Wildlife and Fisheries and this office, the proposed TSP revision is expected to have a net gain of 3043 acres (a decrease of 460 acres from the previous TSP) at the end of the 50-year project life. The Service feels the proposed TSP still results in a significant gain in habitat for fish and wildlife resources over the project life. Furthermore, the Service regrets the loss of 460 acres of wetlands over the project life and encourages the USACE to investigate opportunities to prevent and/or minimize this loss. The Service, therefore, believes that the impact analysis and recommendations provided in our April 2007 FWCA Report continue to remain valid, but provide the following additional recommendation:

The USACE should investigate and seek legislative approval (e.g., project specific, Continuing Authority Program Section 206, etc.) to maintain the existing 9.9 miles of bank stabilization features and jetties that provide erosion protection benefits.

Thank you for the opportunity to review this proposed revision to the Mississippi River-Gulf Outlet, Louisiana, Deep Draft De-authorization Plan. If the project scope or design changes, the Service requests that the USACE reinitiate FWCA coordination to ensure that the above recommendations remains valid. If you or your staff has any questions regarding this matter, please have them contact Catherine Breaux (504/862-2689) of this office.

Sincerely,

James F. Boggs  
Acting Supervisor  
Louisiana Field Office

cc: LA Dept. of Wildlife and Fisheries, Baton Rouge, LA  
LA Dept. of Natural Resources (CRD & CMD), Baton Rouge, LA  
National Marine Fisheries Service, Baton Rouge, LA  
Fish and Wildlife Service, Atlanta, GA (AES)  
Environmental Protection Agency, Dallas, TX  
Natural Resources Conservation Service, Alexandria, LA

## APPENDIX G

### **Calculation of Net Marsh Acres**

## CALCULATION OF NET MARSH ACRES

### Introduction

Under the future without project condition, the Katrina-damaged channel would be dredged to its authorized dimensions with a 500-foot bottom width. A 600-foot width would always be maintained within the Bar Channel. When the Inland Reach is dredged to its full authorized dimensions, all material would be placed in upland confined disposal areas because of difficulties in developing a long term beneficial use disposal plan and finding marsh creation sites unencumbered with oyster leases. Material from the initial dredging of miles 27 to 23 could create approximately 157 acres of wetlands adjacent to and behind the north jetty. Material from the initial dredging of miles 23 to 14 could be placed behind the south jetty, and is estimated to create approximately 1,297 acres of marsh. From miles 14 to 3.4, material could be placed at unprotected sites in the sound and it is unlikely that any marsh created could last more than a year, based on previous results. Material from the initial dredging of miles 3.4 to -4 is likely to be placed either at the feeder berm or just off of Breton Island and is estimated to create approximately 215 acres of barrier island habitat which is assumed to be equal in habitat value to marsh for purposes of this analysis. Material from miles -4 to -9.4 would be placed in the Ocean Dredged Material Disposal Site.

Following the restoration of the channel to its full dimensions, it would be maintained at a 500-foot width. Material from the Inland Reach would again be placed in upland confined disposal areas. From 1985 to 2004, while maintaining miles 27 to 3.4 to a 500-foot width, an average of approximately 17 acres was created each year behind the jetties. From 1993 to 2005, material from within miles 3.4 to -4 was placed either at the feeder berm or just off of Breton Island, creating an average of approximately 21 acres per year. It is assumed that these acreages could continue to be created for 50 years in the future without de-authorization.

### Beneficial Use at the Jetties

In year 0, during initial restoration of the channel back to authorized dimensions it is estimated that 1,297 acres could be created behind the jetties. Each year after that, 17 acres are assumed to be created. The land loss rate along the MRGO was 0.58 percent per year from 1990-2001 (USACE, 2004). Since the created marsh behind the jetties would not be fully protected by the jetties, it is assumed that it could be lost at the background rate. Using the standard Wetland Value Assessment (WVA) spreadsheet (Roy, 2006) that calculates land-loss by reducing the area of marsh each year and adding gained acres each year (Table 1), it can be seen that in 50 years there could be about 1,709 acres present behind the jetties. Fifty years is the standard period of analysis used in USACE investigations.

### Beneficial Use on Breton Island

In year 0, during initial restoration 215 acres are estimated to be created at the feeder berm or just off of Breton Island. Each year after that, 17 acres could be created. The land loss rate along the MRGO was 0.58 percent per year from 1990-2001 (USACE, 2004). The dredged material is likely to just be put near Breton Island; it should eventually move to the island. Since the island is surrounded by open water, it is logical to assume the habitat might be lost at a rate 1.5 times the background or 0.87 percent per year. Using the WVA spreadsheet (Table 1) it can be seen that in 50 years there could be 993 acres present on the island.

**Table 1 Beneficial Use on the MRGO – Acreage after 50 Years**

	<b>FWO Breton</b>					<b>FWO Jetties</b>		
21	acre/yr gain year (yr 1-50)				17	acre/yr gain year (yr 1-50)		
0.87	percent loss/year (yr 1-50)				0.58	percent loss/year (yr 1-50)		
215	Starting Acres Barrier Island Habitat in year 0				1297	Starting Acres Marsh in year 0		
	<b>Remaining</b>	<b>Gained</b>	<b>Lost</b>			<b>Remaining</b>	<b>Gained</b>	<b>Lost</b>
<b>Year</b>	<b>Acres</b>	<b>Acres</b>	<b>acres</b>		<b>Year</b>	<b>Acres</b>	<b>Acres</b>	<b>Acres</b>
0	215				0	1297		
1	234	21	2		1	1306	17	8
2	253	21	2		2	1316	17	8
3	272	21	2		3	1325	17	8
4	291	21	2		4	1335	17	8
5	309	21	3		5	1344	17	8
6	327	21	3		6	1353	17	8
7	345	21	3		7	1362	17	8
8	363	21	3		8	1371	17	8
9	381	21	3		9	1380	17	8
10	399	21	3		10	1389	17	8
11	417	21	3		11	1398	17	8
12	434	21	4		12	1407	17	8
13	451	21	4		13	1416	17	8
14	468	21	4		14	1425	17	8
15	485	21	4		15	1434	17	8
16	502	21	4		16	1442	17	8
17	519	21	4		17	1451	17	8
18	535	21	5		18	1459	17	8
19	551	21	5		19	1468	17	8
20	568	21	5		20	1476	17	9
21	584	21	5		21	1485	17	9
22	600	21	5		22	1493	17	9

Table 1 Continued

Year	Remaining Acres	Gained Acres	Lost acres	Year	Remaining Acres	Gained Acres	Lost Acres
23	615	21	5	23	1502	17	9
24	631	21	5	24	1510	17	9
25	646	21	5	25	1518	17	9
26	662	21	6	26	1526	17	9
27	677	21	6	27	1534	17	9
28	692	21	6	28	1543	17	9
29	707	21	6	29	1551	17	9
30	722	21	6	30	1559	17	9
31	737	21	6	31	1567	17	9
32	751	21	6	32	1575	17	9
33	766	21	7	33	1582	17	9
34	780	21	7	34	1590	17	9
35	794	21	7	35	1598	17	9
36	808	21	7	36	1606	17	9
37	822	21	7	37	1613	17	9
38	836	21	7	38	1621	17	9
39	850	21	7	39	1629	17	9
40	864	21	7	40	1636	17	9
41	877	21	8	41	1644	17	9
42	890	21	8	42	1651	17	10
43	904	21	8	43	1659	17	10
44	917	21	8	44	1666	17	10
45	930	21	8	45	1673	17	10
46	943	21	8	46	1681	17	10
47	956	21	8	47	1688	17	10
48	968	21	8	48	1695	17	10
49	981	21	8	49	1702	17	10
<b>50</b>	<b>993</b>	21	<b>9</b>	<b>50</b>	<b>1709</b>	17	<b>10</b>

## Bank Erosion on North Bank of the MRGO

There are 37 miles along the Inland Reach. The USACE has built 9.9 miles of rock foreshore dikes along the north bank of the MRGO (Miles 56 - 50.5, Miles 43 - 41, Miles 37.2 - 36.5, Miles 36.1 - 35.6, Miles 33.8 - 32.6).

