



# COASTAL PROTECTION AND RESTORATION AUTHORITY



Single state entity with authority to articulate a clear statement of priorities to achieve **comprehensive coastal protection and restoration** for Louisiana.

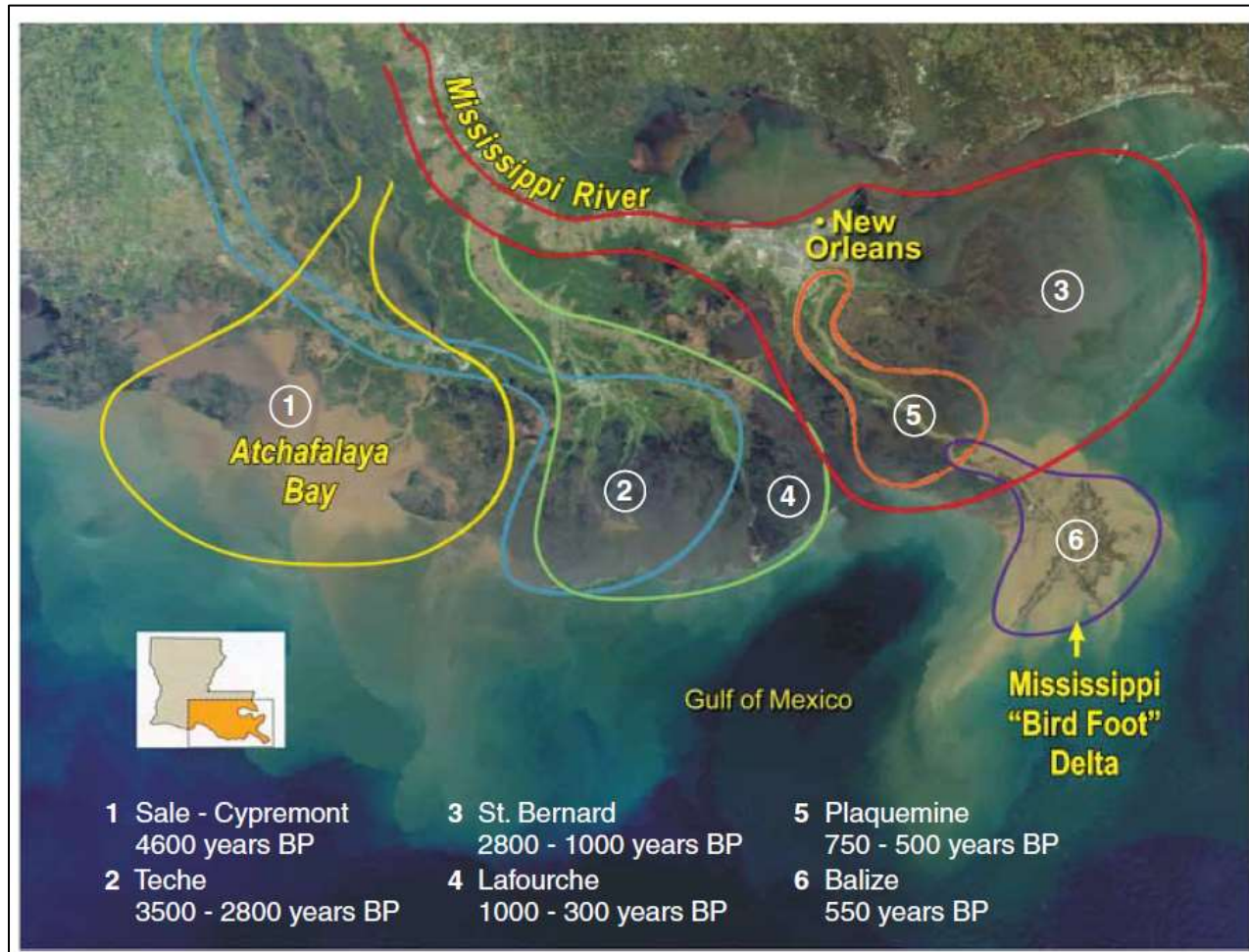
Mandate is to develop, implement, and enforce a comprehensive **coastal protection and restoration master plan**.



