Mister Go Isn’t Gone Yet:
Creating Community and Environmental Resiliency in the Wake of a Man-Made Catastrophe

A report by the MRGO Must Go Coalition
April 2010

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Mister Go Isn’t Gone Yet

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ABOUT THE MRGO MUST GO COALITION

The MRGO Must Go Coalition was founded in 2006. Our mission is to ensure that the wetlands affected by the MRGO are carefully restored in a timely manner. As of April 2010, the Coalition included 17 local and national environmental, social justice, and community organizations:

- American Rivers
- Citizens Against Widening the Industrial Canal
- Coalition to Restore Coastal Louisiana
- Environmental Defense Fund
- Global Green
- Gulf Restoration Network
- Holy Cross Neighborhood Association
- Lake Pontchartrain Basin Foundation
- Levees.org
- Louisiana Environmental Action Network
- Louisiana Wildlife Federation
- Lower Mississippi Riverkeeper
- Lower Ninth Ward Center for Sustainable Engagement and Development
- MQVN Community Development Corporation
- National Audubon Society
- National Wildlife Federation
- Sierra Club—Delta Chapter

Since its inception, the Coalition has served as a liaison between the community and the Corps. We host educational forums, media tours, and rallies. We conduct outreach through our website (www.MRGOmustGO.org) and social networking sites, and by attending meetings and events in the Greater New Orleans area. The Coalition also uses its vast organizational resources and expertise to make policy and scientific recommendations on the restoration of the ecosystem impacted by the MRGO.

ABOUT THIS REPORT

In December 2006, Drs. John Day, Mark Ford, Paul Kemp, and John Lopez prepared the report *Mister Go Must Go: A Guide for the Army Corps’ Congressionally-Directed Closure of the Mississippi River Gulf Outlet*, which described the role of the Mississippi River Gulf Outlet...
(MRGO) in both coastal land loss and flooding of New Orleans during Hurricane Katrina. The report also made a number of recommendations about closure of the MRGO and restoration of the surrounding ecosystem.

Nine environmental non-profit organizations and the St. Bernard Parish Government endorsed the report when it was released. The U.S. Army Corps of Engineers (the Corps) is using the report as a resource for its ongoing MRGO Ecosystem Restoration Study.

This report, *Mister Go Isn’t Gone Yet: Creating Community and Environmental Resiliency in the Wake of a Man-Made Catastrophe*, serves as an update and expansion of the 2006 report and the recommendations therein.

**ACKNOWLEDGEMENTS**

We thank the City of New Orleans and St. Bernard Parish government, the community leaders, and the scientists whose passion and work over several decades has made the progress on the MRGO closure and restoration possible.

We dedicate this report to the memory of Pamela Dashiell, who passed away in late 2009. Pam was an outstanding advocate and community leader in the Lower Ninth Ward. Her leadership for a sustainable Lower Ninth Ward and the restoration of wetlands along the MRGO touched and inspired many people well beyond her community.

**SUGGESTED CITATION**


You can find a complete copy of this report on our website: [www.MRGOmustGO.org](http://www.MRGOmustGO.org)
EXECUTIVE SUMMARY

Since its construction in the late 1950s and early 1960s, the Mississippi River Gulf Outlet (MRGO) has impacted over 600,000 acres of coastal ecosystems surrounding the Greater New Orleans area—completely destroying over 27,000 acres of wetlands. Prior to construction of the MRGO, the coastal wetlands provided economic opportunities, helped clean water, and provided natural storm surge protection to urban communities like the Lower Ninth Ward, New Orleans East, Chalmette, and Arabi.

In 2005, Hurricane Katrina underscored the importance of the impact of the MRGO on wetlands and public safety when storm waves generated in Lake Borgne regenerated in the MRGO channel and destroyed the earthen levees while the surge was still rising. This large scale breach of levees resulted in catastrophic flooding of communities. In 2007, the U.S. Congress singled out the MRGO’s role in Katrina’s devastation by calling for the U.S. Army Corps of Engineers (the Corps) to close the MRGO and to develop a plan for ecosystem restoration. The Corps has closed the channel to navigation, which is the first step toward restoring historical salinity levels and reducing erosion along the banks of the MRGO. However, the Corps is still working on a plan to fix the damage caused by the construction and operation of the channel. Much more remains to be done to address this legacy—“Mister Go” isn’t gone yet!

The MRGO Must GO Coalition (Coalition) has gathered the expertise of scientists, local governments, and the community to develop recommendations for the Corps’ restoration plan. The Coalition recommends eight priority projects for the MRGO Ecosystem Restoration Feasibility Study currently being crafted by the Army Corps of Engineers that will:

- Mitigate many historical impacts of the MRGO channel;
- Increase protection from hurricane winds, waves, or storm surge;
- Improve fish and wildlife habitat;
- Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise; and
- Create jobs for engineers, construction crews, project managers, administrative assistants, and others.