According to CWPPRA monitoring data, rock dikes stop bank erosion as long as they are above the water line. Table 2 specifies the measured north bank erosion, shows the amount of protected and unprotected bank on the channel and indicates the acres of marsh lost per year with and without rocks in place. This rock will be maintained in the future without de-authorization, but will not be maintained in Alternatives 1 and 3.

For the future without, if 100.9 acres are lost each year on the unprotected portion of the north bank of the MRGO, at the end of the 50 year analysis period, a total of approximately 5,045 acres of marsh could have been lost.

**Table 2 MRGO bank erosion (av. ft/yr) 1964-1996 and expected net acres/year loss**

Channel Mile	North Bank Erosion	Bank Protection (ft)	Unprotected Bank (ft.)	Acres/year Loss with Rock	Acres/year Loss without Rock
59.7-53.0	27.4	15,840	19,536	12.3	22.2
53.0-37.8	28.7	23,760	56,496	37.2	52.8
37.8-29.1	38.0	12,672	33,264	29.0	40.1
29.1-26.8	35.6		12,144	9.9	9.9
26.8-23.1	27.8		19,536	12.5	12.5
<b>23 - 21</b>	0	10,569	0	<b>0</b>	
<b>Total acres/year lost</b>				<b>100.9</b>	<b>137.5</b>

(loss rate from USACE 2004)

### Future Without De-authorization

As estimated above, approximately 2,702 acres of marsh could be created by beneficial use in 50 years. At the same time, about 5,045 acres of marsh could be lost to erosion. Thus there could be an estimated net loss of about 2,343 acres of marsh during the 50 year period of analysis.

### Alternative 1 - Construct a Total Closure Structure Across the MRGO Near Bayou La Loutre Immediately.

There would be no beneficial use. The existing rock dikes would not be maintained and it is likely that they would cease to stop erosion after 10 years. Thus, it is possible that erosion could increase by about 1/3 from that time forward, based on the data in Table 2. Both deep- and shallow-draft vessels would be removed from the channel immediately. The only erosive factor left would be the wind. But there is no verified technical data to show what percent of erosion is caused by wakes and what percent is caused by wind. The only statement that can be made is that erosion could be reduced, possibly significantly, by removing vessels and their wakes from the channel. Thus, Alternative 1 could have less marsh loss than the future without. It is

possible that the loss prevented might be a fairly significant percent of the 2,343-acre net loss of the future without.

**Alternative 3 - Cease All MRGO Operations and Maintenance Dredging Activities Immediately**

There would be no beneficial use. It is likely that both deep and shallow-draft vessels would use the channel as long as they could, even though it was de-authorized. The period of possible use has been estimated to be seven years. A very rough assumption, based on past history, is that after 10 years the existing rocks might have sunk below the water line and no longer stop erosion. Since it is unlikely that deep or shallow-draft navigation would be on the channel after 10 years, the rocks should be in place to prevent erosion behind them during the period of possible navigation use.

During the approximately seven-year period of possible navigation use, it can be assumed that the erosion could be more than in the first seven years of Alternative 1. At the end of the seven year period, for the next approximately 43 years, the erosion could increase by 1/3 and become approximately the same as in Alternative 1. Thus, this alternative is likely to have significantly less erosion than the future without, but slightly more than Alternative 1.

APPENDIX H

**Section 404(b)(1)  
Public Notice**

## PUBLIC NOTICE

### Mississippi River-Gulf Outlet (MRGO) Deep-draft De-authorization,

Introduction. This Public Notice is issued in accordance with provisions of Title 33 CFR Parts 336.1(b)(1) and 337.1, which establish policy, practices, and procedures to be followed on federal actions involving the disposal of dredged or fill material into waters of the United States.

Study Authority. The authority for the study is Public Law 109-234, the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006, reads in part:

*“...the Secretary of the Army, acting through the Chief of Engineers, utilizing \$3,300,000 of the funds provided herein shall develop a comprehensive plan, at full Federal expense, to de-authorize deep-draft navigation on the Mississippi River-Gulf Outlet, Louisiana, extending from the Gulf of Mexico to the Gulf Intracoastal Waterway: Provided further, That, not later than 6 months after the date of enactment of this Act, the Secretary shall submit an interim report to Congress comprising the plan: Provided further, That the Secretary shall refine the plan, if necessary, to be fully consistent, integrated, and included in the final report to be issued in December 2007 for the Louisiana Coastal Protection and Restoration Plan.”*

Location. The Tentatively Selected Plan is located in the MRGO adjacent to the historical location of the right descending bank of Bayou La Loutre in St. Bernard Parish, Louisiana (Figure 1).

Project Description. The Tentatively Selected Plan consists of totally closing the MRGO with a rock structure at the south ridge of Bayou La Loutre in St. Bernard Parish, Louisiana. The structure would connect the two sides of the ridge, a distance of about 950 feet. The top width of the structure would be 25-30 feet and the elevation would be + 5 feet MLG. The side slopes would be 1 V to 2.5 H and the bottom width would be 250-275 feet. Quarry run stone would be used to increase fines in the mix, minimize voids and water exchange. Approximately 270,000 tons of stone would be used. A barge-mounted dragline would be used to place the rock. Construction would take approximately 170 days. Every effort would be made to construct the total closure structure during the May through September window when Gulf sturgeon are in the rivers and not the estuaries. Existing bank stabilization features and jetties will be de-authorized, but remain in place. A non-Federal sponsor would be found to provide maintenance of the structure. A 50-year period of analysis is used for cost estimating.

Discharges by Others. None

Other Information. An LEIS entitled Mississippi River-Gulf Outlet (MRGO) Deep-draft De-authorization, was mailed to the public for a 45-day review on July 11, 2007. The associated ROD will be signed XXXX XX, 2007. This LEIS addressed the impacts associated with the construction of the total closure structure in the MRGO at the Bayou La Loutre ridge.

Properties Adjacent to Disposal Sites. The Tentatively Selected Plan is adjacent to properties of Tony Fernandez and Fabre/Dufrene.

