Integrating Science, Policy, and Stakeholder Outreach to Accelerate Restoration

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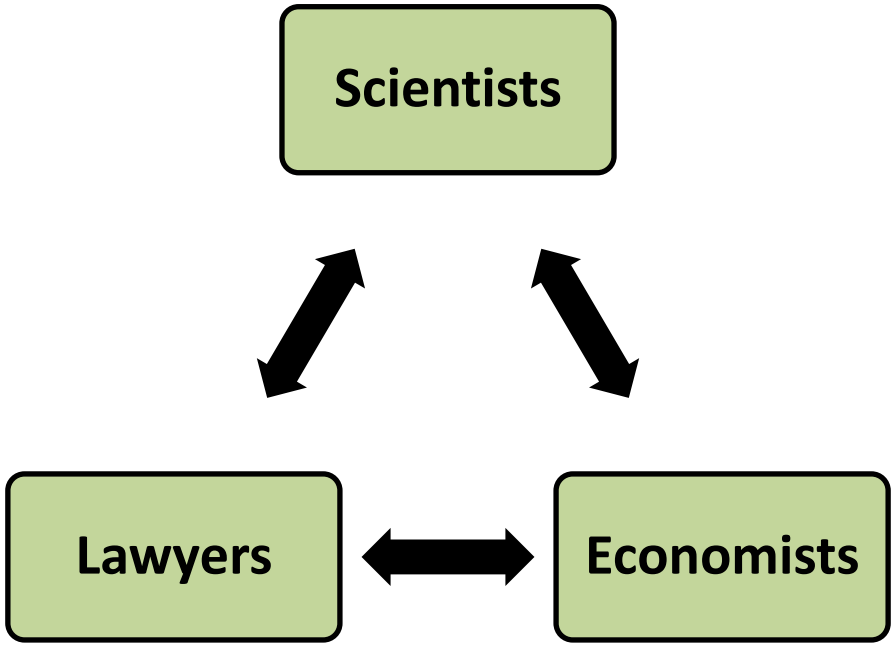
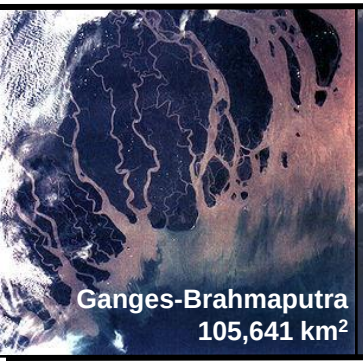
An Uncommon Approach to Environmental Issues

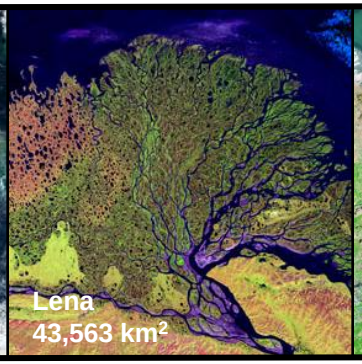


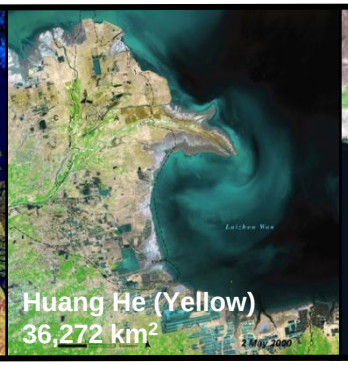
We start with rigorous science. Then we work directly with businesses, government and communities.

Together, we create **lasting solutions** to the most serious environmental problems.

7th Largest Delta in World

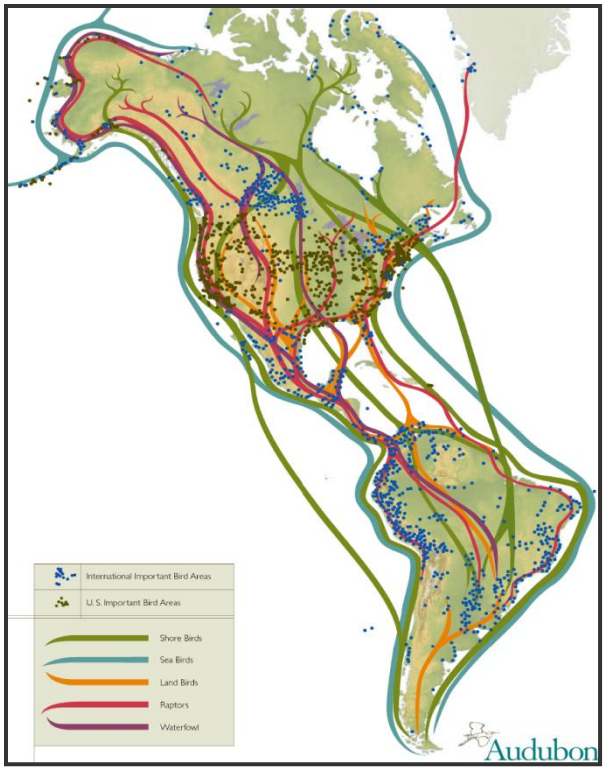






The Importance of the Mississippi River Delta Region

- Supplies U.S. with 27% of its oil and 32% of its natural gas by infrastructure
- Ports rank #1 in Nation by tonnage
- Bird Migration Route
- Storm Buffering
- Highly Productive Fisheries
- Unique communities



The Louisiana Coastline in 2000

Figure modified from Blum and Roberts, 2009

Projected Land Loss by 2100 if no Action is Taken

Figure modified from Blum and Roberts, 2009

The Coalition

- Developing <u>science-based</u> restoration plans
- Promoting polices that secure <u>funding for restoration</u>
- Reaching out to stakeholders to craft <u>joint solutions</u>

Coalition to Restore Coastal Louisiana

Lake Pontchartrain Basin Foundation

Save Our Coast Save Our Lake

Audubon

EDF Environmental Defense Fund™

Finding the ways that work

National Wildlife Federation®

The Policy Basis:

Water Resources Development Act (WRDA) 2007

- Authorized a **program for ecosystem restoration** in accordance with 2005 Chief's Report
- Secretary is authorized to carry out the following projects
  - **MRGO**
  - Small Diversion at Hope Canal
  - Barataria Basin Shoreline Restoration
  - Small Bayou Lafourche reintroduction
  - Medium diversion at **Myrtle Grove** with dedicated dredging
- **Funding is essential** to getting large-scale restoration off the ground

Stakeholder Engagement

Reaching out to broad groups to explore **consensus** approaches.

