

## Mississippi River Basin: Third-Largest Watershed in the World

- Mississippi-Missouri: Fourth-longest river on Earth
- Drains 41% of U.S.
- Parts of 31 states, 2 Canadian provinces in 1.84 million sq. mile watershed



Source: National Park Service

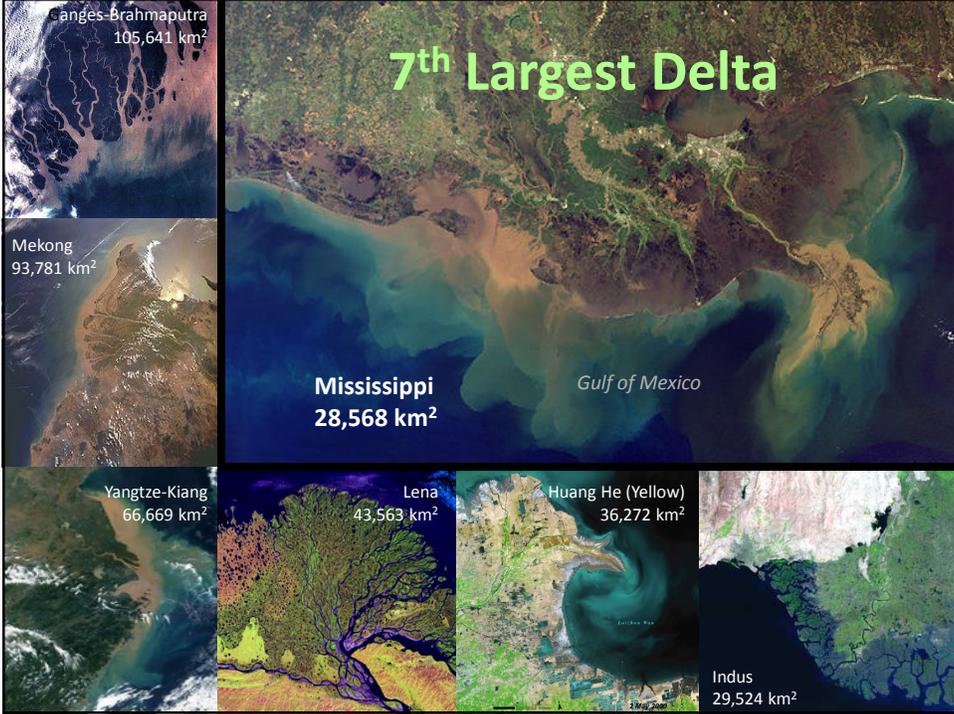
## 7<sup>th</sup> Largest Delta



**Mississippi**  
28,568 km<sup>2</sup>

*Gulf of Mexico*

Delta Name	Area (km <sup>2</sup> )
Ganges-Brahmaputra	105,641
Mekong	93,781
Yangtze-Kiang	66,669
Lena	43,563
Huang He (Yellow)	36,272
Indus	29,524





## Louisiana Shoreline Change 1937-2000



2,300 square miles of coastal wetlands lost in last century  
90% of U.S. coastal wetland loss in Louisiana

Source: Louisiana State University

## The Transformation of the River: The Future

Year - 2009



Year - 2100



Map: Blum, M.D., and H.H. Roberts (2009), Drowning of the Mississippi delta due to insufficient sediment supply and global sea-level rise, *Nat. Geosci.*, 2, 488-491.

## 1927 Flood and MR&T Program Mandate to Manage River for Flood Control and Navigation

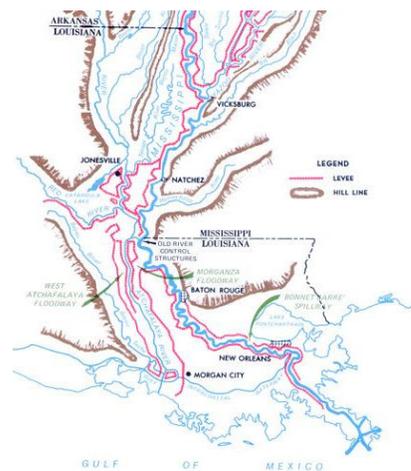
### Flood Control Act of 1928

#### Components

- Tributary dams
- Locks and dams
- Main stem and backwater levees
- Navigational jetties into the Gulf
- Old River Control Structures