committed to our coast

# The Role of the Mississippi River in Louisiana

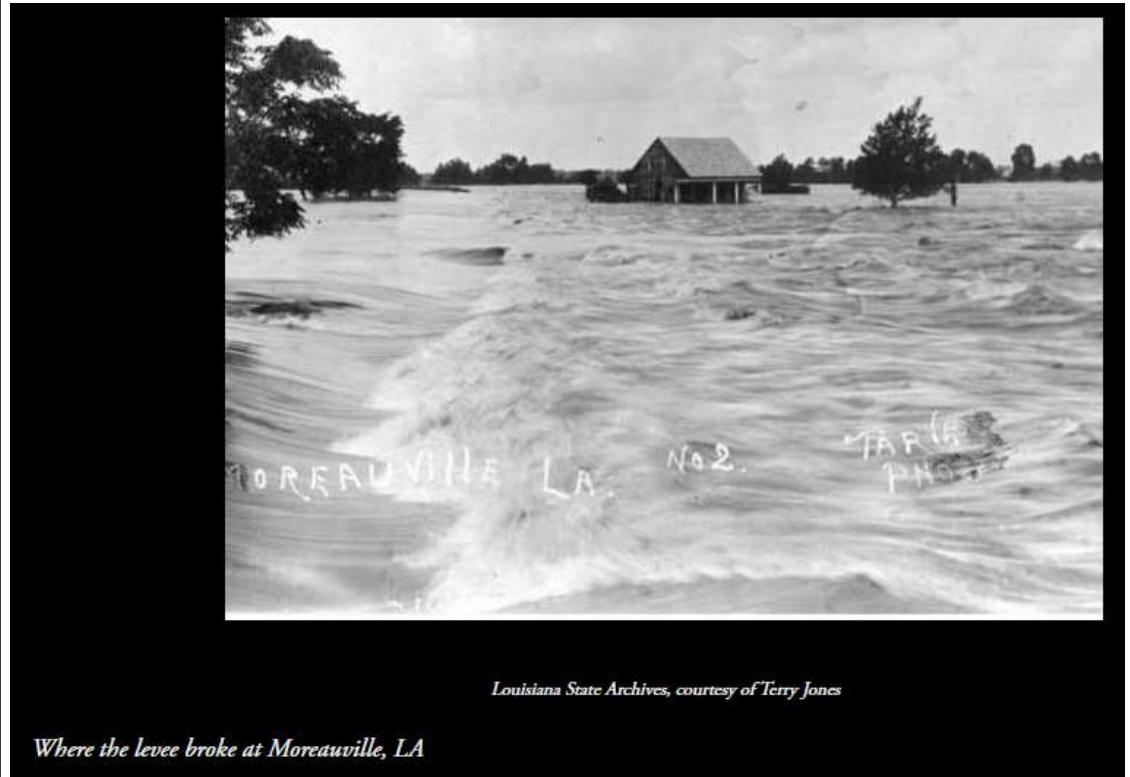
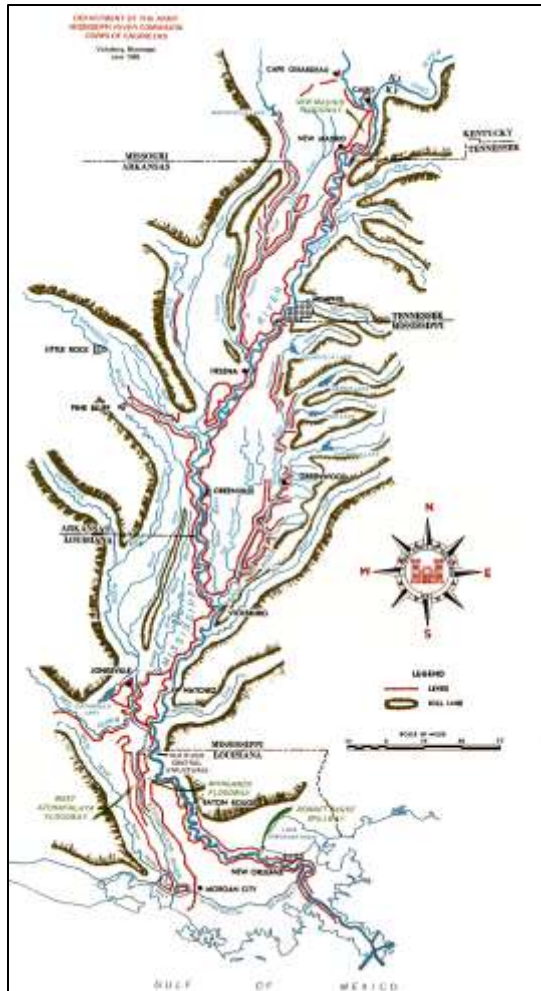
- Coastal Louisiana is a product of the Mississippi River
  - The river's meanderings built south Louisiana



Day et al. (2007)