87% of South Louisiana voters believe coastal erosion and the loss of barrier islands are **serious problems**

Addressing Barriers to Restoration

- Priority Projects
  - Proving ground projects
  - Develop partnerships
- New Science and Modeling
  - Identify solutions for moving forward with large-scale restoration
- Address fundamental questions stopping restoration

Priority Restoration Projects

Barriers to Restoration

- Lack of on the ground proving ground projects
- Feasibility of restoration at scale
- Considerable time lapse between authorization and implementation

The Remedy

- Utilize applied science and demonstration projects to answer questions at different scales
- Find creative solutions to fast-track restoration projects

Who is involved

- Coalition
- Local and national stakeholders
- State Agencies
- Federal Agencies
- Policy experts/Appropriations

Myrtle Grove Land Building Diversion

The Goals:

1. Design and build an effective land-building diversion
2. Quantify and address changes to communities and business that may arise from the construction and operation of the diversion
3. Build support of stakeholders locally and state-wide

WRDA Priority Project. Congress authorized a program for restoration.

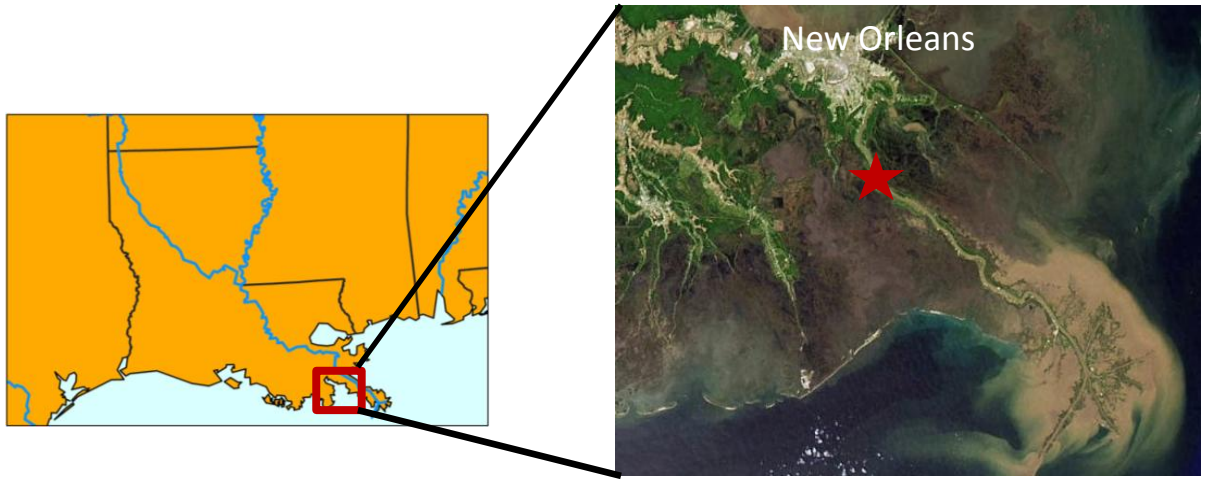
A Unique Partnership

EDF
ENVIRONMENTAL
DEFENSE FUND™
Finding the ways that work

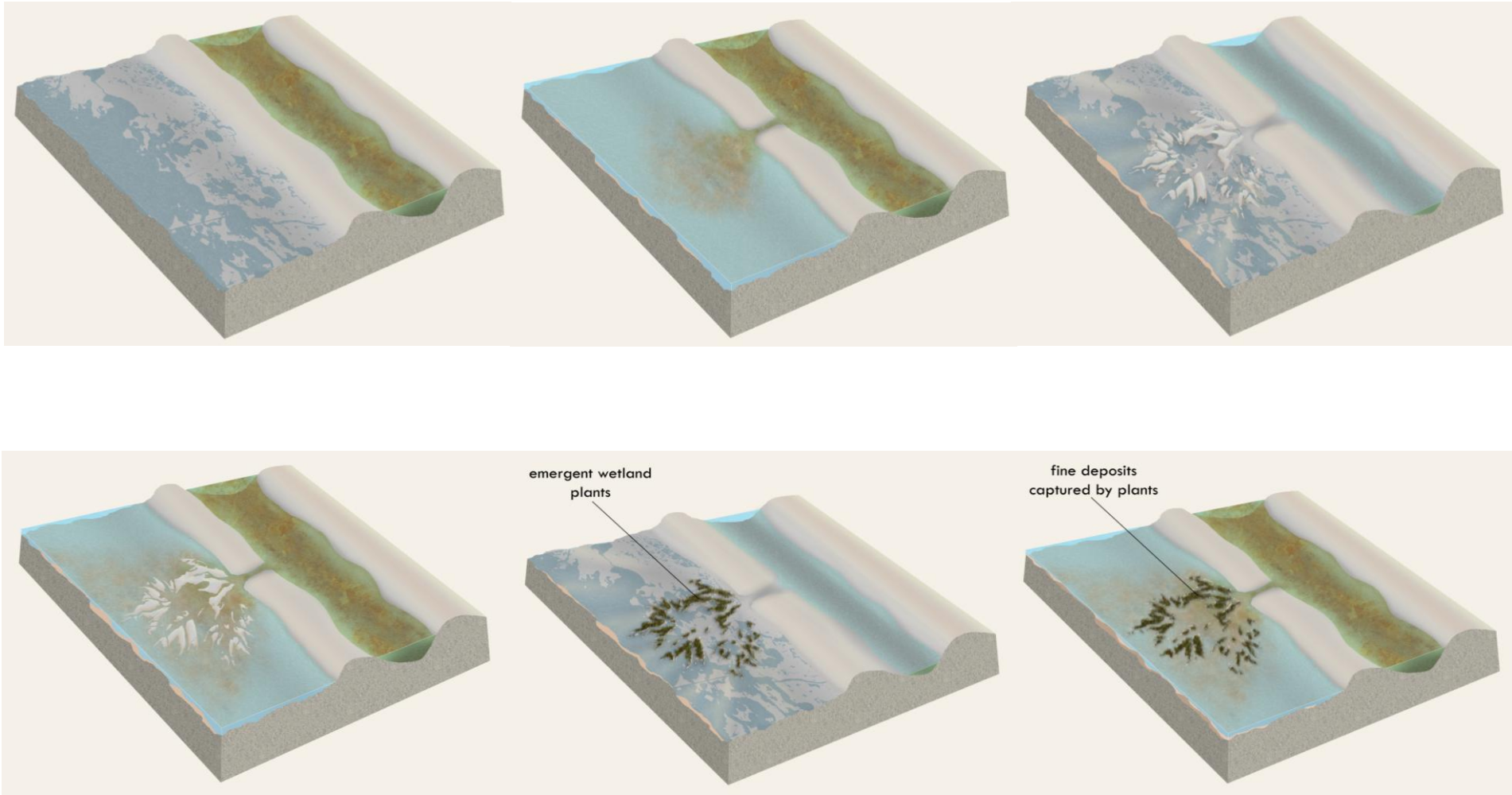
Audubon

US Army Corps
of Engineers®

NATIONAL
WILDLIFE
FEDERATION

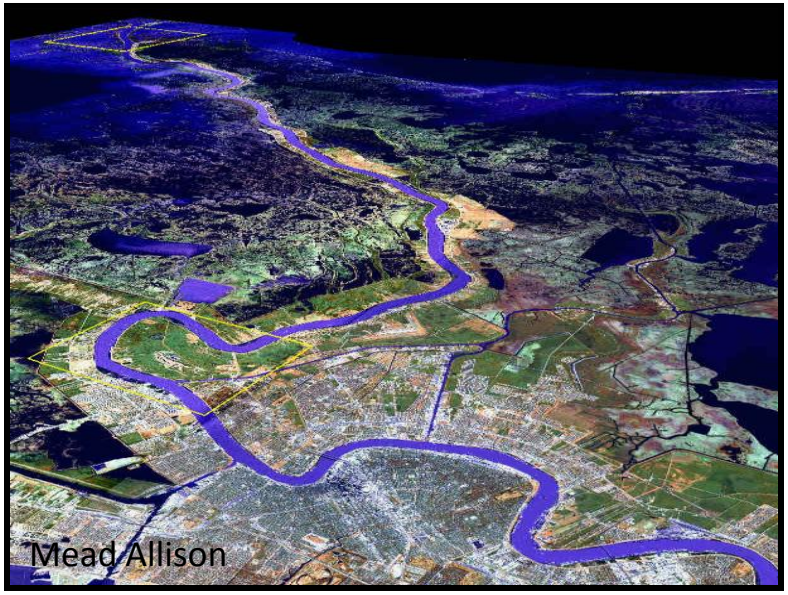


Mimic Natural Delta Building Processes

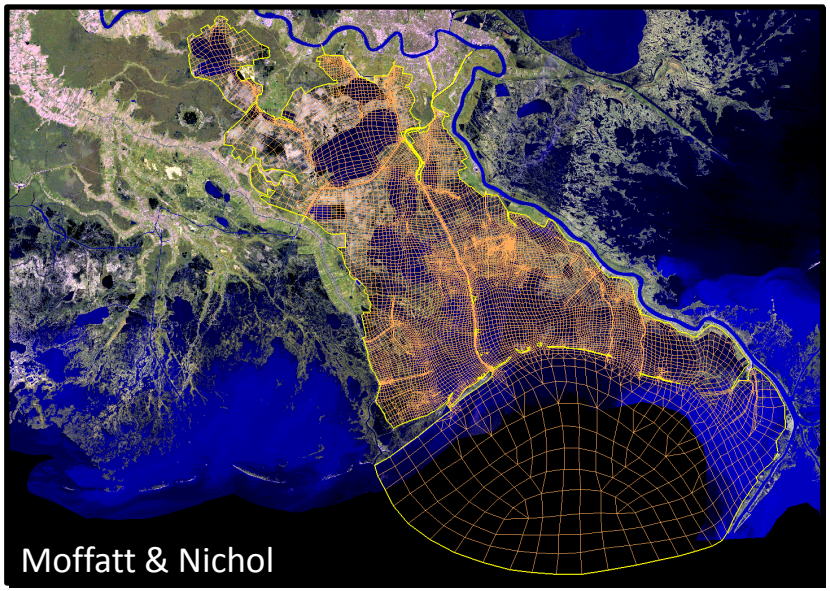


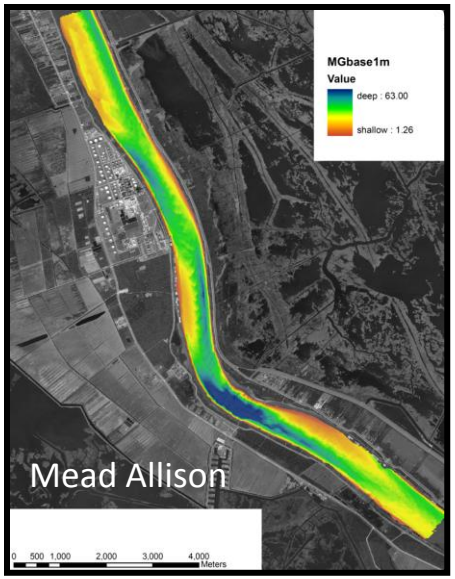
Comprehensive Data Collection and Modeling

