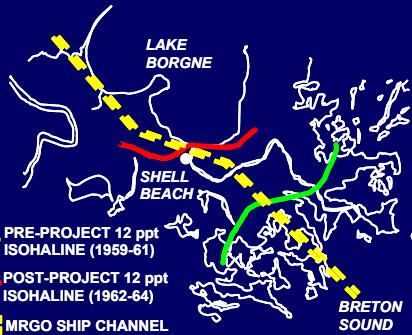


# “Closing”

# the Mississippi River Gulf Outlet: *Environmental and Economic Considerations*

## In Review...

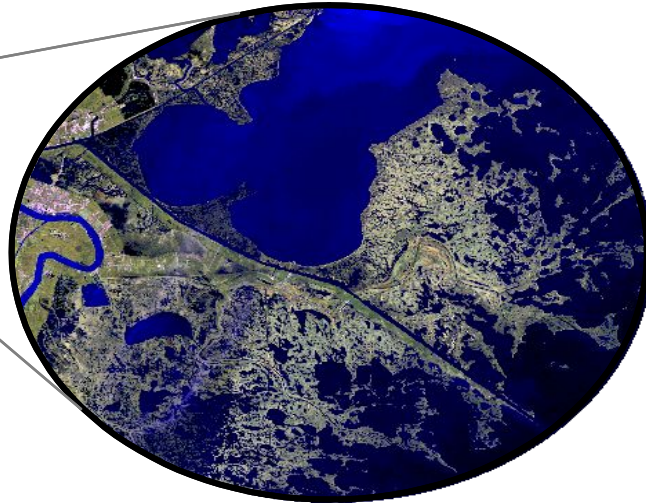
- Background on MRGO
- Impacts to the region
- Calls for action
- What does it mean to “close” the MRGO?
- Future considerations



Soon after the channel opened, average salinities at one interior location in the Breton Estuary (Shell Beach) increased from 3.5 ppt to 12 ppt.



Cypress sentinels stand testament to the habitat transition that occurred after the MRGO channel was constructed.



## PROJECT HISTORY

The Mississippi River Gulf Outlet (MRGO) is a man-made navigational channel connecting the Gulf of Mexico to the City of New Orleans. Approved by the U.S. Congress under the Rivers and Harbor Act of 1956, construction began in 1958 and was completed in 1965 at an initial cost of approximately \$92 million.<sup>1</sup> Authorized to a depth of 36 feet, a surface width of 650 feet, and a bottom width of 500 feet, the 76-mile channel bisected the marshes of lower St. Bernard Parish and the shallow waters of Chandeleur Sound.<sup>2</sup> Rationale for MRGO construction was primarily economic, because the 40-mile shorter route through St. Bernard promised a safer and more efficient passage than the Mississippi River below New Orleans. Proponents originally touted the project as a means of great industrial development for St. Bernard Parish.

## MRGO IMPACTS

### Environmental

The habitats traversed by the MRGO are dominated by shallow estuarine waters and sub-delta marshes. Since the construction and operation of the MRGO, several basic impacts on the region have become evident. These include land loss caused by excavation of the channel, soil erosion, and shifts in habitat type because of increased salinity. The New Orleans District of the U.S. Corps of Engineers speculates that the loss of land in the area approaches nearly 3,400 acres of fresh/intermediate marsh. More than 10,300 acres of brackish marsh, 4,200 acres of saline marsh, and 1,500 acres of cypress swamps and levee forests have been destroyed or severely altered.<sup>2</sup>

*“...Excavation of the (MRGO) could result in major ecological change with widespread and severe ecological consequences”*  
US Dept. of Interior, 1958

Dramatic habitat shifts have occurred because of project-altered salinity regimes. At one interior location, Shell Beach, salinities increased from an average of 3.5 ppt in 1959-1961 to an average of 12 ppt in 1962-1964.<sup>3</sup> Estimates of habitat transition include more than 11,000 acres of fresh/intermediate marsh and cypress swamps converted to brackish marsh and more than 19,000 acres of previously brackish marsh converted to saline marsh.<sup>2</sup> Waterfowl use declined dramatically as a result of project-induced saltwater intrusion. Fur-bearers were also affected by this transition.