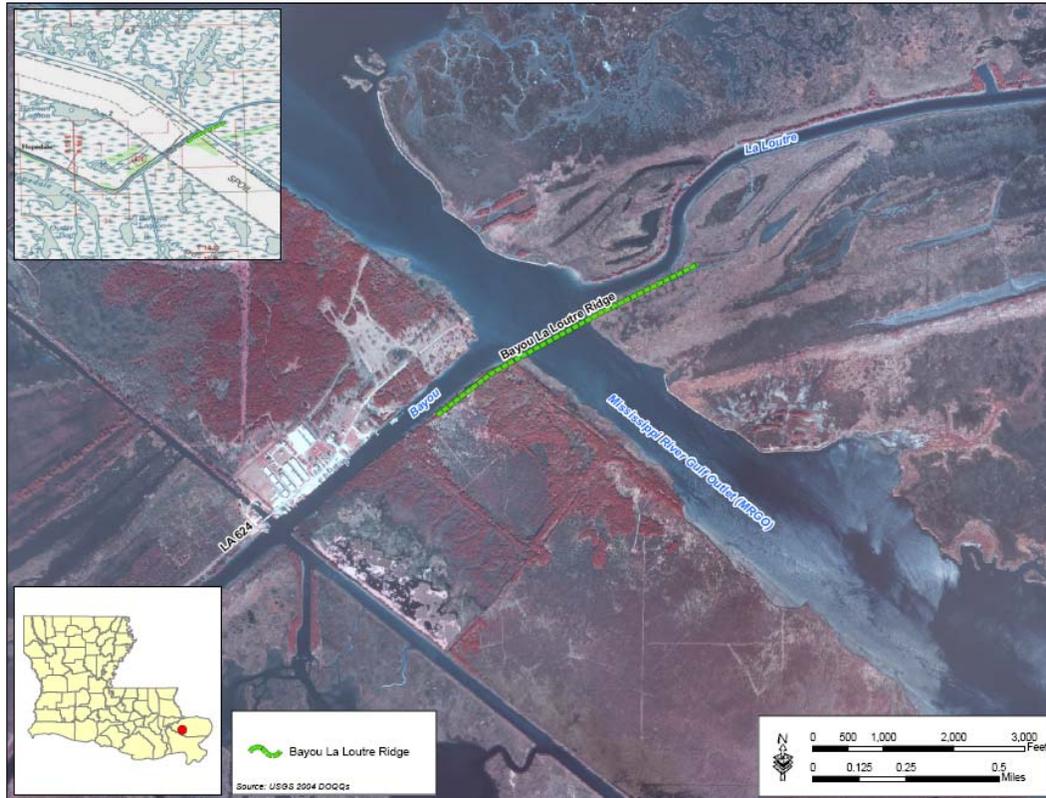


Figure 1. Site of Total Closure Structure

Status of LEIS and Other Environmental Documents. Environmental compliance for the Tentatively Selected Plan would be achieved upon: coordination of this LEIS and draft Record of Decision (ROD) with appropriate agencies, organizations, and individuals for their review and comments; U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) confirmation that the Tentatively Selected Plan would not be likely to adversely affect any endangered or threatened species; Louisiana Department of Natural Resources concurrence with the determination that the Tentatively Selected Plan is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program; receipt of a Water Quality Certificate from the State of Louisiana; public review of the Section 404(b)(1) Public Notice; signature of the Section 404(b)(1) Evaluation; receipt of the Louisiana State Historic Preservation Officer Determination of No Affect on cultural resources; receipt and acceptance or resolution of all USFWS Fish and Wildlife Coordination Act recommendations; receipt and acceptance or resolution of all Louisiana Department of Environmental Quality comments on the air quality impact analysis documented in the LEIS; and receipt and acceptance or resolution of all NMFS Essential Fish Habitat recommendations. The draft ROD would not be signed until the Tentatively Selected Plan achieves environmental compliance with applicable laws and regulations, as described above.

Coordination. The following is a partial list of agencies to which a copy of this notice is being sent:

U.S. Environmental Protection Agency, Region VI  
U.S. Fish and Wildlife Service  
National Marine Fisheries Service  
U.S. Coast Guard, Eighth District  
Louisiana Department of Environmental Quality  
Louisiana Department of Natural Resources  
Louisiana Department of Wildlife and Fisheries  
Louisiana Department of Transportation and Development  
Louisiana State Historic Preservation Officer

This notice is being distributed to these and other appropriate Congressional, federal, state, and local interests, environmental organizations, and other interested parties.

Evaluation Factors. Evaluation includes application of the Section 404(b)(1) guidelines for water quality promulgated by the Administrator of the U.S. Environmental Protection Agency, through 40 CFR 230.

Public Involvement. Interested parties may express their views on the disposal of material associated with the Tentatively Selected Plan or suggest modifications. All comments postmarked on or before the expiration of the comment period for this notice will be considered.

Any person who has an interest that may be affected by deposition of excavated or dredged material may request a public hearing. The request must be submitted in writing to the District Engineer within the comment period of this notice and must clearly set forth the interest that may be affected and the manner in which the interest may be affected by the Tentatively Selected Plan.

You are requested to communicate the information contained in this notice to any parties who may have an interest in the Tentatively Selected Plan.

For further information regarding the Tentatively Selected Plan, please contact Mr. Sean P. Mickal at (504) 862-2319 or Sean.P.Mickal@mvn02.usace.army.mil.

**Elizabeth Wiggins**  
Chief, Environmental Planning  
and Compliance Branch

COMMENT PERIOD FOR THIS PUBLIC NOTICE EXPIRES: September 4, 2007

APPENDIX I

**Section 404(b)(1) Evaluation**

## SECTION 404(b)(1) EVALUATION

The following short form 404(b)(1) evaluation follows the format designed by the Office of the Chief of Engineers, (OCE). As a measure to avoid unnecessary paperwork and to streamline regulation procedures while fulfilling the spirit and intent of environmental statutes, New Orleans District is using this format for all proposed project elements requiring 404 evaluation, but involving no adverse significant impacts.

PROJECT DESCRIPTION. The Tentatively Selected Plan consists of totally closing the MRGO with a rock structure at the south ridge of Bayou La Loutre in St. Bernard Parish, Louisiana. The structure would connect the two sides of the ridge, a distance of about 950 feet. The top width of the structure would be 25-30 feet and the elevation would be + 5 feet MLG. The side slopes would be 1 V to 2.5 H and the bottom width would be 250-275 feet. Quarry run stone would be used to increase fines in the mix, minimize voids and water exchange. Approximately 270,000 tons of stone would be used. A barge-mounted dragline would be used to place the rock. Construction would take approximately 170 days. Every effort would be made to construct the total closure structure during the May through September window when Gulf sturgeon are in the rivers and not the estuaries. Existing bank stabilization features and jetties will be de-authorized, but remain in place. A non-Federal sponsor would be found to provide maintenance of the structure. A 50-year period of analysis is used for cost estimating.

1. Review of Compliance (§230.10 (a)-(d)).

Preliminary<sup>1</sup>

Final<sup>2</sup>

A review of this project indicates that:

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for environmental assessment alternative);

YES	NO*
-----	-----

YES	NO
-----	----

b. The activity does not appear to: (1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act; (2) jeopardize the existence of Federally listed endangered or threatened species or their habitat; and (3) violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);

FOR (1)  
ONLY

YES	NO*
-----	-----

YES	NO
-----	----

c. The activity will not cause or contribute to significant degradation of waters of the United

States including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, esthetic, and economic values (if no, see section 2);

YES	NO*	YES	NO
-----	-----	-----	----

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5).

YES	NO*	YES	NO
-----	-----	-----	----

2. Technical Evaluation Factors (Subparts C-F).

N/A    Not Significant    Significant\*

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).

- (1) Substrate impacts.
- (2) Suspended particulates/turbidity impacts.
- (3) Water column impacts.
- (4) Alteration of current patterns and water circulation.
- (5) Alteration of normal water fluctuations/hydroperiod.
- (6) Alteration of salinity gradients.

	X	
	X	
	X	
	X	
	X	
	X	

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D).

- (1) Effect on threatened/endangered species and their habitat.
- (2) Effect on the aquatic food web.
- (3) Effect on other wildlife (mammals, birds, reptiles, and amphibians).

	X	
	X	
	X	

c. Special Aquatic Sites (Subpart E).

- (1) Sanctuaries and refuges.
- (2) Wetlands.
- (3) Mud flats.
- (4) Vegetated shallows.
- (5) Coral reefs.
- (6) Riffle and pool complexes.

X		
	X	
	X	
	X	
X		
X		

d. Human Use Characteristics (Subpart F).

- (1) Effects on municipal and private water

X		
---	--	--

supplies.

(2) Recreational and commercial fisheries impacts.

(3) Effects on water-related recreation.

(4) Esthetic impacts.

(5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

	X	
	X	
	X	
X		

Remarks. Where a check is placed under the significant category, the preparer has attached explanation.

3. Evaluation of Dredged or Fill Material (Subpart G).<sup>3</sup>

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material.

- (1) Physical characteristics .....     X
- (2) Hydrography in relation to known or anticipated sources of contaminants .....
- .....
- (3) Results from previous testing of the material or similar material in the vicinity of the project .....
- (4) Known, significant sources of persistent pesticides from land runoff or percolation .....
- (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances .....
- (6) Other public records of significant introduction of contaminants from industries, municipalities, or other sources .....
- (7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities .....
- (8) Other sources (specify) .....see references below.....

Appropriate references:

1. US Coast Guard Spill Logs.
2. USEPA STORET Database.
3. USEPA Superfund Program CERLIS Inventory, dated April 18, 2007
4. "State of Louisiana, Water Quality Management Plan, Water Quality Inventory Integrated Report, 2006."
5. Environmental Regulatory Code, Part IX. Water Quality Regulations,

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants,

or the material meets the testing exclusion criteria.

YES       NO\*

4. Disposal Site Delineation

(§230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

- (1) Depth of water at disposal site .....   X
- (2) Current velocity, direction, and variability at disposal site .....
- (3) Degree of turbulence .....
- (4) Water column stratification .....
- (5) Discharge vessel speed and direction .....
- (6) Rate of discharge .....
- (7) Dredged material characteristics (constituents, amount, and type of material, settling velocities) .....   X
- (8) Number of discharges per unit of time .....
- (9) Other factors affecting rates and patterns of mixing (specify) .....

Appropriate references:

Same as 3(a)

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES       NO\*

5. Actions to Minimize Adverse Effects

(Subpart H).