The Coalition recommends the following:

1. **Reintroduce freshwater at Violet**: Recreating the historic connection between the Mississippi River and the surrounding wetlands is the most sustainable way to reduce...
saltwater intrusion and restore and rehabilitate marshes east of New Orleans over the long term.

2. **Restore the Central Wetlands**: Restoration of this 30,000 acre area would have several benefits for the residents of the Lower Ninth Ward and St. Bernard Parish beyond mitigation for the historical impacts of the MRGO and improved fish and wildlife habitat, including ecotourism opportunities and green job creation.

3. **Restore banklines and constrict the channel**: Modifying the MRGO channel will reduce the risk of wave regeneration and attack on the hurricane levee system and potentially improve the performance of the Violet Diversion.

4. **Restore and sustain the Lake Borgne Land Bridge**: Full restoration of the Lake Borgne Land Bridge will help protect the newly constructed levees on the southwest side of the MRGO and protect critical wetland habitats from saltwater intrusion, erosion, and sea level rise.

5. **Restore and sustain the East Orleans Land Bridge**: The East Orleans Land Bridge plays a critical role in reducing wave and surge damage to the parishes surrounding Lake Pontchartrain, and in maintaining normal tidal flow between the lake and the Gulf of Mexico.

6. **Restore and sustain the Biloxi Marsh Land Bridges**: Restoring the Biloxi Marsh Land Bridges will reduce the vulnerability of New Orleans and St. Bernard Parish to storm surge and will sustain rich habitat and the production of economically important species.

7. **Restore the Bayou la Loutre Ridge**: Restoring the forested ridge will dampen wave energy in a storm and also provide critical habitat for the hundreds of bird species that rely on stopover habitat during spring and fall migration.

8. **Restore the Gosier Barrier Island Chain**: Restoring the Gosier Barrier Island Chain, which was directly impacted during construction of the MRGO, will help to restore and sustain the Chandeleur Islands.

These recommendations will help create and sustain a healthy, resilient coastal buffer between the New Orleans area and the Gulf of Mexico. The Corps should adopt and implement the recommendations with the utmost urgency to ensure public safety. The Coalition recommends an implementation timeline, detailed herein, that includes the completion of construction by 2014. Speedy implementation will hinge on the State of Louisiana and the Corps resolving a dispute about the State’s obligation to share the cost of construction. The Coalition interprets the congressional intent in WRDA 2007 as 100% federal for construction. Given the extent of the restoration needs, however, we encourage the State of Louisiana, the Corps, and Congress to work together to identify all available funding sources.
HISTORY OF THE MRGO

THE ECONOMIC AND ENVIRONMENTAL COSTS

The Mississippi River Gulf Outlet (MRGO; commonly pronounced “Mister Go”) is a 76-mile long artificial channel that was built to provide a navigation shortcut from the Gulf of Mexico to the heart of New Orleans. Authorized by Congress in 1956 and completed by the U.S. Army Corps of Engineers (the Corps) in 1968, the MRGO originally was 650 feet wide at the top and at least 36 feet deep. More earth was dredged to construct the MRGO than was moved to construct the Panama Canal.

Proposed as an economic development project, the MRGO was lightly used and expensive to maintain. In 2006, the MRGO cost taxpayers nearly $20,000 for each vessel traveling in the channel.

The MRGO also came at a steep environmental price, which scientists and communities along the MRGO had anticipated before the Corps started construction. When the Corps dredged the channel, they converted 20,000 acres (31.2 square miles) of wetlands to open water, and allowed saltwater to flow inland from the Gulf, eventually damaging an additional 7,600 acres (11.8 square miles) of wetland and lagoon habitat. By 2005, erosion along the channel’s banks expanded the MRGO to a width of 3,000 feet in some areas, bringing it in close proximity to the hurricane protection levee. Saltwater moving up the channel also damaged or destroyed freshwater cypress forests of Orleans and St. Bernard Parishes, and created a dead zone in Lake Pontchartrain. All told, the construction and operation of the channel has impacted more than 618,000 acres (965.6 square miles) of habitat—an area almost three times the size of New York City’s five boroughs (Table 1).
**Table 1.** Summary of quantified habitat impacts of the MRGO in Louisiana, not including possible effects in Mississippi Sound.

<table>
<thead>
<tr>
<th>Impact Description</th>
<th>Impact Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of estuarine wetland &amp; lagoon habitat loss to deep water or spoil</td>
<td>27,600 acres</td>
</tr>
<tr>
<td>Conversion of estuarine wetland habitat to higher salinity habitats</td>
<td>38,000 acres</td>
</tr>
<tr>
<td>Dead zone of Lake Pontchartrain (benthic mortality over 1/6 of lake area)</td>
<td>64,000 acres</td>
</tr>
<tr>
<td>Shift from lacustrine to estuarine: Lake Pontchartrain (5/6 area) and Lake Borgne</td>
<td>488,400 acres</td>
</tr>
<tr>
<td><strong>TOTAL HABITAT IMPACTS</strong></td>
<td><strong>618,000 acres</strong></td>
</tr>
</tbody>
</table>