River Side Impacts

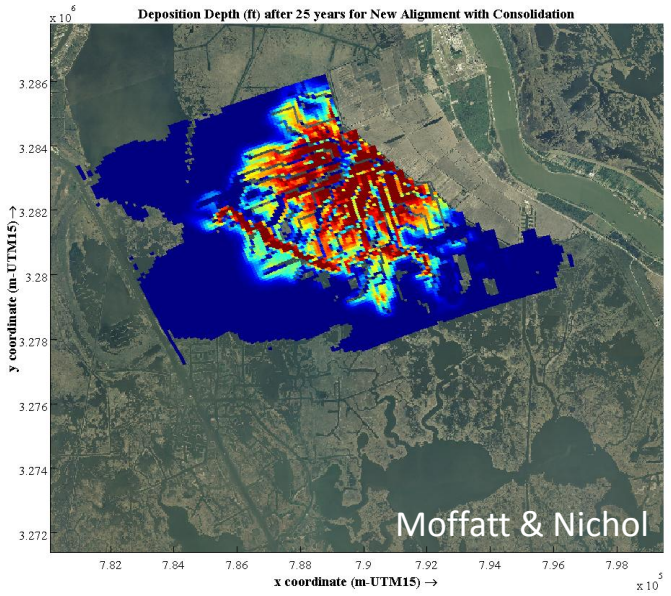


Bay Side Impacts

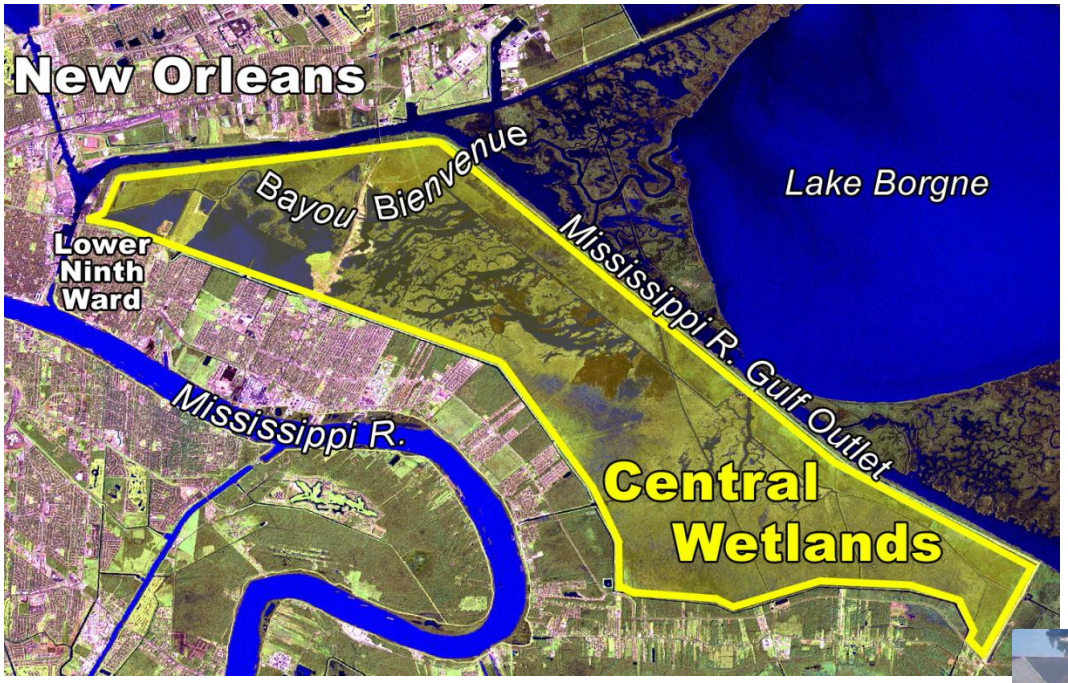




Modeling and data collection efforts, monitoring and operational protocols inform future restoration efforts



Mississippi River Gulf Outlet (MRGO)



76 mile shipping channel designed and constructed by the Army Corps of Engineers in 1965 to shorten the shipping route to New Orleans's inner harbor.

- Destroyed or damaged 1,000 square miles of coastal habit.
- Dramatically increased flooding during Hurricane Katrina by channeling storm surges.
- **Closed in 2009 but not restored.**

Through collaboration with **community leaders and expert scientists**, the coalition has established 8 Restoration Priorities for the ecosystem affected by MRGO.

New Science and Modeling

Barriers to Restoration

- Gap between current projects and what is really necessary
- Need for accurate and proven models to simulate proposed restoration efforts