# The Role of the Mississippi River in Louisiana

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  - The river's meanderings built south Louisiana ... but

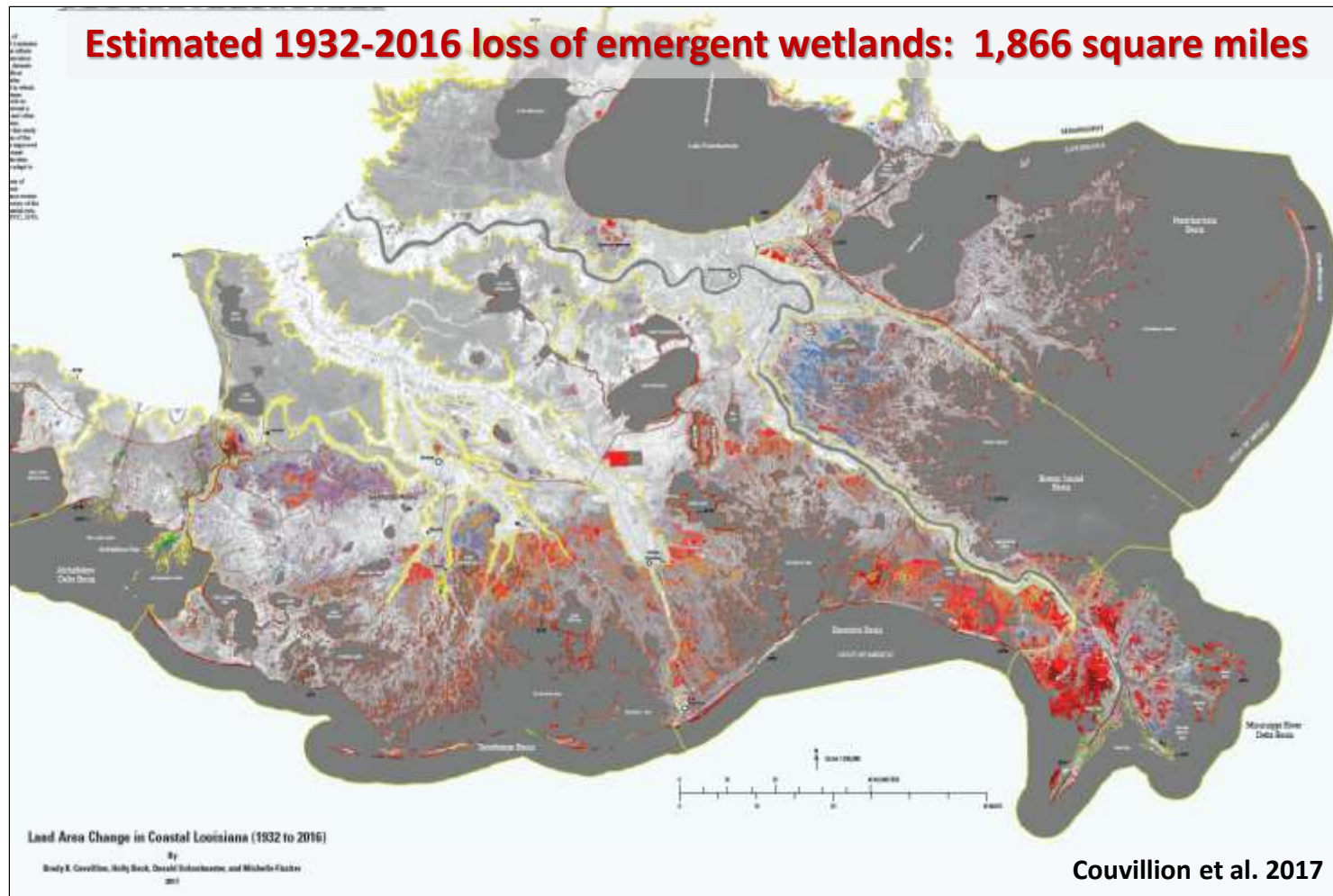


*Louisiana State Archives, courtesy of Terry Jones*

*Where the levee broke at Moreauville, LA*

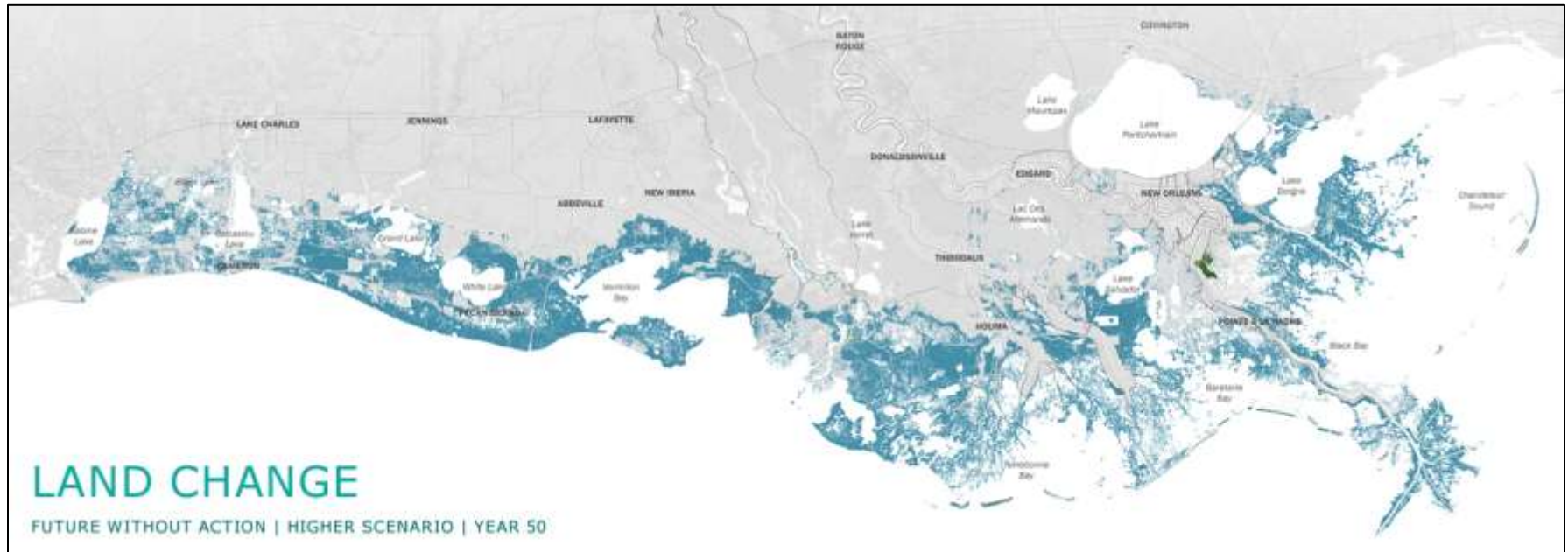
# The Role of the Mississippi River in Louisiana

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**Projected 2020-2070 loss of emergent wetlands: 3,000 square miles**

CPR 2023

# The Role of the Mississippi River in Louisiana

- **Coastal Louisiana is a product of the Mississippi River**
  - The river's meanderings built south Louisiana
  - We need the river's freshwater, sediments, and nutrients to sustain south Louisiana
- **The challenge in Louisiana is to try to better balance use of the river for**
  - River Navigation,
  - Flood Risk Reduction, and
  - Resource Base for Coastal Ecosystem Restoration
- **Achieving that goal is only attainable by**
  - Accounting for the state of the science in planning and implementation, and
  - Pushing that science forward