Reference: Lake Pontchartrain Basin Comprehensive Habitat Management Plan, 2006

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**THE HUMAN COST**

When communities like the Lower Ninth Ward, Arabi, and Chalmette were established, a natural storm buffer of cypress trees and other wetlands helped protect them from hurricanes. The MRGO put those communities at risk by damaging or destroying that protective buffer.\textsuperscript{vi}

Despite being at a higher elevation than much of New Orleans, St. Bernard Parish and the Lower Ninth Ward (called “Lower” because it is downriver from the Upper Ninth Ward) experienced the deepest, most violent flooding in the New Orleans metro area during Hurricane Katrina. According to a 2009 report by eight expert scientists, the extensive flooding in this area was directly attributable to the MRGO.\textsuperscript{vii} Through detailed wave and hydrodynamic modeling, the scientists showed that waves in Lake Borgne were able to rebuild to 8 to 9 feet high as they crossed the MRGO channel, breaching the earthen levees along the channel while the surge was still rising. The flooding was also worsened by the levee-lined intersection of the MRGO and the Gulf Intracoastal Waterway (Figure 2), which funneled storm surge through the MRGO and into the Industrial Canal—flooding the heart of...
the city. During Hurricane Katrina, the fierce surge and waves caused levees and flood walls to collapse and unleashed a wall of water into densely populated communities east of the Industrial Canal.

It is clear that MRGO destroyed communities and cost lives. Restoring natural storm surge protection must be a major focus in planning the restoration of areas affected by the MRGO.

**CONGRESS TO THE CORPS: MISTER GO MUST GO**

After Hurricane Katrina, the MRGO Must Go Coalition played a significant role in alerting Congress to the dangers of the MRGO and calling for closure and restoration. Due in part to the action taken by the Coalition, Congress recognized the threat posed by the MRGO in the Emergency Supplemental Appropriations Act of 2006\textsuperscript{ix} and again in the Water Resources Development Act (WRDA) of 2007.\textsuperscript{x} Section 7013 of WRDA 2007 directed the Corps to develop and construct:

\begin{itemize}
    \item[i)] a plan to physically modify the Mississippi River-Gulf Outlet and restore the areas affected by the navigation channel;
    \item[ii)] a plan to restore natural features of the ecosystem that will reduce or prevent damage from storm surge;
    \item[iii)] a plan to prevent the intrusion of saltwater into the waterway;
    \item[iv)] efforts to integrate the recommendations of the report with the program authorized under section 7003 and the analysis and design authorized by title I of the Energy and Water Development Appropriations Act, 2006 (119 Stat. 2247); and
    \item[v)] consideration of—
        \begin{itemize}
            \item[I)] use of native vegetation; and
            \item[II)] diversions of fresh water to restore the Lake Borgne ecosystem.
        \end{itemize}
\end{itemize}

The 2007 legislation required the Corps to submit the final plan by May 2008. The Corps has since closed the channel to navigation, which partially addresses items i) and iii), above. The agency is still developing a plan to address the remaining restoration items, and expects to release the report in May 2010 (see Figure 7 in the Implementation section)—two years behind the congressional deadline.
PROGRESS TOWARD PHYSICAL CLOSURES AND RESTORATION

Since release of the 2006 MRGO Must Go report and the passage of WRDA 2007, the Corps has made modest progress toward repairing the damage caused by the MRGO.

First, as mentioned above, Congress legally deauthorized the MRGO to deep water navigation and the Corps has physically closed the channel. Deauthorization was effective in 2008, upon acceptance of a closure plan by the Assistant Secretary of the Army of Civil Works and the Environment and Public Works Committee. A primary recommendation of the MRGO Must Go report and the Corps’ MRGO closure plan was to construct a rock dam at Bayou la Loutre (Figure 3). This was completed in June 2009 at a cost of $13,000,000. The primary benefits of the dam will be to re-establish the general hydrology of the estuary, and to reduce saltwater intrusion that moved through the MRGO channel for over three decades. The construction of the dam has already significantly reduced salinity, and the U.S. Geological Survey (USGS) is conducting ongoing monitoring to determine if the re-occurring dead zone (hypoxia) in Lake Pontchartrain has diminished. In addition to monitoring water quality, we recommend that the USGS or other agencies also monitor changes in hydrology and fisheries.

The rock dam has effectively closed the MRGO to navigation, but the closure plan did not include the coastal restoration elements required by WRDA 2007. To address these elements, the Corps is preparing the MRGO Ecosystem Restoration Study.

Although the restoration plan is not complete, the Corps and other Federal agencies have made tangible progress on both structural flood protection and vital coastal restoration projects. Several projects since Hurricane Katrina have addressed degradation of the MRGO-Lake Borgne Land Bridge. The land bridge, a narrow area of marsh separating Lake Borgne from the
MRGO, is vital to reducing surge attack on the MRGO levee and to maintaining the integrity of Lake Borgne. The Corps and the U.S. Environmental Protection Agency (EPA) have completed shoreline protection projects on the land bridge. In addition, the Corps has armored the MRGO bankline along the Lake Borgne Land Bridge with rock. Several other small marsh creation projects are planned. However, more work is needed on the land bridge and the area adjacent to the MRGO levee.