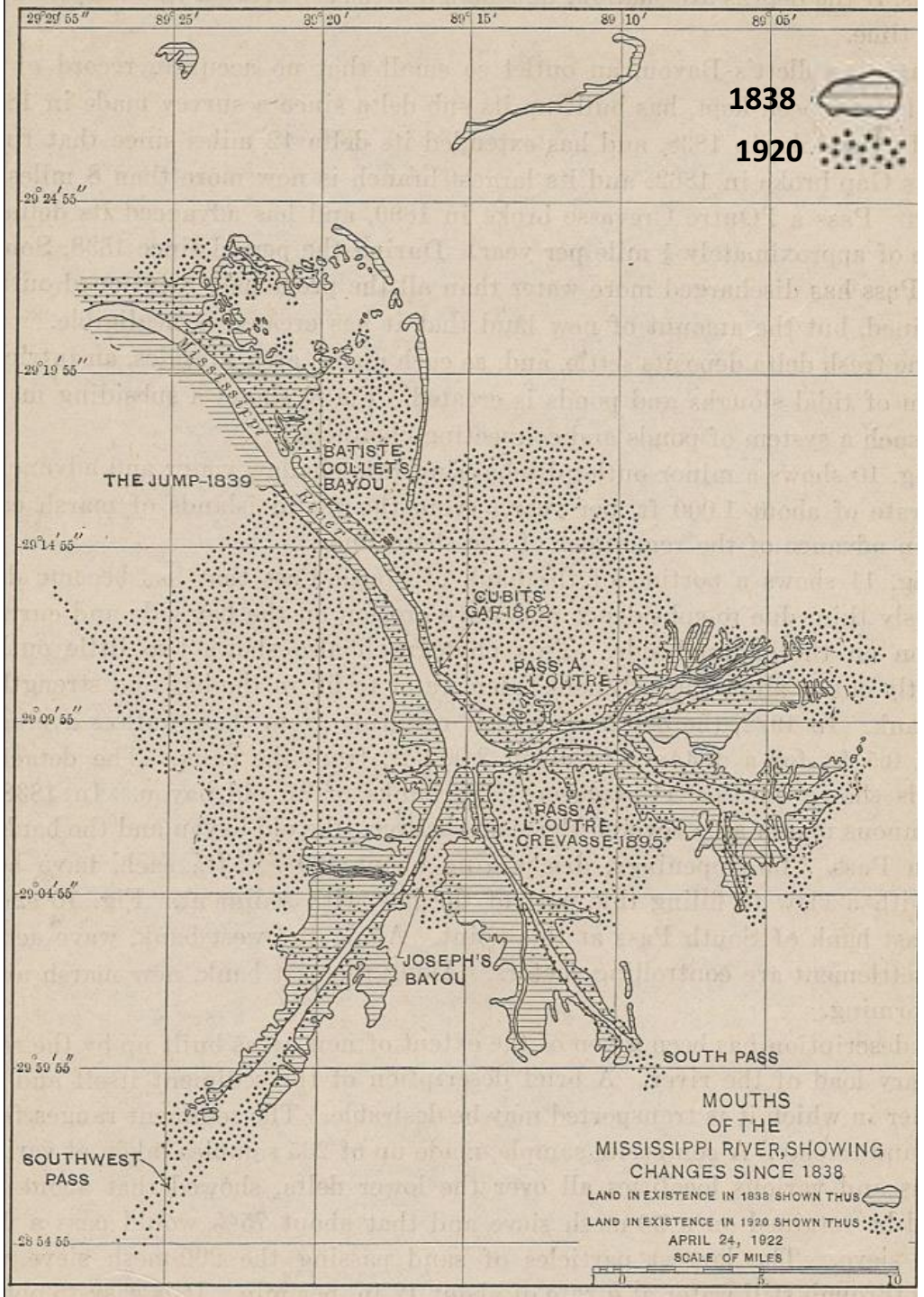
The Remedy

- Map landbuilding from existing diversion projects
- Identify opportunities for moving forward with large-scale restoration
- Develop a strategy that works at the scales required

Who is involved

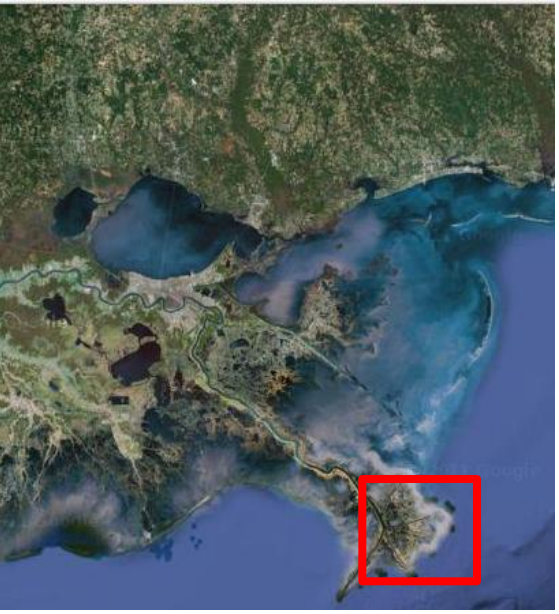
- Coalition and academic scientists
- Federal and State Agencies
- Policy experts/Funding and National Support

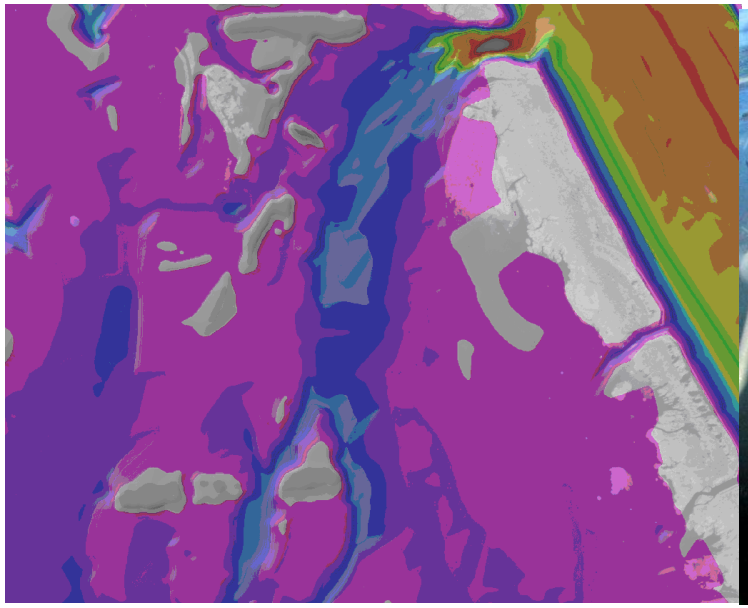
Land-Building at the River Mouth has Historically been Cyclic

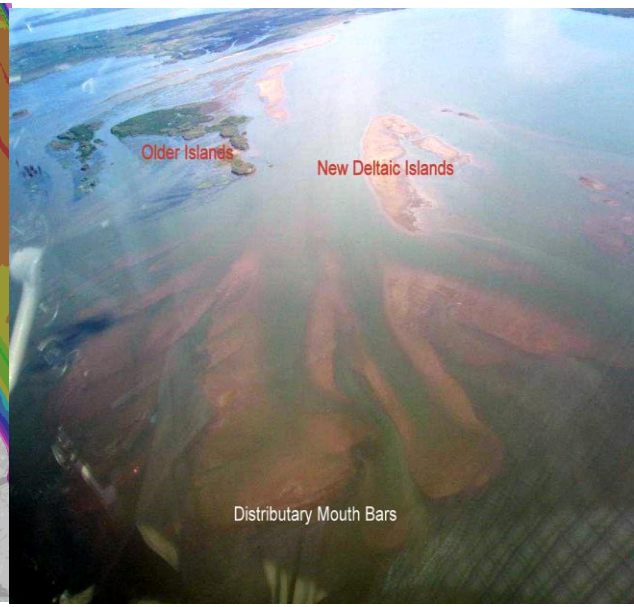


E.J. Dent. 1924. The Mouths of the Mississippi River. *Transactions of the American Society of Civil Engineers. Vol. 87, Pg 997-1007*