All appropriate and practicable steps have been taken, through application of the recommendations of §230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

YES       NO\*

Actions taken: (1) Stone is inert and not a carrier of contaminants, and would not introduce contaminants to the MRGO stone discharge site; (2) The proposed discharge site is not designated as critical habitat for threatened or endangered species; and (3) Discharge of stone during construction of the closure would take place during the May through September window when sturgeon are in rivers and not estuaries of the MRGO.

6. Factual Determination (§230.11).

A review of appropriate information as identified in items 2-5 above indicates that

there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

- a. Physical substrate at the disposal site (review sections 2a, 3, 4, and 5 above).  YES  NO\*
- b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5).  YES  NO\*
- c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5)  YES  NO\*
- d. Contaminant availability (review sections 2a, 3, and 4).  YES  NO\*
- e. Aquatic ecosystem structure and function (review sections 2b and c, 3, and 5).  YES  NO\*
- f. Disposal site (review sections 2, 4, and 5).  YES  NO\*
- g. Cumulative impact on the aquatic ecosystem.  YES  NO\*
- h. Secondary impacts on the aquatic ecosystem.  YES  NO\*

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

<sup>1</sup>Negative responses to three or more of the compliance criteria at this stage indicates that the proposed projects may not be evaluated using this "short form procedure". Care should be used in assessing pertinent portions of the technical information of items 2a-d, before completing the final review of compliance.

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

<sup>3</sup>If the dredged or fill material cannot be excluded from individual testing, the "short form" evaluation process is inappropriate.

#### 7. Evaluation Responsibility.

- a. Water Quality input provided by: Donna K. Bivona  
Position: Hydraulic Engineer GS-11  
Date: May 17, 2007
- b. This evaluation was reviewed by: Sean P. Mickal  
Position: Biologist GS-12  
Date: May 24, 2007

#### 8. Findings.

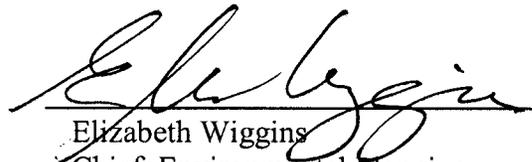
a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines .....YES

b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions .....

c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s):

- (1) There is a less damaging practicable alternative .....
- (2) The proposed discharge will result in significant degradation of the aquatic ecosystem .....
- (3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem .....

Date: 20 SEP 2007

  
Elizabeth Wiggins  
Chief, Environmental Planning  
and Compliance Branch

## APPENDIX J

### **Threatened and Endangered Species Coordination**

## Provisions for Treatment of Threatened and Endangered Species

MVN provisions for treatment of Threatened and Endangered Species occurring at or near a project construction site:

### West Indian Manatee (*Trichechus manatus*):

The Contractor shall instruct all personnel associated with the project of the potential presence of manatees in the area, and the need to avoid collisions with these animals. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. The Contractor shall be held responsible for any manatee harmed, harassed, or killed as a result of construction activities not conducted in accordance with these specifications.

The following special operating conditions shall be observed if a manatee is sighted in the construction area:

- (1) If a manatee(s) is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment will be shut down and all construction activities will cease to ensure protection of the manatee. Construction activities will not resume until the manatee has departed and the 50-foot buffer has been re-established.
- (2) If a manatee(s) is sighted in the project area, all vessels associated with the project shall operate at "no wake/idle" speeds at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom, and vessels will follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits.
- (3) If siltation barriers are used, they will be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment.
- (4) Manatee Signs. Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8-1/2" x 11" reading, "CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA." In the absence of a vessel, a temporary 3' x 4' sign reading "CAUTION: MANATEE AREA" will be posted adjacent to the issued construction permit. A second temporary sign measuring 8-1/2" x 11" reading "CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION" will be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction.

Any sightings of manatees, or collisions with a manatee, will be reported immediately to the Corps of Engineers. The point of contact within the Corps of Engineers will be Edward Creef, (504) 862-2521, FAX (504) 862-2317.

### Gulf Sturgeon (*Acipenser oxyrinchus desotoi*)

In 2006, USACE, MVN prepared an extensive draft Biological Assessment (BA) to address impacts that USACE navigational operations and maintenance projects might have on the Gulf sturgeon. Data and conclusions from this draft BA are incorporated by reference. Lake Pontchartrain east of the Causeway and Lake Borgne are designated as Critical Habitat for the Gulf sturgeon. The Gulf sturgeon spends the late fall, winter and early spring foraging in the Gulf of Mexico and its estuaries such as Lakes Borgne and Pontchartrain. They then enter coastal rivers like the Pearl River April through June to spawn and rest. The sturgeon leave the rivers for the estuaries and the Gulf September through November.

There have been four records of Gulf sturgeon within the project area. In 1974 a commercial fisherman reported taking a 7-foot Gulf sturgeon in Bayou Bienvenue. A commercial fisherman in 1983 reported catching a 6-foot Gulf sturgeon in Violet Canal. In 1990, Louisiana Wildlife and Fisheries (LDWF) personnel captured a 32-inch Gulf sturgeon in Lena's Lagoon near the MRGO. In January 2005 a sturgeon was found in the MRGO near the Breton Sound Marina during an USACE study of sonic-tagged Gulf sturgeon (Kirk, 2007).

In their May 11, 2007 letter commenting on the Notice of Intent for this action, the USFWS requested that the following conditions be used to avoid impacts to sturgeon.

“The Contractor should induce Gulf sturgeon to leave the immediate work area prior to any dredging work regardless of water depth or time of year. At the commencement of dredging, the bucket will be dropped into the water and retrieved empty one time. After the bucket has been dropped and retrieved, a one-minute no dredging period must be observed. During this no dredging period, personnel should carefully observe the work area in an effort to visually detect Gulf sturgeon. If Gulf sturgeon are sighted, no dredging should be initiated until they have left the work area. If the water turbidity makes such visual sighting impossible, dredging work may proceed after the one-minute no dredging period. If more than fifteen minutes elapses with no dredging, then the empty bucket drop/retrieval process shall be performed again prior to dredging.”

Kirk, James P. 2007. Report to the USACE, New Orleans District: Gulf Sturgeon Movements in and near the MRGO and Disposal Areas, Environmental Laboratory, Engineer Research and Development Center, Vicksburg, MS.



ATTN: Sean Michael

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

Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701  
(727) 824-5312, FAX 824-5309  
<http://sero.nmfs.noaa.gov>

SEP 14 2007

F/SER31:AM

Ms. Elizabeth Wiggins  
New Orleans District  
U.S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160

Re: LEIS De-authorization of the MRGO

Dear Ms. Wiggins:

This responds to your July 11, 2007, letter regarding the U.S. Army Corps of Engineers' (COE) proposed de-authorization of a Federal navigation channel maintained by the New Orleans District. You requested concurrence from the National Marine Fisheries Service (NMFS), pursuant to section 7 of the Endangered Species Act (ESA), with your determination the project may affect, but is not likely to adversely affect, Gulf sturgeon and sea turtles. NMFS' determinations regarding the effects of the proposed action are based on the description of the action in this informal consultation. You are reminded that any changes to the proposed action may negate the findings of the present consultation and may require reinitiation of consultation with NMFS.

The project is located at the south ridge of Bayou La Loutre in St. Bernard Parish, Louisiana. The COE proposes to de-authorize deep draft navigation on the Mississippi River - Gulf Outlet (MRGO). The MRGO will be completely closed off with a rock structure at the south ridge of Bayou La Loutre, connecting the two sides of the 950 foot ridge. The top width of the structure would be 25-30 feet and the elevation would be +5 feet from the mean low gulf height. The side slopes would be 1 vertical to 2.5 horizontal and the bottom width would be 250-275 feet. Approximately 270,000 tons of quarry run stone will be placed, using a barge-mounted dragline, and used to increase fines in the mix, minimize voids and water exchange. Existing bank stabilization features and jetties will be de-authorized, but remain in place. Construction would take approximately 170 days during the months of May through September when Gulf sturgeon are in the rivers and not the estuaries. The COE will require the applicant to comply with the Sea Turtle and Smalltooth Sawfish Construction Conditions (enclosed) that include such measures as the use of appropriate siltation barriers, operation of construction vessels at no wake/idle speeds, and the cessation of operations if a sea turtle or smalltooth sawfish is seen within a 50-foot radius of construction equipment.