The Corps is in the midst of constructing a surge barrier that will close the MRGO at the infamous storm surge funnel (Figure 4). We commend the Corps for taking this action, which was a major recommendation in the 2006 Mister Go Must Go report. The surge barrier is part of a construction program referred to as Task Force Hope, which includes the Hurricane Storm Damage Risk Reduction System (HSDRRS), due to be completed in 2011. This barrier will enhance flood protection by reducing the threat of the MRGO funnel area for a 100-year storm event.

Still, this is less than the pre-Katrina authorized 200-300 year level of protection, and does not address restoring the coastal buffer that has been lost due to the MRGO. In addition, the surge barrier, when completed, threatens to raise storm surge levels along the MRGO levee that protects St. Bernard Parish. This concern prompted the Corps to add extra elevation to the MRGO levee and additional measures to enhance the resiliency of the levee.

Significant progress has been made since the 2006 report. Nevertheless, the fact that another storm like Katrina (which was a “400-year” event) could overwhelm the new and improved levees and floodwalls demonstrates that much more is needed to protect the citizens of New Orleans and St. Bernard Parish.
RESTORATION NEEDS

The construction and operation of the MRGO impacted over 618,000 acres of wetland and lake habitat surrounding New Orleans, Chalmette, and other coastal communities (see Table 1, p.2). Wetland loss increased the exposure of communities to storms, but also impacted the day-to-day quality of life by reducing public access to what were formerly productive natural areas. Furthermore, coastal areas damaged by the MRGO are more vulnerable to ongoing subsidence and sea level rise.

We propose a comprehensive set of projects (Figure 5) that will:

- Mitigate many historical impacts of the MRGO channel;
- Increase protection from hurricane winds, waves, or storm surge;
- Improve fish and wildlife habitat;
- Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise; and
- Create jobs for engineers, construction crews, project managers, administrative assistants, and others.xii

![Figure 5](image.png)

**Figure 5.** Map of recommended features to include in the MRGO Ecosystem Restoration study. Note that the actual project areas would be larger than indicated by the numbers alone.
It is important to note that we carefully selected projects to achieve maximum benefits for both communities and the MRGO ecosystem. Our recommendations are not all-inclusive of the restoration possibilities in the 6,000-square mile MRGO study area. Further, although many have called for the entire MRGO channel to be filled, we also recognize that it would be nearly impossible to carry out such a project due to logistic, financial, time, and other constraints. Therefore, we are advocating for a suite of more feasible projects that can provide many of the same benefits.

**RECOMMENDATIONS**

1. **Reintroduce Freshwater at Violet**

<table>
<thead>
<tr>
<th>Primary benefits of a diversion at Violet:</th>
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<tbody>
<tr>
<td>• Mitigate historical impacts of the MRGO channel;</td>
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<tr>
<td>• Improve fish and wildlife habitat; and</td>
</tr>
<tr>
<td>• Increase the resiliency of coastal wetlands that buffer storm surge to erosion, subsidence, and sea level rise.</td>
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</tbody>
</table>

Recreating the historic connection between the Mississippi River and the surrounding wetlands is the most sustainable way to reduce saltwater intrusion and restore and rehabilitate marshes east of New Orleans over the long term. The Violet Diversion has the potential to help build and sustain wetlands in the Central Wetlands Unit, Biloxi Marshes and along Lake Borgne. **Construction of the Violet Diversion must be a top priority, because other key projects in the MRGO study area depend on its performance.**

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**Glossary of Restoration Terms**

**Land Bridge:** A land bridge is a land or wetland connection between otherwise separate areas of open water. In the MRGO ecosystem restoration area, land bridges protect critical wetlands, maintain estuarine boundaries, and act as storm surge buffers.

**Beneficial Use of Dredged Material:** When sediment is dredged from the Mississippi River, oil and gas canals, or navigation channels, it is often treated as waste material and discarded in deep water. However, that sediment can be beneficially used instead, meaning that it is used to build barrier islands, marshes, and other coastal habitat.

**River Diversion:** Diversions are manmade structures that allow the reintroduction of river water and sediment into wetland areas or shallow open water. Diversions mimic the natural deltaic process and help reduce salinity in wetland areas negatively impacted by saltwater intrusion.

**Bankline Reclamation:** Bankline reclamation aims to restore the eroded banks of a waterway or navigational channel.
The Corps is considering designing, constructing, and operating Violet as if it will be operated in conjunction with the diversions planned for the Blind River and Hope Canal areas. Preliminary models suggest that under that scenario, Violet could meet salinity targets with a flow as small as 5,000 cubic feet per second (cfs). However, this depends on the future construction of the Hope Canal and Blind River Diversions, and a favorable operation scheme of all three diversions for salinity targets in the Biloxi Marsh.