New Science and Modeling: **West Bay**





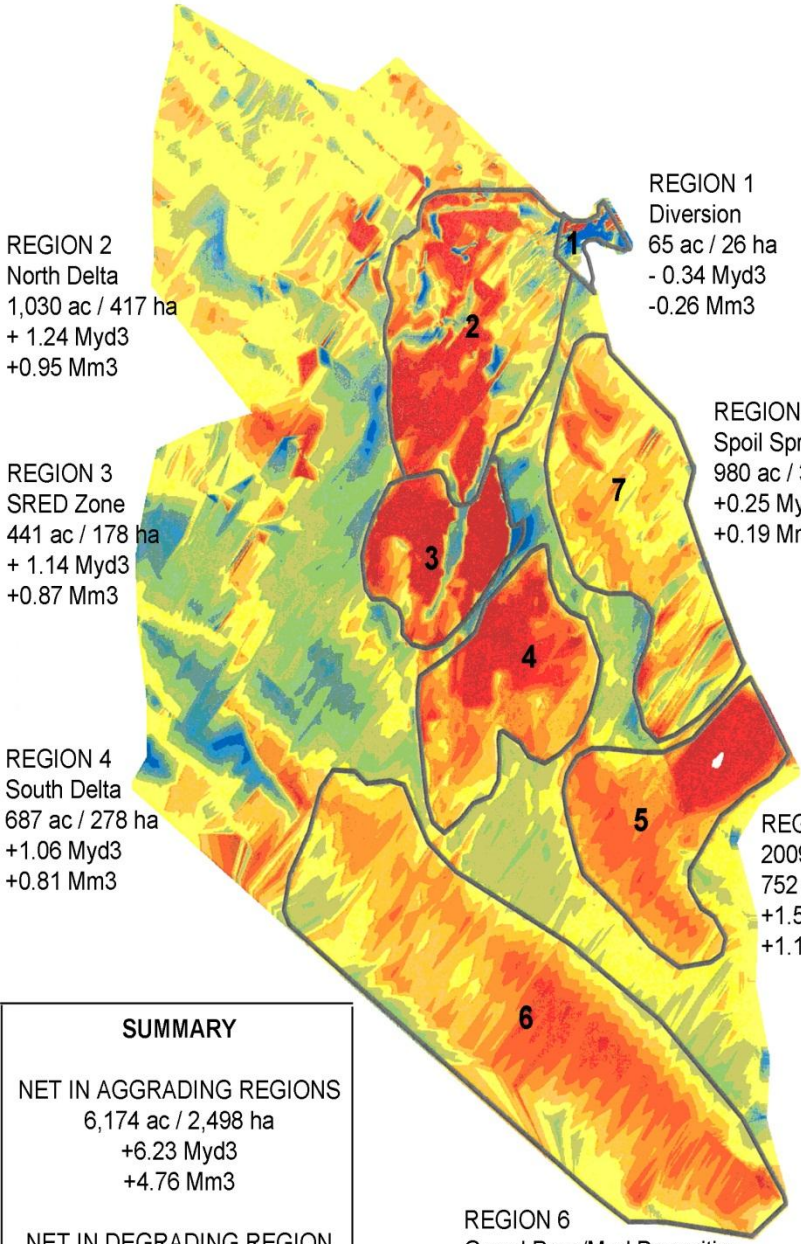


West Bay: Louisiana's newest land-builder


Diversion
Half Mile Natural Levee Visited on 9/12/2011
Older Island
Older Channel

Dr. Sherwood Gagliano on sand that is now above water for the first time since he cored the marsh here in 1959