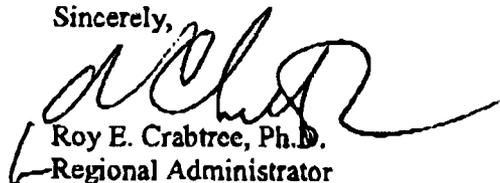


Three listed species of sea turtles (loggerhead, Kemp's ridley, green) and Gulf sturgeon may occur in or near the project site. Gulf sturgeon and sea turtles may be affected by construction activities if they were to be struck by the barge or construction materials; however, due to their mobility and the applicant's adherence to the Sea Turtle and Smalltooth Sawfish Construction Conditions, the likelihood of this occurring is discountable. In addition, listed species will be excluded from the project site during construction by the use of turbidity curtains. The COE has prepared Gulf sturgeon harm-avoidance measures to further reduce any adverse impacts to the species, located in Appendix J of the MRGO Deep-Draft De-authorization Study. Although the MRGO is adjacent to Lake Borgne, which is designated critical habitat for Gulf sturgeon, NMFS believes the MRGO does not provide foraging or other habitat functions for Gulf sturgeon or sea turtles as it is a consistently dredged man made canal; therefore, there will be no effects to Gulf sturgeon or sea turtles as a result of habitat impacts. Also, the de-authorization of the channel will allow for previously extirpated species (i.e., sea turtles) to recolonize the area post construction. Due to decreased vessel traffic, sea turtles and their food sources will be more likely to inhabit the area post de-authorization. Based on the above, NMFS concludes that sea turtles and Gulf sturgeon are not likely to be adversely affected by the proposed action.

This concludes your consultation responsibilities under the ESA for species under NMFS' purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action. We have enclosed additional information on other statutory requirements that may apply to this action, as well as NMFS' Public Consultation Tracking System to allow you to track the status of ESA consultations.

If you have any questions, please contact Ms. Alex Meyer at (727) 824-5312 or by e-mail at Alex.Meyer@noaa.gov.

Sincerely,



Roy E. Crabtree, Ph.D.  
Regional Administrator

Enclosures (2)

File: 1514-22.f.1.FL  
Ref: I/SER/2007/04774

### **Additional Considerations for ESA Section 7 Consultations (Revised 12-6-2005)**

**Marine Mammal Protection Act (MMPA) Recommendations:** The Endangered Species Act (ESA) section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA section 101 (a)(5) is necessary. Contact Ken Hollingshead of our NMFS Headquarters' Protected Resources staff at (301) 713-2323 for more information on MMPA permitting procedures.

**Essential Fish Habitat (EFH) Recommendations:** In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division (PRD) pursuant to section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's (MSA) requirements for essential fish habitat (EFH) consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

**Public Consultation Tracking System (PCTS) Guidance:** PCTS is an online query system allowing federal agencies and U.S. Army Corps of Engineers' (COE) permit applicants to track the status of NMFS consultations under ESA section 7 and under MSA sections 305(b)2 and 305(b)(4): Essential Fish Habitat. Access PCTS via: [www.nmfs.noaa.gov/pcts](http://www.nmfs.noaa.gov/pcts). Federal agencies are required to enter an agency-specific username and password to query the Federal Agency Site. The Corps Permit Site allows COE permit applicants the ability to check on the current status of Clean Water Act section 404 permit actions for which NMFS has conducted an ESA section 7 consultation with the COE since the beginning of the 2001 fiscal year (no password needed).

For COE-permitted projects, click on "Enter Corps Permit Site." From the "Choose Agency Subdivision (Required)" list, pick the appropriate COE district. At "Enter Agency Permit Number" type in the COE district identifier, hyphen, year, hyphen, number. The COE is in the processing of converting its permit application database to PCTS-compatible "ORM." An example permit number is: SAJ-2005-000001234-IPS-1. For the Jacksonville District, which has already converted to ORM, permit application numbers should be entered as SAJ (hyphen), followed by 4-digit year (hyphen), followed by permit application numeric identifier with no preceding zeros. E.g., SAJ-2005-123, SAJ-2005-1234, SAJ-2005-12345.

For inquiries regarding applications processed by Corps districts that have not yet made the conversion to ORM (e.g., Mobile District), enter the 9-digit numeric identifier, or convert the existing COE-assigned application number to 9 numeric digits by deleting all letters, hyphens, and commas; converting the year to 4-digit format (e.g., -04 to 2004); and adding additional zeros in front of the numeric identifier to make a total of 9 numeric digits. E.g., AL05-982-F converts to 200500982; MS05-04401-A converts to 200504401. PCTS questions should be directed to Eric Hawk at [Eric.Hawk@noaa.gov](mailto:Eric.Hawk@noaa.gov). Requests for username and password should be directed to April Wolstencroft ([PCTSUsersupport@noaa.gov](mailto:PCTSUsersupport@noaa.gov)).



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13th Avenue South  
St. Petersburg, FL 33701

### SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc





## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

646 Cajundome Blvd.  
Suite 400  
Lafayette, Louisiana 70506

September 25, 2007

Ms. Elizabeth Wiggins, Chief  
Environmental Planning and Compliance Branch  
U.S. Army Corps of Engineers  
Post Office Box 60267  
New Orleans, Louisiana 70160-0267

Dear Ms. Wiggins:

Please reference your July 11, 2007, letter (received in this office on September 24, 2007, via facsimile) and the biological assessment [BA] (included in Appendix J of the draft Legislative Environmental Impacts Statement) requesting our concurrence with the U.S. Army Corps of Engineers' (Corps) determination that the proposed de-authorization of the Mississippi River Gulf Outlet (MRGO) navigation channel, in St. Bernard Parish, Louisiana, is not likely to adversely affect any federally listed threatened or endangered species. The U.S. Fish and Wildlife Service (Service) has reviewed the information you provided, and offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d), and Migratory Bird Treaty Act (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).

The proposed action would involve closing the MRGO by constructing a rock structure at the south ridge of Bayou La Loutre. The structure would connect the two sides of the ridge (a distance of approximately 950 linear feet) using approximately 270,000 tons of stone. A barge-mounted dragline would be used to place the rock, and construction would require approximately 170 days. Existing bank stabilization features and jetties would remain in place but would be de-authorized, and a non-Federal sponsor would be used to provide maintenance of the new structure. As a result of the de-authorization, maintenance dredging of the channel would no longer be required, and beneficial use of that dredged material would no longer be used to nourish barrier islands within St. Bernard Parish.

The following federally listed species may occur within the proposed project area: the endangered West Indian manatee (*Trichechus manatus*), the endangered brown pelican (*Pelecanus occidentalis*), the threatened piping plover (*Charadrius melodus*) and its designated critical habitat, the threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*) and its designated critical habitat, the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), the threatened green sea turtle (*Chelonia mydas*), the endangered hawksbill sea turtle (*Eretmochelys imbricata*), the endangered leatherback sea turtle (*Dermochelys coriacea*), and the threatened loggerhead sea turtle (*Caretta caretta*).

Endangered and threatened sea turtles forage in the nearshore waters, bays and sounds of Louisiana, in addition to the Gulf sturgeon. Critical habitat has been designated for the Gulf sturgeon within coastal Louisiana and Mississippi waters. The National Marine Fisheries Service (NMFS) is responsible for the protection of those species and their critical habitat, in addition to aquatic marine threatened or endangered species. Please contact Eric Hawk (727/824-5312) in St. Petersburg, Florida, for information concerning endangered and threatened sea turtle species and Dr. Stephania Bolden concerning the Gulf sturgeon and its critical habitat.

West Indian manatees (*Trichechus manatus*) occasionally enter Lakes Pontchartrain and Maurepas, and associated coastal waters and streams during the summer months (i.e., June through September). Manatees have been regularly reported in the Amite, Blind, Tchefuncte, and Tickfaw Rivers, and in canals within the adjacent coastal marshes of Louisiana. They have also been occasionally observed elsewhere along the Louisiana Gulf coast. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Cold weather and outbreaks of red tide may also adversely affect these animals. According to the BA, the Corps would require their contractor to implement special operating procedures (as outlined in the BA) should a manatee be sighted in proximity to the proposed project area at the time of construction. Based on that information, the Service concurs with the Corps' determination that the proposed action is not likely to adversely affect the West Indian manatee.