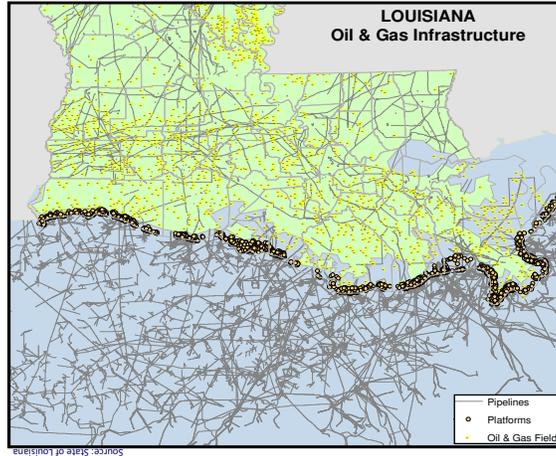
#### Consequences

- Severing of river from its flood plains and delta
- Sediment starvation and subsidence of the deltaic ecosystem
- Shunting of the River's nutrients and sediments into the Gulf



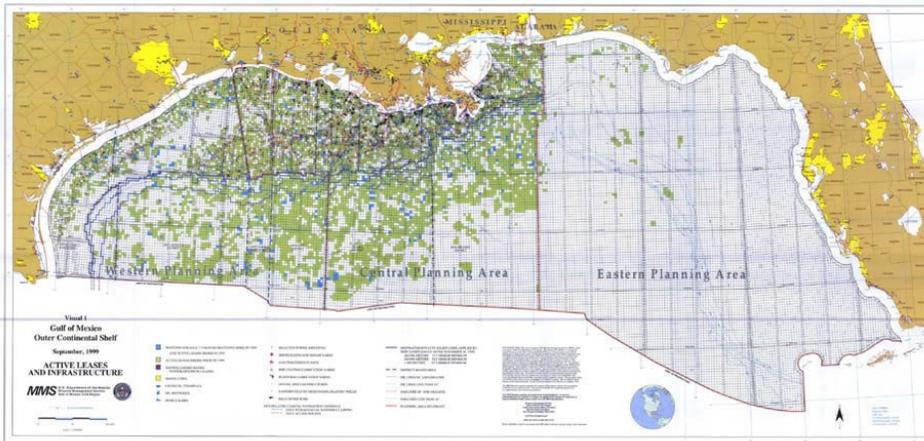
Sources: *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America*; U.S. Army Corps of Engineers

# Oil & Gas Infrastructure



10,000 Miles of Coastal Oil and Gas Pipelines and Navigation Canals

# Leasing in Gulf Outer Continental Shelf



Source: U.S. Department of the Interior

## National Energy Implications

- 1<sup>st</sup> in offshore oil reserves
  - 2007 PADD reserves: 3.32 bln (1st)
- 2<sup>nd</sup> in natural gas production (land and OCS)
  - 2007 output: 1.36 mln cubic ft
- 3<sup>rd</sup> in aggregate oil reserves (land and OCS)
- 4<sup>th</sup> in domestic oil production
  - 2008 crude oil output: 73.01 mln barrels
- 1<sup>st</sup> in OCS revenues for US Treasury
  - 2007 federal revenues: ~ \$7 billion
- 41.7 BBOE recoverable at \$60/bbl

Notes: Domestic oil production excludes output from the Federal Offshore Petroleum Administration for Defense Districts (PADD) zones. 2007 Crude Oil Reserves include Federal Offshore. OCS refers to the Outer Continental Shelf.

Sources: Energy Information Administration (EIA); U.S. Department of the Interior

## Coastal Louisiana: Critical Economic, Environmental Assets

- Critical route for bird migrations
  - World-class fisheries dependent on the delta
  - Strategic oil, gas resources
  - Important transportation infrastructure
  - Communities
- Deltaic  
Ecosystem  
Dependence