Sediment Erosion/Subsidence and Deposition



REGION 1
Diversion
65 ac / 26 ha
- 0.34 Myd3
-0.26 Mm3

REGION 2
North Delta
1,030 ac / 417 ha
+ 1.24 Myd3
+0.95 Mm3

REGION 3
SRED Zone
441 ac / 178 ha
+ 1.14 Myd3
+0.87 Mm3

REGION 4
South Delta
687 ac / 278 ha
+1.06 Myd3
+0.81 Mm3

REGION 5
2009 Spoil Zone
752 ac / 305 ha
+1.53 Myd3
+1.17 Mm3

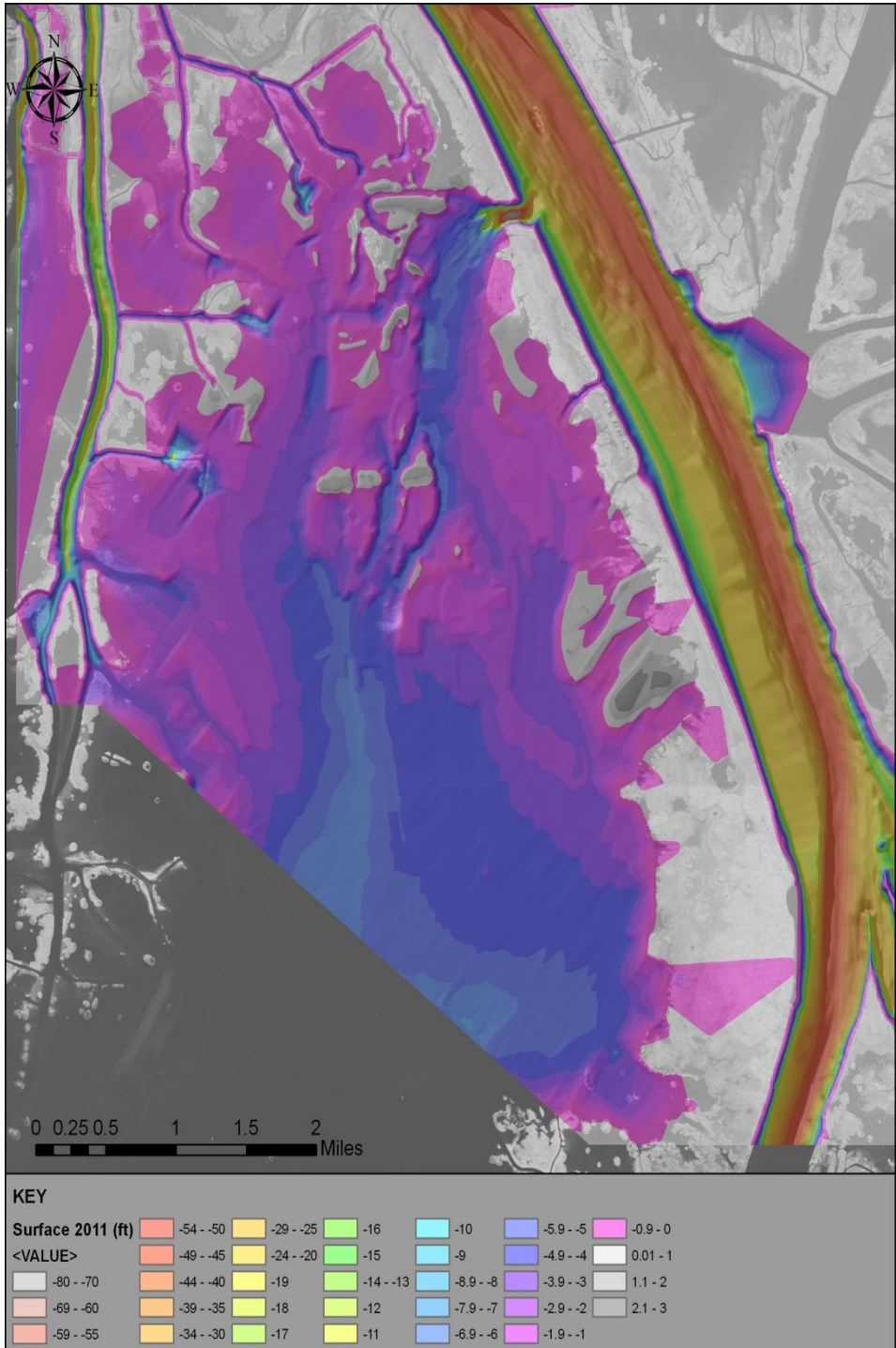
REGION 6
Grand Pass/Mud Deposition
2,219 ac / 898 ha
+1.34 Myd3
+1.02 Mm3

REGION 7
Spoil Spread Zone
980 ac / 396 ha
+0.25 Myd3
+0.19 Mm3

SUMMARY

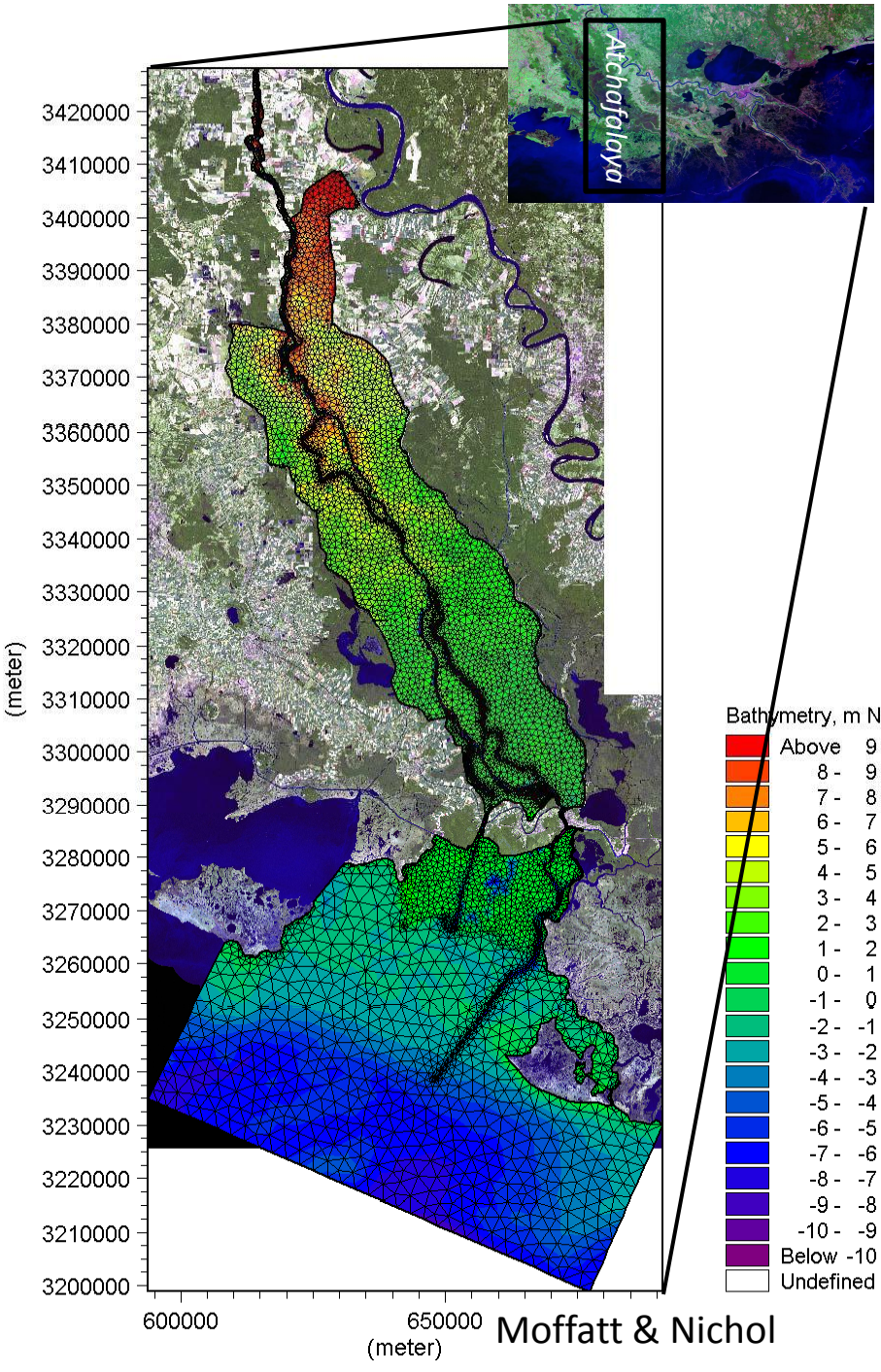
NET IN AGGRADING REGIONS
6,174 ac / 2,498 ha
+6.23 Myd3
+4.76 Mm3