While we support both Hope Canal and Blind River, they are on a different implementation schedule than the Violet Diversion. Further, by designing Violet such that its performance relies on two other projects, the Corps restricts the ability to adaptively manage the diversion.

Congress recognized the importance of Violet by authorizing it in WRDA 2007 as a stand-alone project to be constructed by September 2012. **We strongly recommend that the Corps construct the Violet Diversion with the capacity to independently achieve the targets as mandated in the WRDA authorization:** “reducing salinity in the western Mississippi Sound, enhancing oyster production, and promoting the sustainability of coastal wetlands.” Two modeling studies have concluded that under this scenario, Violet Diversion need to have a maximum flow of 7,500 to 15,000 cfs to reestablish historic salinity levels in Lake Borgne during normal rainfall years. **We also urge the Corps to design the diversion such that flows can be increased beyond the typical maximum discharge.** This will give managers the capacity to respond to high salinity years (such as during drought or after hurricanes) or other unusual conditions in this highly dynamic system.

Although the Violet Diversion is primarily intended to influence salinity, it will still deliver some sediment. Most of the sediment deposition will occur near the outfall of the diversion. **We recommend that management of discharge from the Violet Diversion be directed through Proctor Point—the most prominent wetland area along the MRGO levee—to ensure that sediment deposition occurs in wetlands rather than in the open water of Lake Borgne.** Furthermore, it appears that trees formerly grew in the Proctor Point area near what is now the MRGO channel. Directing sediment to this area would facilitate the re-establishment of a modest forest and provide some storm surge protection. Management of the Violet discharge to Proctor Point may require additional closures within the MRGO channel.

### 2. Restore the Central Wetlands

<table>
<thead>
<tr>
<th>Primary benefits of a restored Central Wetlands:</th>
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<tbody>
<tr>
<td>• Mitigate historical impacts of the MRGO channel;</td>
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<td>• Improve fish and wildlife habitat;</td>
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<tr>
<td>• Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise; and</td>
</tr>
</tbody>
</table>
In the early 1950s, the Central Wetlands was primarily a freshwater system dominated by cypress swamp (approximately 25% of the land area) and freshwater marsh (approximately 29% of the land area). In part because of saltwater conveyed by the MRGO, the Central Wetlands is now a broken mix of open water, intermediate and brackish marsh, and patches of swamp (<20% of the 1950s swamp remains; Figure 6). 

Restoration of this 30,000 acre area would have several benefits for the residents of the Lower Ninth Ward and St. Bernard Parish. Because of its proximity to downtown New Orleans, a restored Central Wetlands could create well-paying green jobs for local residents and opportunities for urban children to reconnect with nature. Restoration of Bayou Bienvenue (Figures 6 and 7), which is a high priority for residents of the Lower Ninth Ward, will re-establish the cultural value of the bayou and enhance the hydrology of the area.

Restoration of the entire Central Wetlands Unit (Figure 7) has the potential to provide a modest amount of storm protection if flooding occurs within the MRGO levee.

Perhaps most importantly, the Central Wetlands could serve as an easily-accessible
demonstration of what restoration can accomplish, engaging both citizens and decision makers from around the country in the future of coastal Louisiana. To accomplish this restoration, land rights will need to be addressed in order to assure access for habitat management and any future public use.

The MRGO ecosystem restoration plan must include restoration of the Central Wetlands to forested wetlands along what is now the Forty Arpent levee, transitioning to a mix of wetland habitat near the MRGO levee. We strongly recommend that the MRGO Ecosystem Restoration Plan include the following projects in the Central Wetlands:

- Restoring Bayou Bienvenue;
- Filling critical open water areas with dredged sediments (preferably sourced from the Mississippi River);
- Supplying freshwater and nutrients through the Violet Diversion and a well-engineered and monitored wastewater assimilation system (that is designed specifically for restoration needs and takes lessons learned from the Hammond wastewater assimilation project into account);
- Planting cypress and other wetland vegetation; and
- Controlling nutria to protect newly-planted bald cypress seedlings and other wetland vegetation from herbivory until the ecosystem can be reestablished.

3. Restore Banklines and Constrict the Channel

<table>
<thead>
<tr>
<th>Primary benefits of restored bank lines and channel constrictions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mitigate historical impacts of the MRGO channel; and</td>
</tr>
<tr>
<td>• Increase protection from hurricane winds, waves, or storm surge.</td>
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</tbody>
</table>

Modifying the MRGO channel will provide protection to the MRGO levee and potentially improve the performance of the Violet Diversion. As we discussed above, the Corps has made improvements to the MRGO levee and is working to raise the Chalmette Loop levee that will enclose part of St. Bernard. However, the levees will still be vulnerable to the waves and surge that could be generated in the remaining wide, deep-water channel of the MRGO. The MRGO ecosystem restoration plan must include bankline restoration to reduce the risk of wave attack on the hurricane levee system. The MRGO ecosystem restoration plan should include rebuilding shallow, eroded banks of the MRGO where water depths are less than 12 feet.\textsuperscript{vi}

Reclamation of the banks would be done with dredged material to the elevation (3-5 feet) needed to support native vegetation, such as shrub-scrub habitat and black willow. While reclamation of both banklines will provide the most benefit, reclamation must take place along the west side of the MRGO as quickly as possible to buffer the rebuilt levees against future storms.
In concert with the surge barrier and rock dam, additional constrictions could also help direct river water east into degraded marshes, instead of north into the Industrial Canal and Lake Pontchartrain.