# Draft 2023 Coastal Master Plan





# Mississippi River Science

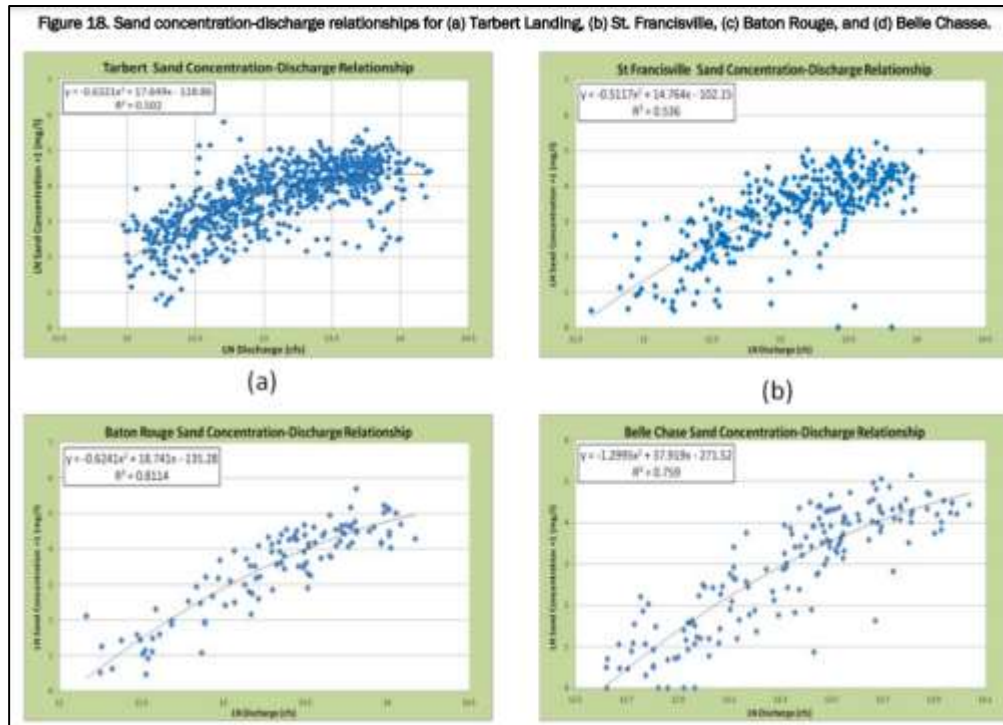
## State of Louisiana Efforts

- **Results from Historical and Ongoing Efforts**
  - **Louisiana Coastal Area (LCA) Mississippi River Hydrodynamic and Delta Management Study (joint with US Army Corps of Engineers)**

# Mississippi River Science

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ERDC/CHL TR-14-5

US Army Corps of Engineers  
Engineer Research and Development Center

ERDC  
WATERWAYS SOLUTIONS  
for a safer, better world

**Mississippi River Hydrodynamic and Delta Management Study (MRHDM)-Geomorphic Assessment**

Charles D. Little, Jr. and David S. Bederham

July 2014

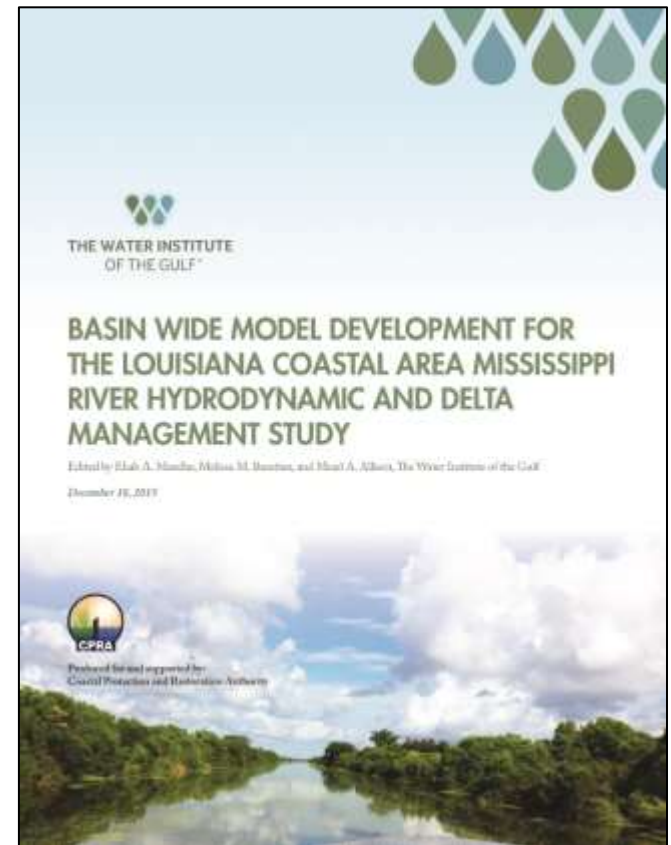
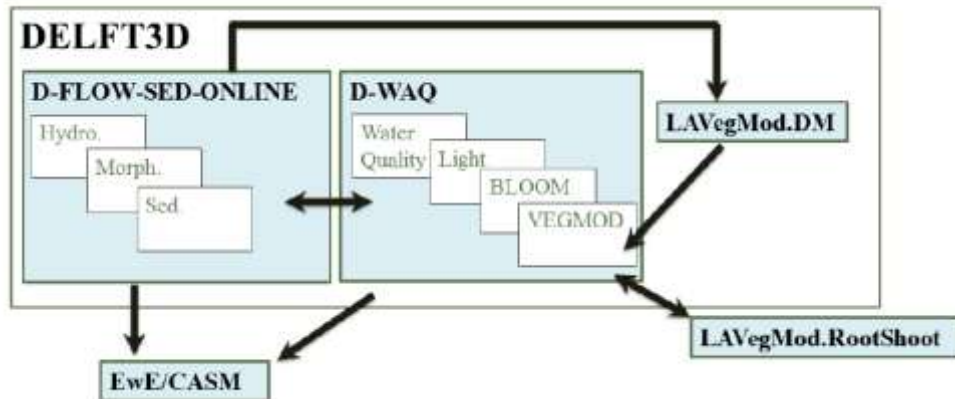
Coastal and Hydraulics Laboratory

Approved for public release; distribution is unlimited.