NET IN DEGRADING REGION
6,187 ac / 2,477 ha
- 2.84 Myd3
-2.17 Mm3

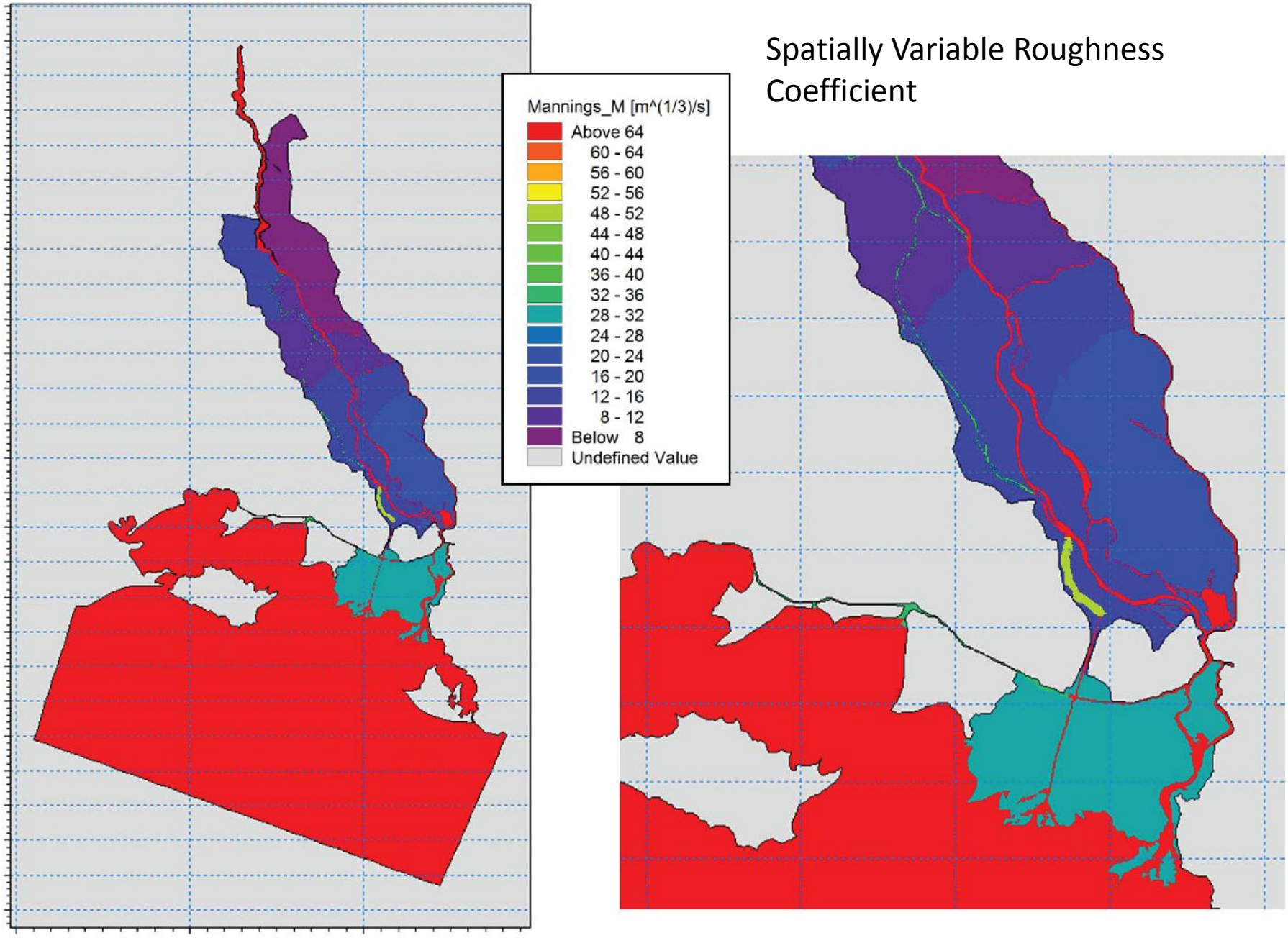


New Science and Modeling: **Atchafalaya Model**

- Build, Calibrate and Validate 2D MIKE-21 model for Atchafalaya Basin, coastal marshes and bays to prepare for work authorized in WRDA 2007
- Engage stakeholders and agencies; use models that the USACE and the State can adopt and maintain



Spatially Variable Roughness Coefficient



Address fundamental questions stopping restoration

Barriers to Restoration

- Unanswered questions about scientific restoration
- Unanswered questions concerning stakeholders in LA
- Focus on smaller-scale, less controversial projects not adequate to scale of land loss

The Remedy

- Convene a team of leading scientists to research the answers
- Sponsor a design initiative to spark new solutions

Who is involved

- The coalition to restore MRD
- Local and national academic scientists

Science and Engineering Special Team (SEST)

A team of eminent scientists and engineers that address issues related to the restoration of the Mississippi River Delta identified in consultation with our NGO collaborative


Fundamental Questions about the Mississippi River Delta
Sediment Availability
Usefulness of Diversions
Relationship between fisheries and restoration
Restoration and Communities
Navigation Issues
Coastal Restoration, Climate Change, and Energy
Effects of Nutrients on wetlands
Urgency of restoring LA's coast
What LA stands to lose
Levees and Flood Protection

Lower Mississippi River Delta Design Initiative

Bringing together teams of the world's best to **show the people of Louisiana the art of the possible** for a self sustaining delta ecosystem and river realignment that:

- Meets national navigation and infrastructure requirements
- Provides natural flood and storm protection
- Creates space for stakeholder input trade-offs
- Builds designs off of previous planning processes
- Parallel and additive to official master plans, projects and studies

Conclusions

- The coalition has helped to catalyze restoration action in the MDR region by addressing specific barriers to restoration
- We are fostering communication between multiple sectors that are not traditionally linked
- Expansive stakeholder outreach is growing local and national support for restoration, as well as educating
- Working to secure funding


Questions?