4. Restore and Sustain the Lake Borgne Land Bridge

<table>
<thead>
<tr>
<th>Primary benefits of the Lake Borgne Land Bridge:</th>
</tr>
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<tbody>
<tr>
<td>• Mitigate historical impacts of the MRGO channel;</td>
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<tr>
<td>• Increase protection from hurricane winds, waves, or storm surge; and</td>
</tr>
<tr>
<td>• Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise.</td>
</tr>
</tbody>
</table>

Full restoration of the Lake Borgne Land Bridge will help protect the newly constructed levees on the southwest side of the MRGO and protect critical wetland habitats from saltwater intrusion, erosion, and sea level rise. As described above, the Corps and EPA have completed several projects on the Lake Borgne Land Bridge. The MRGO ecosystem restoration plan must extend these efforts by including restoration of the land bridge through marsh creation, shoreline stabilization, and rebuilding shallow, eroded banks of the MRGO on the Lake Borgne side, where water depths are less than 12 feet.

5. Restore and Sustain the East Orleans Land Bridge

<table>
<thead>
<tr>
<th>Primary benefits of the East Orleans Land Bridge:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase protection from hurricane winds, waves, or storm surge;</td>
</tr>
<tr>
<td>• Improve fish and wildlife habitat; and</td>
</tr>
<tr>
<td>• Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise.</td>
</tr>
</tbody>
</table>

The East Orleans Land Bridge plays a critical role in reducing wave and surge damage to the parishes surrounding Lake Pontchartrain, and in maintaining normal tidal flow between the lake and the Gulf of Mexico. The land bridge is identified in the LACPR report as a “Critical Landscape Feature” because it reduces surges inland. The MRGO ecosystem restoration plan must include projects that will rebuild marsh and stabilize shorelines along the land bridge.

A critical part of the East Orleans Land Bridge was slated for restoration through CWPPRA’s Alligator Bend project. However, the marsh creation component of that project was dropped when a private mitigation bank was established in the area. Activity on the mitigation bank currently appears stalled. We urge the Corps to include marsh creation in the Alligator Bend area, along with shoreline stabilization on both the Lake Pontchartrain and Lake Borgne side of the land bridge. Other critical areas such as Grand Coin Pocket near The Rigolets Pass should also be stabilized.
6. Restore and Sustain the Biloxi Marsh Land Bridges

Primary benefits of the Biloxi Marsh Land Bridges:
- Mitigate historical impacts of the MRGO channel;
- Increase protection from hurricane winds, waves, or storm surge; and
- Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise.

The Biloxi Marsh Land Bridges are critical to reducing the vulnerability of New Orleans and St. Bernard Parish from storm surge. The LACPR report identifies this area as a “Critical Landscape Feature” because it reduces surges inland. Furthermore, the Biloxi Marshes form rich and productive habitat for economically important species. The MRGO ecosystem restoration plan must include the restoration and protection of the Biloxi Marsh Land Bridges through freshwater introduction (via the Violet Diversion), marsh creation, shoreline protection and creation of oyster barrier reefs. The oyster reefs are critical to the long term sustainability of the Biloxi Marsh because they can respond to sea level rise and create a natural buffer against storms. Furthermore, oyster reefs rebuild naturally and thus are more cost effective to maintain than rocks—which continually sink. Finally, oyster reefs create high-quality wildlife habitat and help improve water quality.

7. Restore the Bayou la Loutre Ridge

Primary benefits of the Bayou la Loutre Ridge:
- Mitigate historical impacts of the MRGO channel;
- Increase protection from hurricane winds, waves, or storm surge; and
- Improve fish and wildlife habitat.

The rock dam at Bayou la Loutre restores the hydrologic integrity of the Bayou La Loutre ridge where it was breached by the MRGO, but does not provide storm protection. Restoring the forested ridge that was damaged by subsidence and saltwater intrusion will dampen wave energy in a storm. A restored ridge will also provide critical habitat for the hundreds of bird species that rely on stopover habitat during spring and fall migration. According to the Louisiana Department of Wildlife and Fisheries, development, overgrazing, saltwater intrusion, and other factors have led to the loss of more than 95% of the forested ridge habitat that existed before European settlement.

The MRGO Ecosystem Restoration Study should include ridge restoration along either side of Bayou la Loutre for several miles east and west of the MRGO.
8. Restore the Gosier Barrier Island Chain

Primary benefits of the Gosier Barrier Island Chain:
- Mitigate historical impacts of the MRGO channel;
- Improve fish and wildlife habitat; and
- Increase the resiliency of coastal wetlands to erosion, subsidence, and sea level rise.