# Mississippi River Science

## State of Louisiana Efforts

- Results from Historical and Ongoing Efforts
  - Louisiana Coastal Area (LCA) Mississippi River Hydrodynamic and Delta Management Study (joint with US Army Corps of Engineers)





# Mid-Barataria Sediment Diversion Project Projected 50-year Sediment Capture



Figure 4.4-38 demonstrates quantitative differences in sediment transport among the action alternatives. The model projects that approximately 275 million metric tons of sediment would be transported into the basin for the Applicant's Preferred Alternative over the 50-year analysis period.

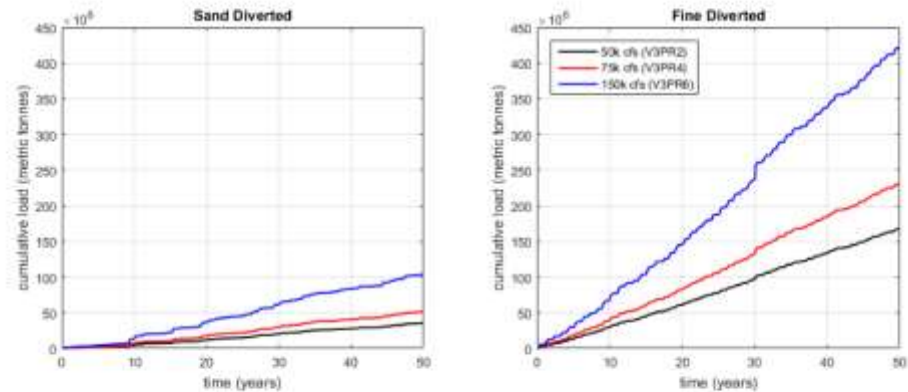
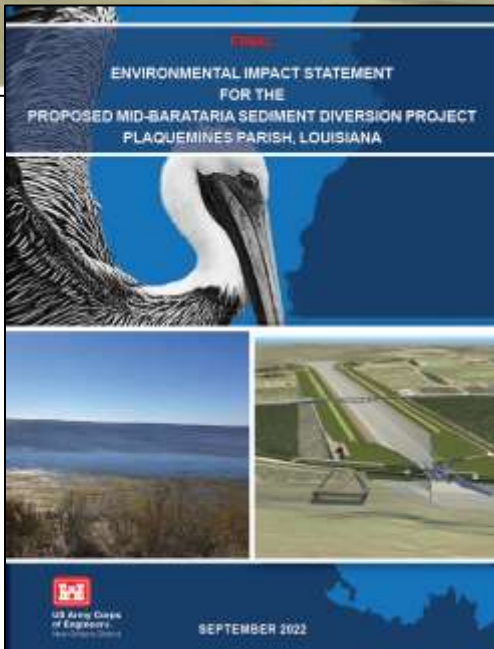


Figure 4.4-38. Model-projected Sand and Fine Sediment Transport Mass for the Three Diversion Sizes (from Water Institute 2019).

Figure from 2022 EIS



# Mid-Breton Sediment Diversion Project Projected 50-year Sediment Capture



Figure 2: Project Rendering

**Table 2.3.6-1**  
**Total, Sand, and Fine Sediment Diverted to the Breton Sound Basin for the Applicant's Preferred Alternative for the Model Period Year 2020 to 2070 (million short tons).**

Model Year	Total Sediment Diverted (million short tons)	Sand Diverted (million short tons)	Fines Diverted (million short tons)
2020	0	0	0
2030	35	5	30
2040	76	14	62
2050	123	24	99
2060	165	32	133
2070	208	40	168