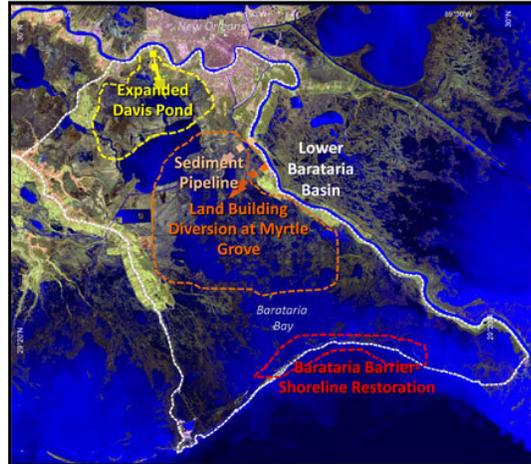




## 2007 WRDA Title VII Louisiana Coastal Area Authorization

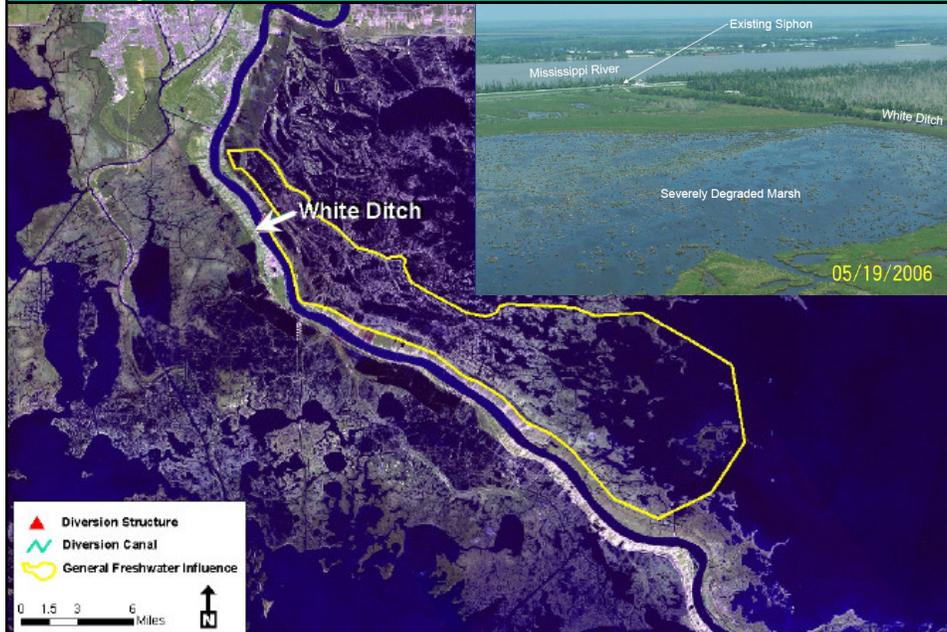
- Provides for Comprehensive Coastal Restoration Plan – Section 7002
- Establishes Federal Task Force – Section 7004
- Creates a Science and Technology Program and Demonstration Program – Section 7006(a) and (b)
- Authorizes five initial restoration projects with allowance for modifications to address Katrina and Rita impacts – 7006(c)
- Authorizes ten additional restoration projects – 7006(e)(1) and (3)
- Calls for the closure of the Mississippi River Gulf Outlet (completed) and a MRGO damage-offset restoration program

## WRDA Authorized Restoration in Barataria Basin



- Davis Pond modification - 7006(e)(1)(D)
- Myrtle Grove medium diversion with dedicated dredging - 7006(c)(1)(E)
- Myrtle Grove sediment pipeline – CIAP
- Barataria Basin shoreline protection 7006(c)(1)(D)

## Corps Accepts CRCL/LPBF Proposal for a 35,000 cfs Diversion Draft Feasibility Report released in June 2010



## Oil Spill Act of 1990

- Liability capped at \$75M plus removal costs (NRDA costs) except in cases of gross negligence (bills would raise or eliminate cap)
- No preemption of liability under other federal or state laws
- Oil Spill Liability Trust Fund (proposals to increase per barrel dedicated tax)
- Natural Resource Damage Assessments by trustees with obligation to assess natural resource damages and develop and implement plan for restoration, rehabilitation or replacement of damaged resources – 33 U.S.C. 2706(c), 15 CFR 990.30, 40 CFR 300.615(c)
- Assessment includes quantifying the degree and spatial and temporal extent of injury relative to baseline – 15 CFR 990.52.

## CWA Civil and Criminal Penalties

- General: penalty up to \$25,000/day/violation or up to \$1,000/barrel of oil discharged – 33 U.S.C. 1321(b)(7)(A)
- (D) Gross negligence: penalty not less than \$100,000 and not more than \$3,000/barrel of oil discharged – 33 U.S.C. 1321(b)(7)(D)
- Criminal penalties 33 U.S.C. 1319(c)

## EPA Supplemental Environmental Projects

- SEPs are beneficial projects that a defendant agrees to undertake as part of a settlement of an EPA CWA civil penalty enforcement action
- EPA has a five-step process to determine if a proposed project qualifies as a SEP
- Environmental restoration is one of the SEP categories
- The SEP mitigation amount is subtracted from the civil penalty
- There must be a nexus between the violation and the SEP
- The defendant is responsible for completing the SEP with EPA oversight

## Our Choice