A trapper with muskrat pelts, circa 1940 (Los Islentos Museum). Demise of the Louisiana fur industry was hastened in St. Bernard by the MRGO project.



On an average day, five commercial deep draft cargo ships use the MRGO, providing 3% of regional shipping tonnage.



The "Wheeler" is one of several Corps vessels that provide maintenance dredging on the MRGO at an annual cost of \$22.1 million. Additional disbursements can be substantial, such as the \$41.7 million spent clearing the channel of sediments deposited in 1998 by Hurricane Georges (inset).

Pre-project inventories depict fresh and intermediate marshes as once supporting more than 250,000 over-wintering ducks and an annual fur harvest of more than 650,000 animals.<sup>3</sup>

Commercial fisheries data, though limited, reflect a transition in habitat by changes in the abundance and frequency of fish species reported. By 1965, the regional shrimp fishery had shifted from white shrimp to predominantly brown shrimp, as estuarine nursery grounds became increasingly saline. By 1968, 10 species of fish with low salinity tolerance had disappeared from routine sampling. Concurrent with this shift, oyster leases became more susceptible to bacterial contamination as the oyster production zone shifted inland near more developed areas.<sup>3</sup>

Wetland loss and deterioration from the MRGO have allowed for expanded tidal amplitude and duration, increasing the flooding risk to interior portions of the parish. Locally, the MRGO is perceived as a "superhighway for storm surge" because of the channel's susceptibility to inundation by tropical storms and hurricanes.

### Economic

As a relatively large federal public works project, the MRGO provided an initial surge in regional employment during its construction, mostly associated with the dredging of 290 million cubic yards of earth, 60 million more cubic yards than the Panama Canal. Additionally, landowners affected by construction were initially paid \$28 per acre for lands used in channel excavation and spoil deposition. Since the channel's opening in 1963, however, its usage by the shipping industry has been less than locally anticipated and traffic has been well below original projections.

*"... the (MRGO) is a chance for the industrial development of St. Bernard parish as a supplement to the great industrial growth of neighboring Orleans parish"*  
New Orleans States News, 1957

Although the MRGO has provided a conveyance path for regional barge traffic, the lower Mississippi still leads shipping commerce in southeast Louisiana, providing more than 40% of the region's annual freight tonnage. At 5.7 million tons in 1997, the MRGO comprised 3% of this commerce. Foreign and domestic vessels made 1,746 voyages on the MRGO in 1998 (4.8 passages per day, inbound and outbound average).<sup>4</sup>

Maintenance expenditures for the MRGO have risen over time, and the Corps now estimates dredging costs at \$22.1 million per year, or \$12,657 per vessel per day. Additional expenditures include millions in periodic disbursements for shoreline stabilization and marsh protection projects. Maintenance projections for the MRGO depict a 52% cost increase for the period of 1995 to 2005.

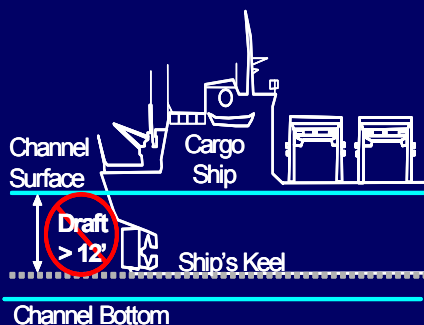
Quantifying the true cost of MRGO-related wetland loss and wetland transition requires the consideration of non-market values. The value of ecological services not represented in traditional land prices can be estimated using surveys of actual and perceived off-site benefits (wildlife and fisheries habitat, waste assimilation and storm surge protection). Studies of similar areas of coastal Louisiana suggest that the value of these ecological services ranges from \$300 to \$600 per acre annually. Multiplying such estimates by the acreage losses attributable to the MRGO equates to a \$200 million to \$350 million loss in ecological services since the beginning of construction.