# Mississippi River Science

## State of Louisiana Efforts

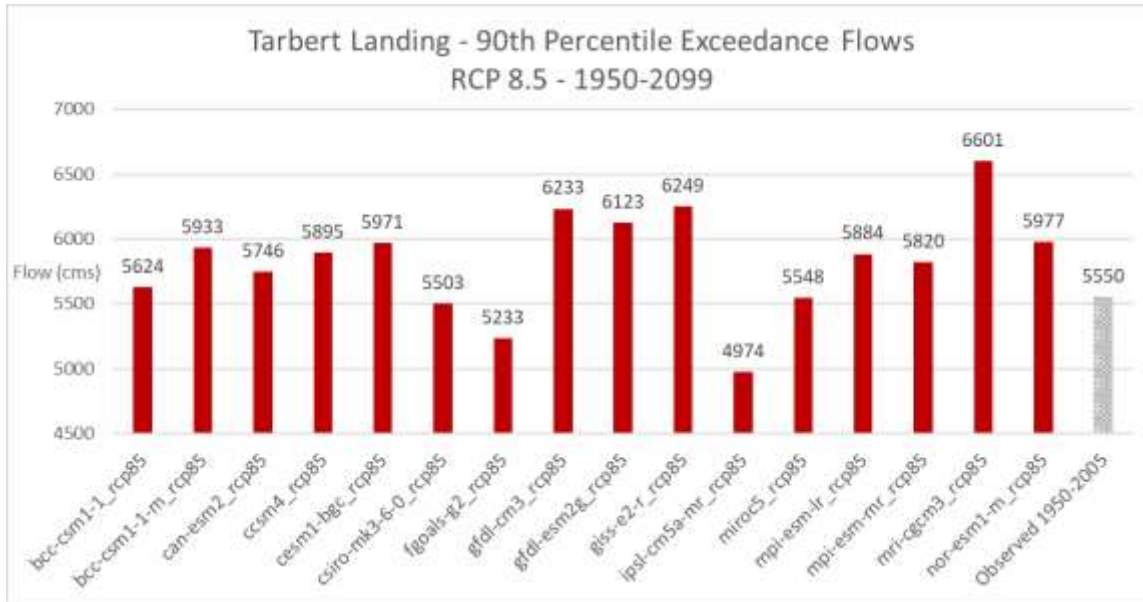
- **Historical and Ongoing Efforts**
  - Louisiana Coastal Area (LCA) Mississippi River Hydrodynamic and Delta Management Study
  - RESTORE-funded Lowermost Mississippi River Management Program



# Lowest Mississippi River Management Program

## Primary Program Focal Areas

- River Hydrodynamics and Flow
  - Mississippi River hydrograph projections under future climate scenarios