Louisiana’s barrier islands provide vital hurricane protection and serve as important habitat and hydrologic controls. With construction of the MRGO, the Corps created an unnaturally wide pass in the Gosier Barrier Island chain, which forms the southern arc of the Chandeleur Islands. The channel also disrupted the natural sediment transport system. Sediment that normally would have sustained the barrier islands collected in the channel and then was dredged away during channel maintenance. Partially as a result, the barrier island system is in very poor condition and provides little habitat value or surge protection. The MRGO ecosystem restoration plan must include filling of the channel in the vicinity of the Gosier Barrier Island chain to help restore and sustain the islands.\textsuperscript{xii}

Although the MRGO did not directly impact the northern reach of the Chandeleur Islands, they are within the geographical scope of the MRGO Ecosystem Restoration Study. These islands play an important role in moderating salinity of the Biloxi Marsh and daily wave action. Furthermore, they are also critical habitat for a variety of threatened or endangered species and for economically important species. The northern Chandeleur Islands are therefore an essential component of the overall restoration strategy for the MRGO ecosystem, and should be included in the MRGO Feasibility Study plan, although possibly constructed under another authority.

**PROJECT SYNERGIES**

The projects we recommend were chosen to complement each other, and to complement existing or planned projects under other authorities. For example, the freshwater and nutrients provided by the Violet Diversion will support restoration of the Central Wetlands and restoration and maintenance of the Biloxi Marshes (including oyster reefs on the outer edges of the marsh). The existing rock dam in Bayou la Loutre is critical to the hydrologic performance of Violet, but the diversion will work even more effectively with restoration of the Chandeleur Islands, bank line restoration, and channel constrictions.

Our recommendations are supported by the Lake Pontchartrain Basin Foundation’s *Comprehensive Habitat Management Plan* \textsuperscript{xxiii} and the *Multiple Lines of Defense Strategy*. Programmatic wetland habitat goals, based on the historic distribution of habitats (Figure 8), will create consistency among projects and help achieve a common hydrologic vision for the
coast. It is neither sufficient nor strategic to choose projects within the MRGO study area based solely on cost-effectiveness.

The MRGO Ecosystem Restoration Study must have a unified vision for the region, and assess the strategic value of combining restoration projects.

**PROJECT CONFLICTS**

The Inner Harbor Navigation Canal (IHNC) Lock Replacement Project being planned by the Corps conflicts with ecosystem restoration of the area affected by the MRGO. According to the Corps' March 2009 Supplemental Environmental Impact Statement for the project, the recommended plan for disposal of contaminated sediment dredged from the Industrial Canal during project construction is a 209-acre confined disposal facility (CDF). The proposed location for the CDF is the wetland area north of Bayou Bienvenue (just south of the GIWW/MRGO). Because this proposed disposal location for the contaminated sediment is adjacent to one of our priority MRGO ecosystem restoration project areas (Central Wetlands) and within the MRGO Ecosystem Restoration Feasibility Study area, we view this aspect of the IHNC Lock Replacement Project to be in direct conflict with the goals of the MRGO Ecosystem Restoration Plan. The IHNC lock project also aims to fill 85 acres of the Bayou Bienvenue Wetland Triangle with effluent and sediment from the Industrial Canal as wetland mitigation. The Corps acknowledges that the proposed fill is below restoration quality standards.
IMPLEMENTATION OF THE RESTORATION PLAN

MRGO ECOSYSTEM RESTORATION PLAN FEASIBILITY STUDY

In 2007, Congress directed the Corps to investigate the environmental impact of the MRGO and to develop a comprehensive restoration plan by May 2008. As described above, the report released in June 2008 recommended and resulted in the rock dam closure, but was otherwise deficient in addressing MRGO restoration. The ongoing MRGO Ecosystem Restoration Plan Feasibility Study is due for submission to Congress in July 2011.

Fortunately, the Corps intends to include construction schedules in the MRGO Feasibility Study, which will allow project construction to begin as soon as appropriations are available (Figure 9). Fiscal Year 2011 appropriations should include pre-engineering design funds and Fiscal Year 2012 appropriations should include construction funding for applicable projects (see Figure 10).

VIOLET DIVERSION

The Violet Diversion was authorized in WRDA 2007 as a potential alternative to the Bonnet Carré Diversion project authorized in 1984. WRDA 2007 required the Corps to complete the feasibility study for Violet by 2009 and to complete construction by 2012. Due to protracted project design work this will not occur. To avoid further delays, the Corps is including the Violet Diversion as an alternative in the MRGO Feasibility Study. Pre-engineering design funds should be sought for the diversion immediately following completion of the report. A preliminary cost estimate for the Violet Diversion is $250,000,000 (released in the Army Corps 2007 draft report on Violet Diversion). Because many other projects in the MRGO area are dependent on the performance of Violet, its construction should be a top priority (see Figure 5).

