

The lower Mississippi River and Delta drive major natural and socioeconomic systems of the North American continent

The State of Louisiana is investing in a 50-year, \$50B restoration program focusing on the Mississippi Delta (Coastal Master Plan)

Relative Sea Level Rise and Anthropogenic Sediment Reductions are driving Major geomorphic reorganization of lower Mississippi Delta



New Orleans

Aqua-1 MODIS 250m true color Jan 18, 2016 19:05 Z

100 km

Sediment Plumes
entering
open ocean from
upstream outlets

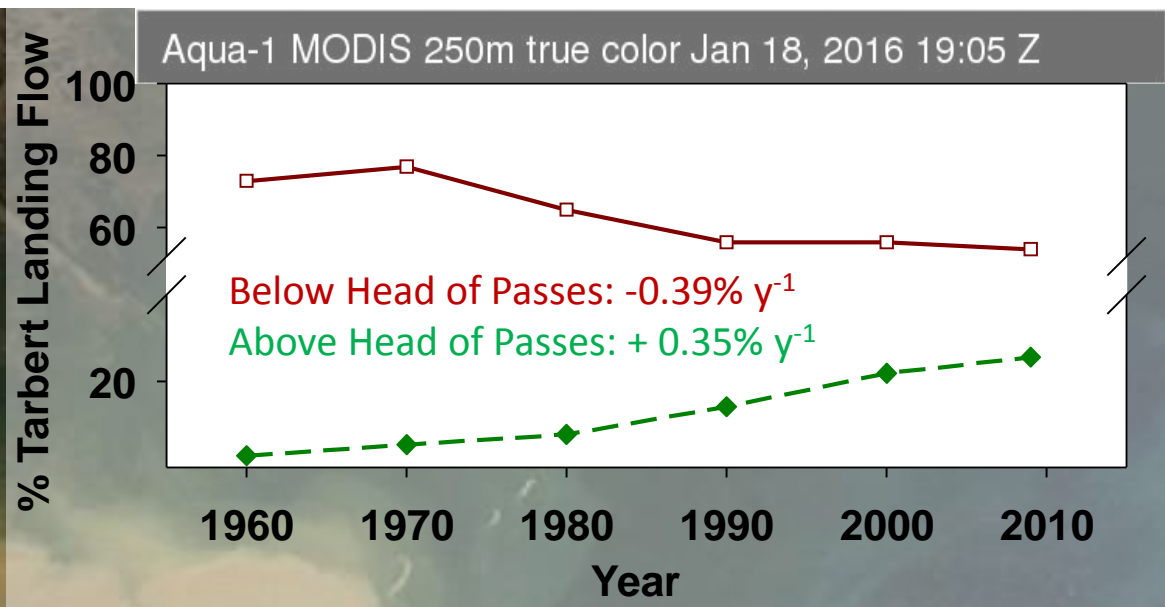
Head of
Passes

Long-term
major outlets
Downstream of
Head of Passes



Upstream Migration of Water Discharge in Lower Mississippi Delta

Likely driven by changing relative sea level

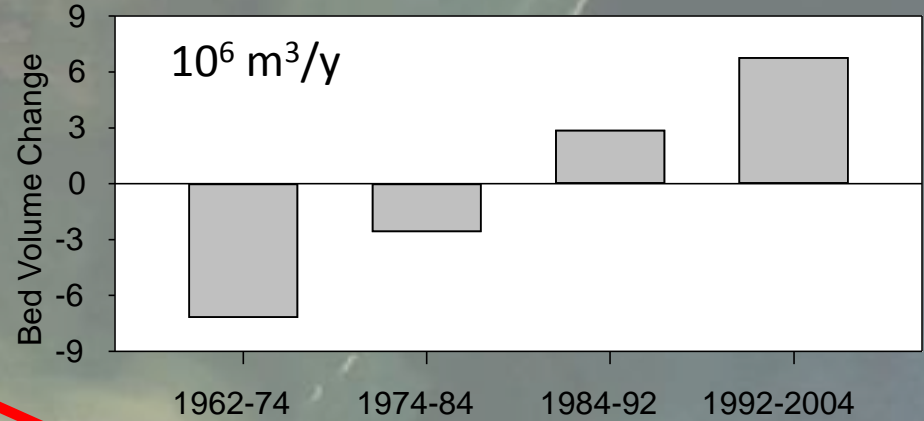


Sediment Plumes entering open ocean

AHP

BHP





US-ACE Survey Interval: Belle Chasse to West Bay

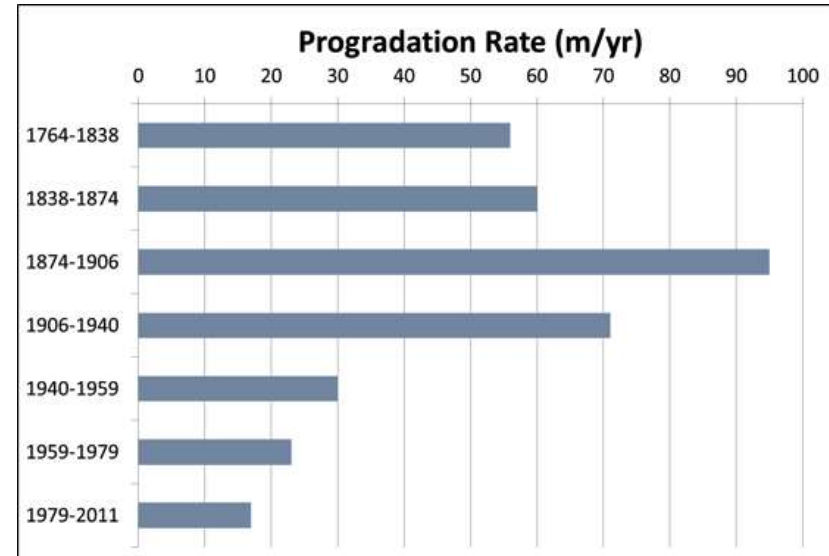