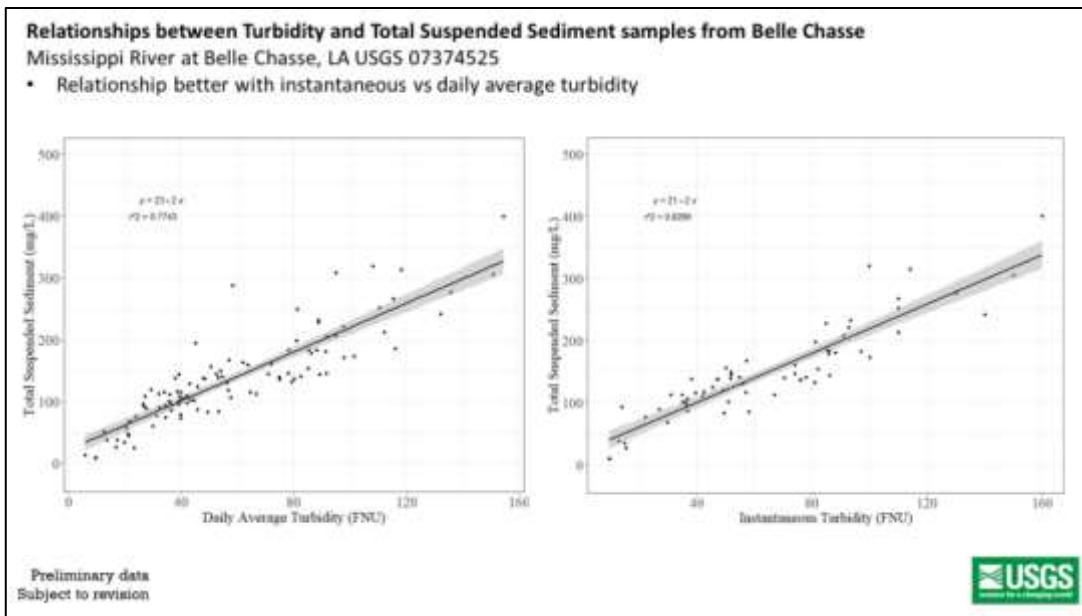




# Lowermost Mississippi River Management Program

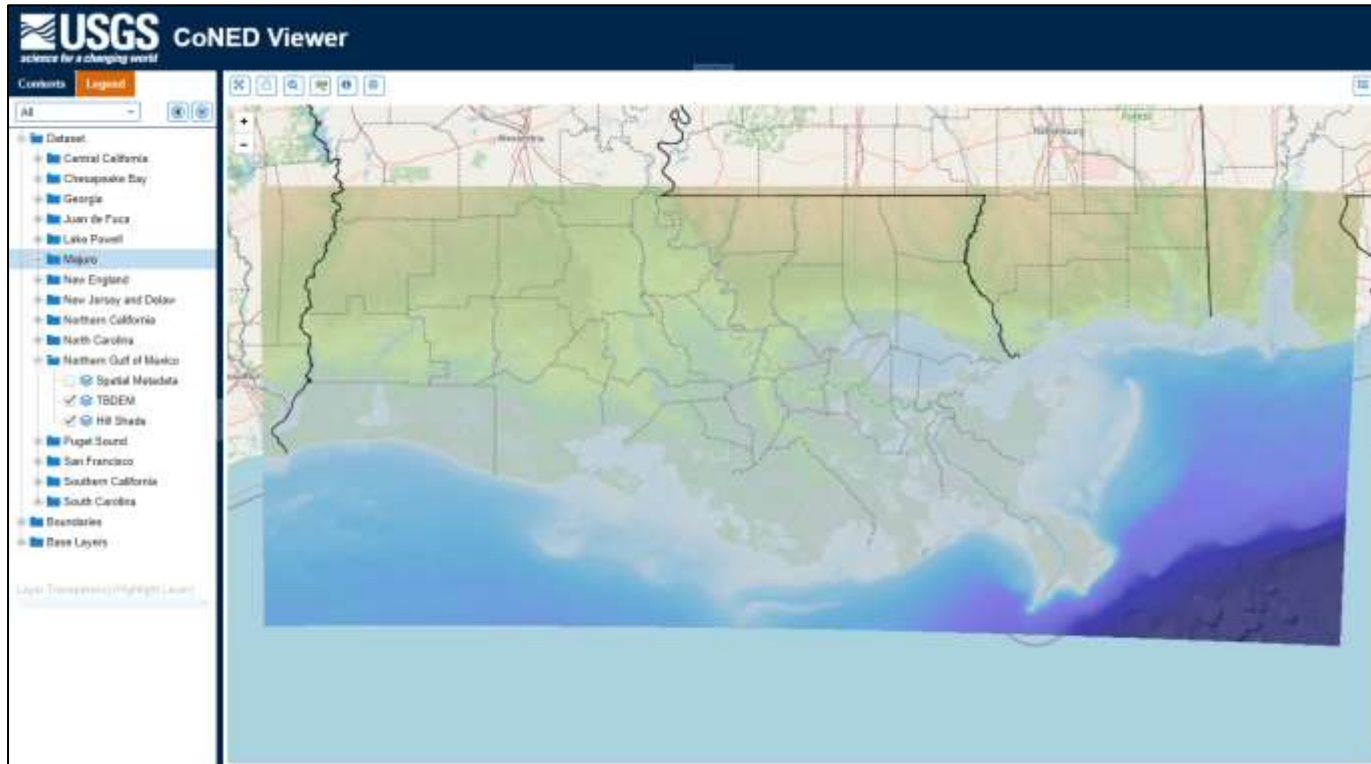
## Primary Program Focal Areas

- **Sediment Transport and Dredging**
  - **Data Collection and Analysis at the Belle Chasse Gauge**



# Lowermost Mississippi River Management Program Primary Program Focal Areas

- **Landscape Condition and Change**
  - **Coast-wide Integrated Topography and Bathymetry Digital Elevation Model**



# Mississippi River Science

## Gaps in Our Current Understanding / Next Steps?

- **Latitudinal trends in Mississippi River nutrients**
- **Sediment surrogate relationships for other USGS river gauges in Louisiana**
- **High-resolution monitoring of water levels/waves in the Mississippi River to calibrate/validate surge & wave models**
- **Develop a Mississippi River discharge real-time forecasting model**

# Mississippi River Science

## State of Louisiana Efforts

- **Future Efforts**
  - **National Academies of Science Gulf Research Program  
Mississippi River Delta Initiative – Geomorphological Future of  
the Birdsfoot Delta**
  - **RESTORE-funded Louisiana Center of Excellence**
  - **US Army Corps of Engineers' Lower Mississippi River  
Comprehensive Study**
  - **Phase 2 of the Lowermost Mississippi River Management  
Program?**
  - **Extramural Projects and Programs**