### A CONSENSUS FOR CLOSURE?

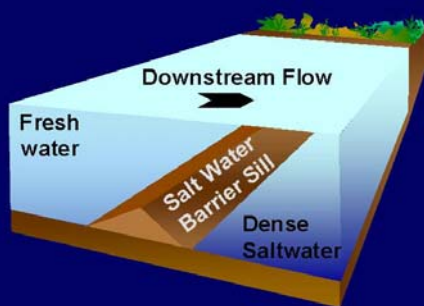
Before excavation of the MRGO, state and federal resource agencies expressed concern about the project's apparent lack of ecological considerations. Hydrologic models predicted drastic salinity increases and an associated loss of interior marsh habitat.<sup>5,6</sup> Local concerns mounted as the project's "ecological footprint"

**“...This council does hereby request Louisiana’s Southeast Congressional Delegation establish a task force to develop a process that will result in the timely closure of the MRGO”**

**St. Bernard Parish Council Resolution  
December 1998**



*Several measures have been discussed under the idea of “Closing the MRGO.” However, the only real closure proposed would be to those vessels having a draft greater than 12 feet (distance from the waterline to keel).*



*Hydrologic modifications have also been proposed, including submerged “sills” to reduce saltwater encroachment in the MRGO channel.*

expanded and economic benefits failed to emerge. Concerns expanded with a growing perception that the project had dramatically increased the region’s vulnerability to hurricanes and tropical storms. By the 1990s the project was widely characterized as an environmental disaster, although adverse environmental impacts from the MRGO were evident as early as the late 1960s.

The concept of “closing” the MRGO first gained formal recognition in 1998 as one of 77 regional ecosystem strategies outlined in the consensus-based, “Coast 2050 Report.” The Technical Committee of the Coastal Wetland Planning Preservation and Restoration Act (CWPPRA) would eventually list “Closure of the MRGO” as one of the top-ranked strategies for Louisiana coastal restoration. In the Fall of 1998, 40 years after construction of the MRGO began, the St. Bernard Parish Council unanimously adopted a resolution to close the MRGO. In June of 1999, the U.S. Environmental Protection Agency convened an MRGO Policy Committee and numerous subcommittees of local residents and government employees to “facilitate and lend structure to the issues involved with the MRGO.”<sup>2</sup>

### **MODIFYING MRGO**

#### **Closing ≠ Closing**

In March 2000 the Environmental Subcommittee of the MRGO Policy Committee prepared a restoration/mitigation plan to address environmental impacts related to the construction, operation and maintenance of the MRGO. Often referred to by the public as a “plan to close the MRGO,” in fact, this series of projects, if implemented, will not seal or completely fill the channel, nor will all vessel traffic be halted. Policy Committee members have proposed halting the channel dredging of the MRGO and are opting for only limited channel maintenance to provide for access for navigational interest such as recreational boaters and commercial fishermen. The proposed channel would “close” the MRGO only to oceanic vessels with a draft of more than 12 feet.

#### **Alternative Actions**

Along with eliminating deep draft vessels, the initial proposals call for water control structures including floodgates, locks, weirs and sills to be strategically built along the MRGO. The net effect of these structures will be to reduce the potential for water influx into the marshes and bayous from the current MRGO channel, thus reducing the potential for storm surges and saltwater intrusion.

Concurrently, the introduction of sediment-rich Mississippi River water into the deteriorating marshlands of St. Bernard Parish has been a long-suggested remedy for mitigating MRGO impacts, as well as naturally occurring wetland subsidence and degradation. A cornerstone of these recommendations is a proposed channel from the Mississippi River into the MRGO. When necessary, this waterway could reverse the direction of flow and introduce sediment/nutrient-laden river water into the MRGO and, ultimately, into the marshes of St. Bernard Parish.

Several other wetland enhancement and protection projects are being discussed. These include reducing the storm surge potential to the marshes along the southern shore of Lake Borgne by building chains of barrier islands dredged from the sandy bottoms of the area and by constructing a 1-mile-wide tidal marsh using dredged materials.