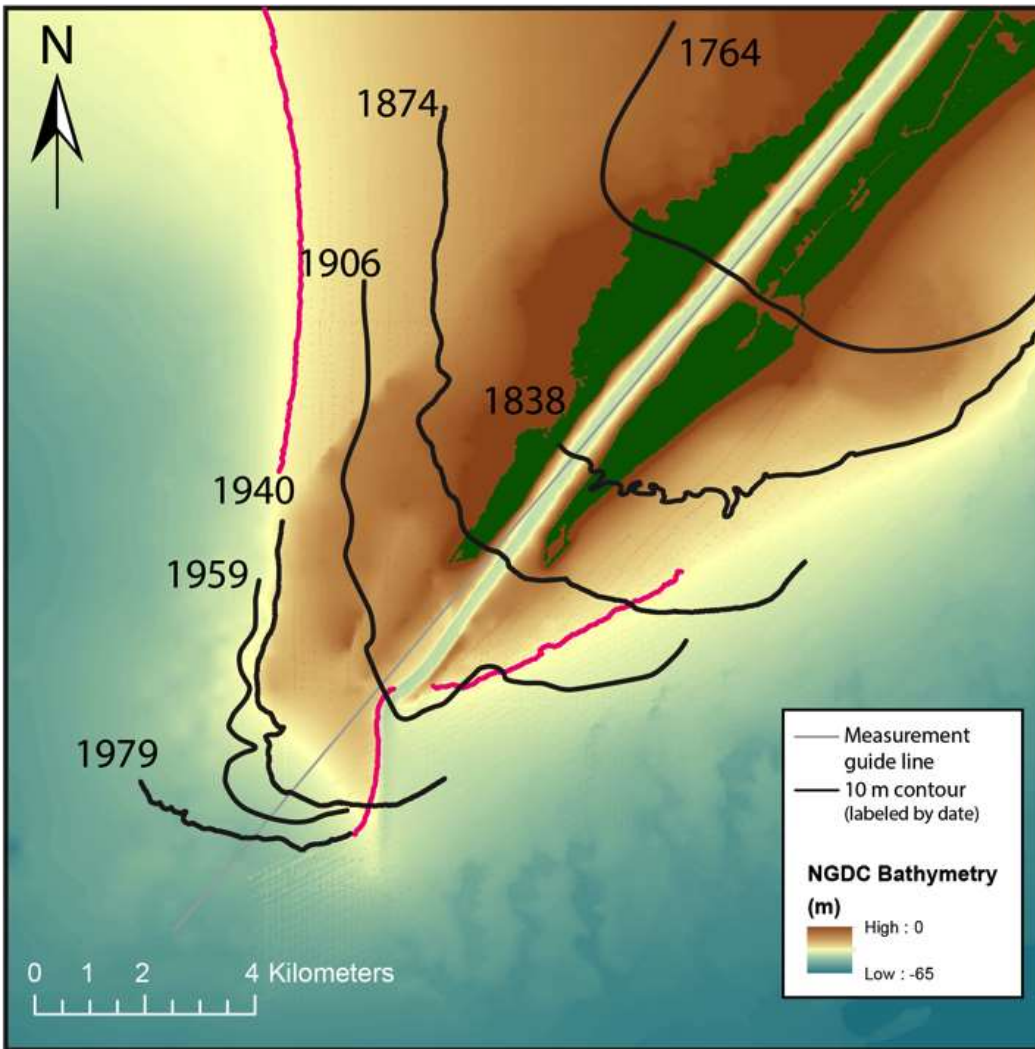
The channel has shifted from erosional to depositional in Lower Mississippi

Profound implications for shipping, delta geomorphology

Sediment Plumes entering open ocean



Historic End of Southwest Pass Progradation



Other two major outlets are in retreat.
Driven by reduced sediment, shifting sedimentation patterns

The lower Mississippi River and Delta are continental-scale drivers of natural and socioeconomic systems (i.e., \$275M per day in shipping)

The Mississippi Delta is the focus of a 50 y, \$50B restoration program developed by the State of Louisiana, the Coastal Master Plan

Relative Sea Level Rise and Anthropogenic Sediment Reductions are driving Major geomorphic reorganization of lower Mississippi Delta

- The equilibrium delta location is migrating upstream
- Restoration strategies should acknowledge and take advantage of these shifting patterns

Strategies should focus on land building upstream