Brown pelicans are currently known to nest on Raccoon Point on Isles Dernieres, as well as Queen Bess Island, Plover Island (Baptiste Collette), Wine Island, Rabbit Island in Calcasieu Lake, and islands in the Chandeleur chain. Pelicans change nesting sites as habitat changes occur; thus, they may also be found nesting on mud lumps at the mouth of South Pass (Mississippi River Delta) and on small islands in St. Bernard Parish. In spring and summer, nests are built in mangrove trees or other shrubby vegetation, although occasional ground nesting may occur. Brown pelicans feed along the Louisiana coast in shallow estuarine waters, using sand spits and offshore sand bars as rest and roost areas. Major threats to this species include chemical pollutants, colony site erosion, disease, and human disturbance. Installation of the new structure would not be located in proximity to islands that may be used by nesting pelicans. According to the BA, implementation of the proposed action would no longer provide beneficial dredged material to nourish Breton Island (an island within the Chandeleur Island chain). While such activities have proved beneficial to overall maintenance of brown pelican habitat, there are other potential nesting areas within Chandeleur Sound and adjacent areas that would be available for use by nesting pelicans. Therefore, the Service also concurs with the Corps' determination that the proposed action is not likely to adversely affect the brown pelican.

The piping plover (*Charadrius melodus*), as well as its designated critical habitat, occur along the Louisiana coast. Piping plovers winter in Louisiana, and may be present for 8 to 10 months annually. They arrive from the breeding grounds as early as late July and remain until late March or April. Piping plovers feed extensively on intertidal beaches, mudflats, sand flats, algal flats, and wash-over passes with no or very sparse emergent vegetation; they also require unvegetated or sparsely vegetated areas for roosting. In most areas, wintering piping

plovers are dependent on a mosaic of sites distributed throughout the landscape, because the suitability of a particular site for foraging or roosting is dependant on local weather and tidal conditions. Plovers move among sites as environmental conditions change, and studies have indicated that they generally remain within a 2-mile-long area. Major threats to this species include the loss and degradation of habitat due to development, disturbance by humans and pets, and predation. On July 10, 2001, the Service designated critical habitat for wintering piping plovers (Federal Register Volume 66, No. 132); however, none occurs in proximity to the proposed activities.

According to the BA, implementation of the proposed action would no longer provide beneficial dredged material to nourish the Breton and Chandeleur Islands (where piping plover critical habitat has been designated), but other islands and exposed sand and mud flats exist the Chandeleur Sound area and are available for use by wintering piping plovers. In addition, installation of the new structure would not be located in proximity to areas that may be used by wintering plovers. Based on that information, the Service also concurs with the Corps' determination that the proposed action is not likely to adversely affect the piping plover.

Please note that the bald eagle (*Haliaeetus leucocephalus*) was officially removed from the List of Endangered and Threatened Species as of August 8, 2007. However, it continues to be protected under the MBTA and the BGEPA. The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. Those guidelines recommend maintaining: (1) a specified distance between the activity and the nest (buffer area); (2) natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or replacement nest trees. On-site personnel should be informed of the possible presence of nesting bald eagles within the project boundary, and should identify, avoid, and immediately report any such nests to this office. A copy of the NBEM Guidelines is available at: <http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>.

According to the BA, bald eagles are unlikely to nest near the proposed project area. Our records also indicate that there are no known nest sites in proximity to the proposed project area. Although bald eagles may forage in the area, they are likely to avoid the project site during construction and disperse into adjacent areas with available foraging habitat. Should any new eagle nests be observed prior to or during construction, please notify this office and consult the NBEM guidelines. If after consulting those guidelines you need further assistance in determining the appropriate size and configuration of buffers or the timing of activities in the vicinity of a bald eagle nest, please contact this office.

We appreciate the Corps' continued cooperation in the conservation of threatened and endangered species, their critical habitats, and migratory birds. If you require additional

information or assistance regarding the above information, please contact Ms. Brigitte Firmin (337/291-3108) of this office.

Sincerely,



James F. Boggs  
Acting Supervisor  
Louisiana Field Office

cc: NMFS, St. Petersburg, FL  
LDWF, Natural Heritage Program, Baton Rouge, LA

## APPENDIX K

### **Coastal Zone Management Consistency Determination**

# State of Louisiana



KATHLEEN BABINEAUX BLANCO  
GOVERNOR

SCOTT A. ANGELLE  
SECRETARY

**DEPARTMENT OF NATURAL RESOURCES  
OFFICE OF COASTAL RESTORATION AND MANAGEMENT**

October 15, 2007

Elizabeth Wiggins  
Chief, Environmental Planning & Compliance Branch  
U. S. Army Corps of Engineers, New Orleans District  
P. O. Box 60267  
New Orleans, Louisiana 70160-0267

RE: **C20070352**, Coastal Zone Consistency  
**U. S. Army Corps of Engineers, New Orleans District**  
Direct Federal Action  
Draft Integrated Final Report to Congress and Legislative Environmental Impact  
Statement (LEIS) for the Mississippi River Gulf Outlet (MRGO) De-authorization  
Study, **St. Bernard Parish, Louisiana**

Dear Ms. Wiggins:

We are in receipt of your letter of October 12, 2007 conveying the Corps belief that the proposed action is consistent with Louisiana's Coastal Resources Program. Please refer to our letter to you of September 26, 2007 stating that the project, as you have described it, is consistent with the LCRP. We stated therein that the "initial phase of the project, as proposed in the referenced determination, is consistent with the LCRP". That determination, at your request by letter of September 20, 2007, was given as a phased, rather than as an un-phased consistency.

We interpret your letter of October 12 to be a withdrawal of that request. We also interpret that letter to say that the described activity is not the first phase of a larger project, but a complete project in itself, i.e., blocking vessel navigation in the MRGO.

We agree that this rock structure will block vessel navigation of the MRGO. That action is not inconsistent with the State's Coastal Resources Program.

However, we hasten to add that placing the rock structure within the MRGO leaves numerous issues relating to the MRGO unresolved, for example, restoration of environmental damages and continuing potential for storm surges.

Nonetheless, to the extent that the proposed activity will be carried out and the impacts and results are all as described in the Draft Plan, the Tentatively Selected Plan meets the minimum qualifications for consistency with the State's federally approved Coastal Zone

Management Program.

If you have any questions concerning this determination please contact Gregory J. DuCote of the Consistency Section at (225) 342-5052.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "Jim Rives".

Jim Rives  
Administrator

JR/GD

cc: Scott Angelle, DNR  
Gerry Duszynski, DNR  
Venise Ortego, LDWF  
Charles H. Reppel, St. Bernard Parish  
Sean Mickal, COE-NOD  
Tim Killeen, CMD FI



## DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P.O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO  
ATTENTION OF:

October 12, 2007

Planning, Programs, and  
Project Management Division  
Environmental Planning  
and Compliance Branch

Mr. Jim Rives  
Acting Administrator  
Office Coastal Restoration and Management  
LA Department of Natural Resources  
P.O. Box 44487, Capital Station  
Baton Rouge, Louisiana 70804-4487

Dear Mr. Rives:

RE: C20070352, Integrated Draft Report to Congress and Draft Legislative Environmental Impact Statement for the Mississippi River – Gulf Outlet, Deep-Draft De-authorization Study

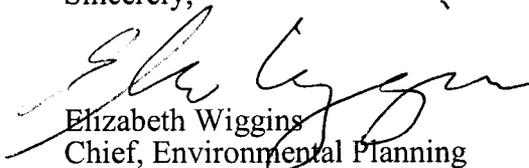
The integrated report, mailed for review July 11, 2007, addresses environmental impacts associated with the proposed Congressional de-authorization of a Federal navigation channel maintained by the U.S. Army Corps of Engineers, New Orleans District (MVN). The purpose of the proposed action is to de-authorize deep draft navigation on the Mississippi River – Gulf Outlet and to construct a complete closure across the MRGO at Bayou La Loutre. The proposed action is located in St. Bernard Parish, Louisiana.

