

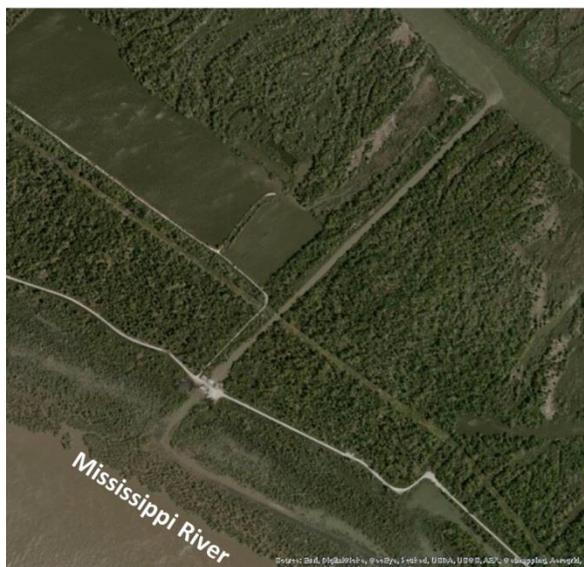


LPBF
SAVE OUR LAKE
SAVE OUR COAST

Coastal Sustainability Program

Mardi Gras Pass

Mardi Gras Pass is located in the Bohemia Spillway about 35 miles southeast of New Orleans at river mile 43.7. Mardi Gras Pass began to develop during the 2011 Mississippi River flood. In the course of a hydrologic survey conducted during the 2011 Mississippi River flood event, LPBF staff observed a process of overbank flow developing into a channelized flow across the crest of the natural levee. A breach was discovered in the roadway along the crest of the natural levee, which created a new channel. The breach was adjacent to an obsolete water control structure continued to evolve through the natural forces of river flow. Headward erosion along the river across a forested bar allowed the channel to entirely breach to the Mississippi River in late February and early March 2012, at which time it was named Mardi Gras Pass. Mardi Gras Pass is now a free flowing distributary of the Mississippi River



Pre- Mardi Gras Pass in 2010



Mardi Gras Pass in 2012

Why Study Mardi Gras Pass?

- Opportunity to study the development of a distributary of the Mississippi River
- Observe the pattern of distribution of freshwater, sediment and nutrients into the basin
- Closely study natural processes that occurred prior to the construction of river levees

LPBF Research Program

- Geomorphic development of the pass including changing channel dimensions
- Hydrologic changes as the pass develops and driving factors
- Sediment and nutrient distribution into the basin
- Biological changes and development, what organisms are using the pass?

More information of Mardi Gras Pass can be found on our Technical Reports Page at:
<http://saveourlake.org/coastal-resources.php>

Major Conclusions

- Mardi Gras Pass developed through a process of headward erosion, eroding from the marsh side toward the Mississippi River during high water



Headward erosion at Mardi Gras Pass

- Mardi Gras Pass breached to the river in March 2012



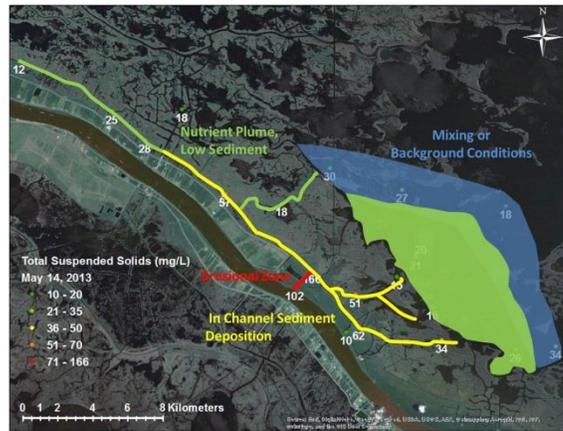
Mardi Gras Pass flowing to the Mississippi River, March 14, 2012

- Discharge increased over time for similar river stages due to channel enlargement

Discharge Surveys		
Date	Discharge (cfs)	River Stage at Pointe a la Hache (ft)
3/28/2012	2,303	5.6
4/18/2012	630	3.5
5/3/2012	480	2.6
7/3/2012	436	2.1
1/16/2013	982	2.5
2/3/2013	2,097	4.6
5/14/2013	3,840	6.2
6/26/2013	3,510	5.8
7/31/2013	2,167	3.6
11/11/2013	621	1.2

Increased discharge from Mardi Gras Pass at similar stages over time highlighted in yellow and orange

- Sediment and nutrient distribution from the pass lead to four zones; erosion, sediment deposition, nutrient plume and mixing



Four zones created by Mardi Gras Pass discharge. Sediment deposition is mostly in channel and does not reach the bay

- 15 saltwater and 14 freshwater fish species have been found in the pass



Largemouth bass and speckled trout caught in biological surveys conducted at Mardi Gras Pass

- Mammals, birds, reptiles and crustaceans have been observed using Mardi Gras Pass



River otter sunning itself along Mardi Gras Pass