COST SHARE

The Corps and the State of Louisiana currently disagree about the State’s obligation—or lack thereof—to share the cost of constructing projects in the MRGO ecosystem restoration plan. The Corps maintains that the State is responsible for the typical cost share of 35%, whereas the State maintains that Congress intended construction of this restoration effort to be 100% federal. This impasse threatens to delay further the restoration of this critical coastal area, thereby leaving communities at risk. Resolving this dispute should be a priority of the Interagency Working Group and Congress.
The Coalition interprets the congressional intent in WRDA 2007 to be 100% federal cost share for construction. Given the extent of the restoration needs, however, we encourage the State of Louisiana, the Corps, and potentially other federal agencies to work together to identify all available funding sources.

**IMPLEMENTATION TIMELINES**

Figure 9 shows the congressional and Corps timelines for MRGO ecosystem restoration, along with an expedited timeline recommended by the MRGO Must Go Coalition. Figure 10 shows recommended timelines for individual projects within the restoration effort. The timelines account for the current planning status, the scope of work involved in each project, and the restoration urgency reflected in WRDA 2007 and the calls of scientists, local governments, and community leaders.

![Timeline Diagram](image)

**Figure 9.** The Corps has not met the schedule for the MRGO set by Congress in WRDA 2007, and anticipates that planning and construction will extend beyond 2015. The MRGO Must Go Coalition recommends an expedited timeline, the success of which will depend in part on resolution of the cost share dispute and appropriations from Congress. The timeline for individual projects is shown in Figure 10, below.

The Violet Diversion will help create and maintain the hydrologic conditions necessary for cypress and other freshwater wetland vegetation in the Central Wetlands Unit. A phased approach may therefore be the most effective way to restore the area. The construction timeline shown for Central Wetlands includes sediment delivery to shallow open water areas that cannot currently support trees and implementation of wastewater assimilation projects (including limited planting activity). The remaining planting may need to take place after Violet is operational.

The target vegetation for the Bayou la Loutre Ridge is oak, magnolia, and other tree species found on a mature forested ridge. However, previous restoration experience—and observations of natural land-building in the Atchafalaya—suggests that planting early-succession species such
as willows may be an important interim step. We expect oaks and other late-succession species to start colonizing the ridges approximately 10 years after construction.

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**Figure 10.** Recommended planning, construction, and monitoring timeline.
A CALL TO ACTION

Mister Go isn’t gone yet. We call on the Corps, the State, and Congress to ensure that the MRGO does not result in further destruction. We stand ready to work with decision-makers at all levels to expedite the restoration of a coastal ecosystem critical to the health and well-being of one of the country’s most unique urban areas.

We seek:

• A sustainable restoration plan (including all priority projects recommended by the MRGO Must Go Coalition) that reflects the unprecedented damage brought by the MRGO; and
• An implementation timeline that reflects the urgency of providing protection to the communities at risk each hurricane season.

To achieve project completion by the 2014 deadline, the State of Louisiana and the Army Corps must sign a cost share agreement immediately to avoid further delays and ensure the 2011 MRGO Ecosystem Restoration Plan completion. The U.S. Congress must then approve funding for project construction, which will allow the Army Corps to adhere to the recommended implementation timeline.

Together, we can ensure that nothing less than a timely and carefully restored ecosystem is achieved for our friends and families in New Orleans and St. Bernard Parish.

ENDNOTES

ii van Heerden, I. Ll., G. P. Kemp, R. Bea, G. Shaffer, J. Day, C. Morris, D. Fitzgerald, and Andrew Milanes. 2009. How a navigation channel contributed to most of the flooding of New Orleans during Hurricane Katrina. Public Organizing Review: DOI 10.1007/s11115-009-0093-8. Available at: http://www.springerlink.com/content/vr67192t25574g01/. This article is based in part on expert witness reports prepared for a tort suit against the United States government (Civil Action No. 05-4182). In a landmark decision on November 16, 2009, U.S. District Court Judge Stanwood Duval ruled that the Army Corps of Engineers was
indeed liable for damages associated with Hurricane Katrina, due to negligent operation and maintenance of the Mississippi River Gulf Outlet.


Shaffer et al. 2009

van Heerden et al. 2009

Ibid.


G. Miller, personal communication, December 2009


Historical maps suggest that cypress swamp may have accounted for 40-50% of the habitat in the early part of the 20th century. However, quantitative habitat data are not available prior to 1950. For more information on habitat change in the Central Wetlands, please see: FitzGerald, D. S. Penland., A. Milanes, M. Minder, and K. Westphal. 2008. Impact of the Mississippi River Gulf Outlet (MR-GO): Geology and Geomorphology. Expert Report, Denham Springs, LA. Available at: http://www.katrinadocs.com


The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) was passed by Congress in 1990 to fund wetland enhancement in Louisiana. Learn more at: http://www.lacoast.gov/cwppra/

U.S. Army Corps of Engineers 2009