The proposed action consists of totally closing the MRGO with a rock structure at the south ridge of Bayou La Loutre in St. Bernard Parish, Louisiana. The structure would connect the two sides of the ridge, a distance of about 950 feet. The top width of the structure would be 25-30 feet and the elevation would be + 5 feet MLG. The side slopes would be 1 V to 2.5 H and the bottom width would be 250-275 feet. Quarry run stone would be used to increase fines in the mix, minimize voids and water exchange. Approximately 270,000 tons of stone would be used. A barge-mounted dragline would be used to place the rock. Construction would take approximately 170 days. Every effort would be made to construct the total closure structure during the May through September window when Gulf sturgeon are in the rivers and not the estuaries. Existing bank stabilization features and jetties will be de-authorized, but remain in place.

Based on the information enclosed in the draft LEIS, we believe that the proposed action is consistent, to the maximum extent practicable, with the State of Louisiana's approved Coastal Resources Program. Full compliance of this project with the State of Louisiana's approved Coastal Resources Program does not preclude the LADNR from further consistency review of future Federal projects in the vicinity of this proposed action.

Please contact Mr. Sean Mickal; U.S. Army Corps of Engineers; Planning, Programs, and Project Management Division; Environmental Planning and Compliance Branch; CEMVN-PM-R; P.O. Box 60267; New Orleans, Louisiana 70160-0267. Comments may also be provided by E-mail to [sean.p.mickal@usace.army.mil](mailto:sean.p.mickal@usace.army.mil) or by FAX to (504) 862-2088. Mr. Mickal may be contacted at (504) 862-2319, if questions arise.

Sincerely,



Elizabeth Wiggins  
Chief, Environmental Planning  
and Compliance Branch

## APPENDIX L

### **Environmental Assessments and Environmental Impact Statements Incorporated by Reference**

## **Environmental Assessments and Environmental Impact Statements Incorporated by Reference**

- EA #411, entitled “MR-GO, Installation of Articulated Concrete Mattressing, Miles 37.4 to 36.5, St. Bernard Parish, Louisiana”, with a FONSI signed on October 19, 2004.
- EA #403, entitled “MR-GO, Hopper Dredging Miles 27.0 To 66.0”, with a FONSI signed on March 22, 2004
- EA #402, entitled “Lake Borgne – MR-GO, Shoreline Protection Project, St. Bernard Parish, LA”, with a FONSI signed on December 16, 2004.
- EA #361, entitled “MR-GO, LA, Test Installation of Articulated Concrete Mattressing, Miles 39.0 to 38.0”, with a FONSI signed on January 29, 2003.
- EA #355 MR-GO Mile 27.0 to – 0, with a FONSI signed on June 30, 2003.
- EA #354, entitled “MR-GO, Additional Disposal Area Designation Miles 66.0 to 49.0, St. Bernard Parish, LA”, with a Finding of No Significant Impact (FONSI) signed February 9, 2004.
- EA #349, entitled “MR-GO, Miles 32-27, Additional Disposal Areas - Hopedale Marshes, St. Bernard Parish, LA”, with a FONSI signed on August 15, 2002.
- EA #288, entitled “MR-GO Mile 43 to Mile 41 North Bank Stabilization, St. Bernard Parish, LA” with a FONSI signed on November 8, 1999.
- EA #277, entitled “MR-GO, LA, Shell Beach Disposal Areas, St. Bernard Parish, LA”, with a FONSI signed on September 6, 2001.
- EA #277-A, entitled “MR-GO, LA, Construction of Flotation Channels Miles 49.0 to 38.0, St. Bernard Parish, LA”, with a FONSI signed on October 2, 2001.
- EA #274 MR-GO, Additional Disposal Areas, Hopedale Marshes, with a FONSI signed on July 10, 1998.
- EA #269, entitled “MR-GO, LA, South of Lake Borgne Additional Disposal Areas, St. Bernard Parish, LA”, with a FONSI signed on March 24, 1998.
- EA #269-B, entitled “MR-GO, South of Lake Borgne Additional Disposal Areas plus Deflection Dike and Flotation Channels, St. Bernard Parish, LA”, with a FONSI signed on June, 2000.
- EA #269-C, entitled “MR-GO, LA, Construction of Flotation Channels Miles 51.0 to 48.0, St. Bernard Parish, LA”, with a FONSI signed on October 2, 2001.
- EA #255, entitled “MR-GO, LA, Wetland Creation, Miles 15.0 to 23.0, St. Bernard and Plaquemines Parish, LA”, with a FONSI signed on February 12, 1997.
- EA #247, entitled “MR-GO St. Bernard Parish, LA, Bank Stabilization Miles 55.0 to 56.1”, with a FONSI signed on September 24, 1996.
- EA #244 MR-GO Back Dike (CWPPRA), Disposal Area Marsh Protection, Back Dike, with a FONSI signed on July 30, 1996 NOTE: disregard erroneous date on heading of August 6, 1996, Commander signed on July 30, 1996.

- EA #162, entitled “Mississippi River – Gulf Outlet, St. Bernard and Plaquemines Parishes, LA - Marsh Enhancement/Creation and Berm Construction”, with a subsequent FONSI signed on July 10, 1992.
- EA #154 Mississippi River – Gulf Outlet - Major Rehabilitation of the South Jetty in Breton Sound, with a FONSI signed on December 23, 1991 NOTE: no EA available, this is date of Memorandum to discontinue work.
- EA #152, entitled “MR-GO St. Bernard Parish, LA, Bank Stabilization, Miles 50.5 to 55.0”, with a FONSI signed on November 21, 1991.
- EA #143 Mississippi River – Gulf Outlet - New Canal, Remedial Dredging, with a FONSI signed on September 11, 1991.
- EA #72, entitled “MR-GO Breton Sound Jetty Repairs”, with a FONSI signed on May 26, 1988.
- EA #54 South Bank Mississippi River – Gulf Outlet - Borrow Site, with a FONSI signed on April 1, 1986.
- EA #47, entitled “MR-GO Foreshore Protection”, with a FONSI signed on January 23, 1985.
- EA #38, entitled “MR-GO, Foreshore Protection Test Section”, with a FONSI signed on August 15, 1983.
- EA #15 entitled “Transfer of Land Along Mississippi River – Gulf Outlet Jourdan Road Terminal to Inner Harbor Navigation Channel”, with a FONSI signed on December 15, 1980.
- Lake Pontchartrain, LA and Vicinity Hurricane Protection Project Riprap shore protection with openings at Bayous Bienvenue and Dupre, EIS, 1973 and 1974.
- Lake Borgne Vicinity MR-GO Bayous La Loutre, St. Malo, and Dupre Final EIS, March 1976.
- Mississippi River-Gulf Outlet, New Lock and Connecting Channels. Evaluation report and final EIS in nine volumes, dated March 1997 (actually released in 1998).
- Mississippi River - Gulf Outlet Ocean Dredged Material Final EIS, May-89.
- Mississippi River-Gulf Outlet, Michoud Canal. Final EIS, dated June 1973.
- U. S. Army Corps of Engineers, 2004. Louisiana Coastal Area (LCA) Ecosystem Restoration Study and Programmatic EIS. US Army Corps of Engineers, New Orleans, Louisiana.

APPENDIX M

**Section 106 Consultation**



DEPARTMENT OF THE ARMY  
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 60267  
NEW ORLEANS, LOUISIANA 70160-0267

July 20, 2007

*also sent to  
Keim*

Planning, Programs, and  
Project Management Division  
Environmental Planning  
And Compliance Branch  
Attn: CEMVN-PM-RN

Alton LeBlanc, Chairman  
P.O. Box 661  
Charenton, LA 70523

Dear Chairman LeBlanc:

The U.S. Army Corps of Engineers is planning to close the Mississippi River Gulf Outlet (MRGO) by constructing a rock dam across the MRGO below Bayou La Loutre in St. Bernard Parish (attachment 1). The MRGO was inventoried by Coastal Environments, Inc. (Wiesman et al. 1980) and no sites were found in the immediate vicinity of the proposed dam.

One site, 16SB92, is located to the north and west of the proposed dam. 16SB92 is described as two house foundations and a cinder paved road. According to the site form, (attachment 2) this site dates from the late 1700's to the early 1800's. According to Weisman et al. the site is not eligible for inclusion in the National Register of Historic Places. We agree with the not eligible assessment.

Therefore we believe that the proposed project will have no adverse effect as defined in 26CRF 800.5(b). If you have any questions or require additional information, please contact Gary DeMarcay at (504) 862-2039.