Construction of new barrier islands and restoration of existing islands using dredged sand and vegetation have been recommended for restoring fish and wildlife habitat. Strategically placed artificial oyster reefs have also been discussed as one of several methods to combat erosion and marsh loss. For now, relatively little is being done to address the ongoing degradation caused by the MRGO. A limited amount of rock-buttressed dredge spoil has been used to protect small portions of the highly vulnerable channel shore, and speed restrictions have been proposed to reduce wake erosion, which alone accounts for 15 feet of additional land losses per year. However, major funding will be required to finance the variety of large-scale proposals that would effectively phase out the project.



*Additional measures proposed as MRGO mitigation include: revegetation of eroding shorelines, strategic use of water control structures, stabilization of channel banks with rock and dredge spoil, and the reinforcement of barrier island chains.*

### A Similar Effort?



The Cross-Florida Barge Canal

*A project of similar size and scope to the MRGO provides a sobering example of the magnitude of time and effort that could be required for closure. The Cross Florida Barge Canal (CFBC) was another public works era project designed as a major navigation shortcut. The objective was to connect the Atlantic Ocean and the Gulf of Mexico via the St. John's River and 107 miles of channels dug across north central Florida. Like the MRGO, problems emerged soon after construction began (i.e. wetlands loss and degradation). Unlike the MRGO, the CFBC was never completed, due primarily to a lawsuit initiated in 1969 by the Florida Defenders of the Environment. Faced with a court challenge, President Nixon signed an executive order in 1971 halting construction and calling for a review of the project's environmental impacts. In 1986 Congress de-authorized the CFBC and by 1990 project lands had reverted back to the state of Florida. Despite these milestones, no large-scale restoration efforts have been initiated. Seventeen years after the CFBC was de-authorized, considerable debate remains over how restoration measures should be implemented.*

Caffey, R. H. and B. Leblanc (2002) Closing the Mississippi River Gulf Outlet: Environmental and Economic Considerations. Interpretive Topic Series on Coastal Wetland Restoration in Louisiana, Coastal Wetland Planning, Protection, and Restoration Act (eds.), National Sea Grant Library No. LSU-G-02-004, 8p.



[www.agctr.lsu.edu](http://www.agctr.lsu.edu)



[www.LaCoast.gov](http://www.LaCoast.gov)



[www.Laseagrant.org](http://www.Laseagrant.org)

## FUTURE CONSIDERATIONS

The closure/modification decision will depend largely on the outcome of a \$2 million MRGO Re-evaluation Study under way at the New Orleans District of the Corps of Engineers. For significant modifications to occur as a result of this study, the Corps must determine (and Congress agree) that it is not economically viable to maintain the channel for deep-draft shipping. Furthermore, the Corps must determine what depth and width is cost effective to maintain or whether federal maintenance should be abandoned altogether.

One key in achieving consensus support for downsizing the channel will be confidence within the navigation industry that shipping and barge traffic displaced by MRGO modifications will be economically accommodated elsewhere. From the industry's perspective, this means, at a minimum, the Port of New Orleans would complete its project to provide expanded container facilities on the Mississippi River along with a \$585 million investment to improve ship access through the Inner Harbor Navigational Canal. The ideal situation for the shipping industry would be construction of the "Millennium Port" now under state-sanctioned review. However, the time projection for completing these ancillary projects and initializing MRGO closure is 10 years. Even this estimate is optimistic considering the history of similar de-authorization efforts (see inset left). Meanwhile, environmental impacts continue to accrue in the MRGO region.

Even under current restoration efforts, it is predicted that an additional 72,000 acres of marsh will be lost in the Pontchartrain Basin and Breton Sound over the next 50 years. Comprehensive restoration/mitigation actions for the MRGO could help to reduce these losses, but the cost of such initiatives has yet to be determined and will likely require several hundred million dollars for implementation. Clearly, the idea of "closing" the MRGO has moved beyond the conceptual stage, as indicated by the formation of the MRGO Policy Committee, initiation of the Corps MRGO Re-evaluation Study, and negotiations with the shipping industry. However, the questions of if, how, and when the MRGO will be closed remain largely unanswered and will likely require years of dialogue over the dual needs for economic viability and ecological integrity.

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