References Cited

- 1980 Wiseman, Diane E., Richard A. Weinstein and Kathleen G. McCloskey  
Cultural Resources Survey of the Mississippi River-Gulf Outlet Orleans and St.  
Bernard Parishes, Louisiana. Report prepared under contract No. DACW29-77-D-  
0272 for the U.S. Army Corps of Engineers, New Orleans District.

Sincerely,

Elizabeth Wiggins  
Chief, Environmental Planning  
And Compliance Branch

Attachment

REPLY TO  
ATTENTION OF

  
EXNICIOS  
CEMVN-PM-RN

  
WIGGINS  
CEMVN-PM-R



DEPARTMENT OF THE ARMY  
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 60267  
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO  
ATTENTION OF

JUL 11 2007

Planning, Programs, and  
Project Management Division  
Environmental Planning  
and Compliance Branch

Ms. Pam Breaux  
SHPO, Department of Culture  
Recreation and Tourism  
P.O. Box 44247  
Baton Rouge, LA 70804

Date: 7-6-07  
No known archaeological sites or historic  
properties will be affected by this undertaking.  
This effect determination could change should  
new information come to our attention.  
Pam Breaux  
Pam Breaux  
State Historic Preservation Officer

Dear Ms. Breaux:

A draft Legislative Environmental Impact Statement (LEIS) is enclosed for your consideration. This document addresses the environmental impacts associated with the proposed de-authorization of a Federal navigation channel maintained by the U.S. Army Corps of Engineers, New Orleans District (MVN). The purpose of the proposed action is to de-authorize deep draft navigation on the Mississippi River – Gulf Outlet (MRGO). The proposed action is located in St. Bernard Parish, Louisiana.

The Tentatively Selected Plan consists of totally closing the MRGO with a rock structure at the south ridge of Bayou La Loutre in St. Bernard Parish, Louisiana. The structure would connect the two sides of the ridge, a distance of about 950 feet. The top width of the structure would be 25-30 feet and the elevation would be + 5 feet MLG. The side slopes would be 1 V to 2.5 H and the bottom width would be 250-275 feet. Quarry run stone would be used to increase fines in the mix, minimize voids and water exchange. Approximately 270,000 tons of stone would be used. A barge-mounted dragline would be used to place the rock. Construction would take approximately 170 days. Every effort would be made to construct the total closure structure during the May through September window when Gulf sturgeon are in the rivers and not the estuaries. Existing bank stabilization features and jetties will be de-authorized, but remain in place. A non-Federal sponsor would be found to provide maintenance of the structure. A 50-year period of analysis is used for cost estimating.

Please review the enclosed document and provide comments within 45 days of the date of this letter. If you require additional copies, please refer to the MRGO Website at <http://mrgo.usace.army.mil/default.aspx?p=MRGO>. A public meeting will be scheduled for this proposed project and all interested parties will be notified of the date, time, and location by mail. The Record of Decision will not be signed until all environmental review and compliance requirements have been completed. A copy of the final LEIS will be provided upon request.

JUL 19 2007

Comments should be mailed to the attention of Mr. Sean Mickal; U.S. Army Corps of Engineers; Planning, Programs, and Project Management Division; Environmental Planning and Compliance Branch; CEMVN-PM-R; P.O. Box 60267; New Orleans, Louisiana 70160-0267. Comments may also be provided by E-mail to sean.p.mickal@mvn02.usace.army.mil, or by FAX to (504) 862-2088. Mr. Mickal may be contacted at (504) 862-2319, if questions arise.

Sincerely,

  
Elizabeth Wiggins  
Chief, Environmental Planning  
and Compliance Branch

Enclosures

APPENDIX N

**Section 401 State Water Quality Certification**



## DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO

GOVERNOR

MIKE D. McDANIEL, Ph.D.

SECRETARY

October 9, 2007

Department of the Army  
New Orleans District, Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160-0267

Attention: Elizabeth Wiggins  
Chief, Environmental Planning and Compliance Branch

RE: Water Quality Certification (DH 070806-01/AI 101235/CER 20070011)  
Corps of Engineers Permit (MVN-2006-PM-R)  
Mississippi River - Gulf Outlet Project  
St. Bernard Parish

Dear Ms. Wiggins:

The Department has received your application for a Corps of Engineers permit to place about 270,000 tons of stone into a 950 foot space, about 30 feet wide at the top and 275 feet wide at the bottom, to close off the de-authorized deep draft navigation channel located in St. Bernard Parish, known as the MRGO.

The requirements for Water Quality Certification have been met in accordance with LAC 33:IX.1507.A-E. Based on the information provided in your application, we have determined that the development and placement of the fill material will not violate the water quality standards of Louisiana provided for under LAC 33:IX.Chapter 11. Therefore, the Department has issued this Water Quality Certification.

Sincerely,

Thomas R. Griggs  
Engineer Manager

TRG/dph

c: Corps of Engineers, New Orleans, LA

**ENVIRONMENTAL SERVICES**

: PO BOX 4313, BATON ROUGE, LA 70821-4313

P:225-219-3181 F:225-219-3309

WWW.DEQ.LOUISIANA.GOV

**Mississippi River Gulf Outlet LADEQ WQC public notice:**

Notice is hereby given that Sean Mickal of the Department of the Army, Corps of Engineers, New Orleans District, has applied for a permit to place rock to construct a rock closure in the Mississippi River – Gulf Outlet (MRGO). The proposed construction location of the rock closure is at the south ridge of Bayou Loutre at the MRGO. Approximately, 270,000 tons of stone would be placed in the open waters of the MRGO in St. Bernard Parish, Louisiana. The applicant is applying to the Louisiana Department of Environmental Quality, Office of Environmental Services for a water quality certificate in accordance with statutory authority contained in LAC 33:IX.1507.A-E, and provisions of Section 401 of the Clean Water Act (P.L. 95-217).

Comments concerning this application can be filed with the Registrations and Certifications Section within ten days of this notice by referencing WQC DH 070806-01 to the following address:

Louisiana Department of Environmental Quality  
Registrations and Certifications Section  
P.O. Box 4313  
Baton Rouge, LA 70821-4313  
Telephone (225) 219-3467

A copy of the application is available for inspection and review at the LDEQ Public Records Center, on the first floor of the Glavez Building, Room 127 at 602 North Fifth Street, Baton Rouge, LA. Viewing hours are from 8:00 am to 4:30 pm Monday thru Friday (except holidays).

## APPENDIX O

### **Non-Federal Sponsor Letter**



Coastal Protection and  
Restoration Authority of Louisiana

September 25, 2007

**VIA U.S. MAIL AND FACSIMILE (504) 862-1259**

Colonel Alvin B. Lee  
Commander, New Orleans District  
U.S. Army Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160-0267

**RE: Mississippi River Gulf Outlet Deep-Draft De-authorization Report**

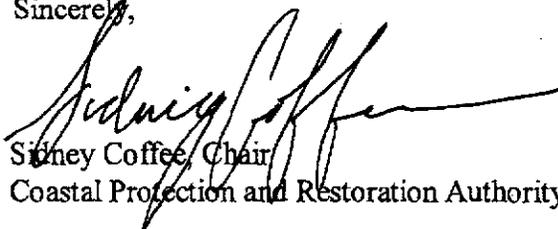
Dear Colonel Lee:

I am pleased to see the recommendation in the referenced report to close the Mississippi River Gulf Outlet. This is consistent with the clearly pronounced policy of the State of Louisiana as outlined in the state's Coastal Master Plan, entitled *Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast*.

The Coastal Protection and Restoration Authority of Louisiana (CPRA) is authorized to carry out any and all functions necessary to serve as the local sponsor for this project. As this project will be funded at full federal expense, I understand that the non-federal sponsor's requirements should be relatively minimal. The CPRA is interested in becoming the local sponsor for the project dependent upon the nature of the local cooperation requirements and their specific costs. Please provide me with a detailed listing of the local sponsor requirements so the CPRA can determine whether to enter into this agreement. As we move forward with this closure, we look forward to continuing the dialogue with the Corps and other stakeholders concerning how best to address any impacts to affected users.

Thank you for your support. I look forward to our continued close partnership as we move forward in the protection and restoration of coastal Louisiana.

Sincerely,



Sidney Coffee, Chair  
Coastal Protection and Restoration Authority of Louisiana

cc: CPRA Members  
Port of New Orleans