



The Effects of the Macondo Oil Spill on Coastal Ecosystems

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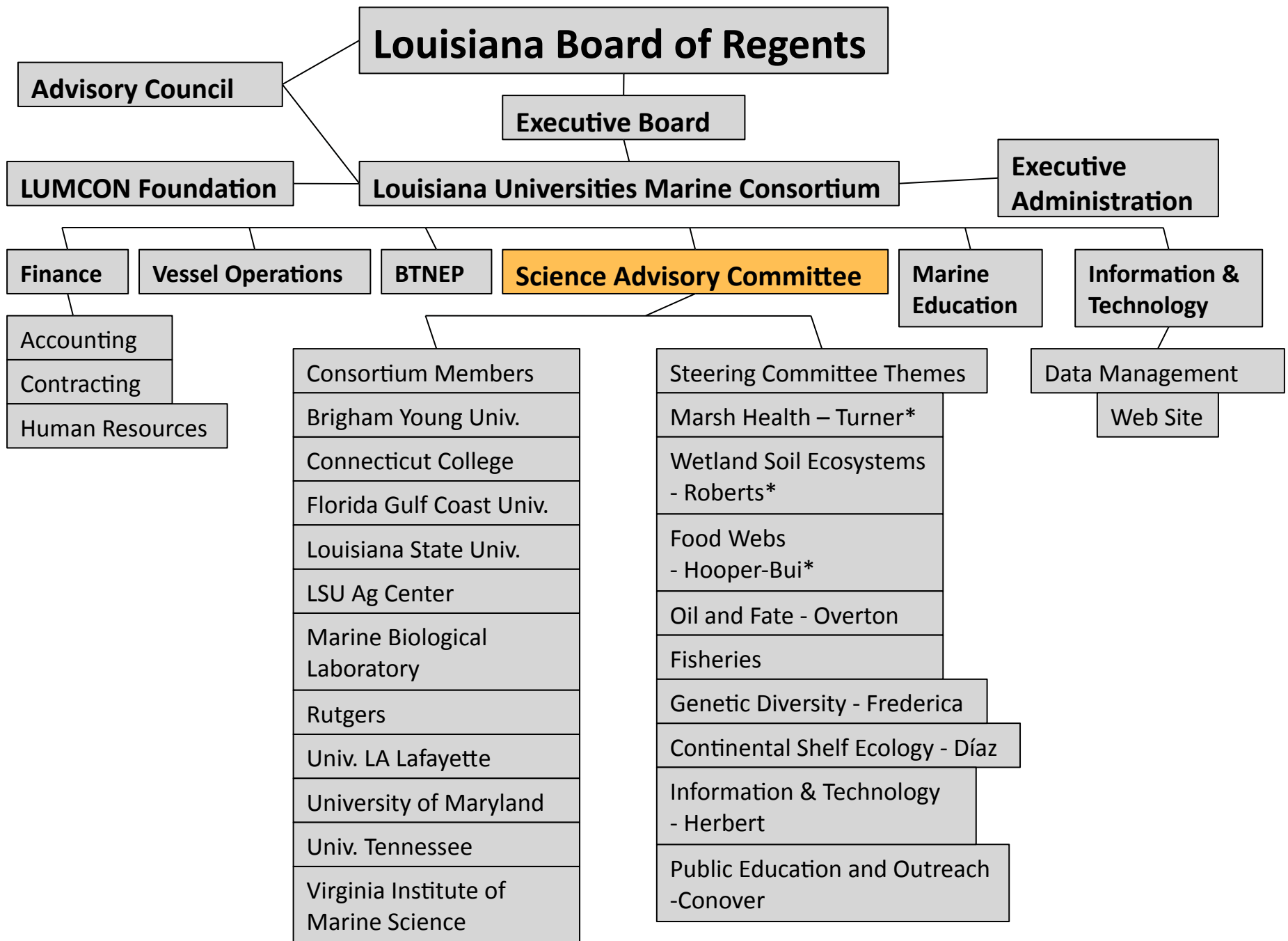
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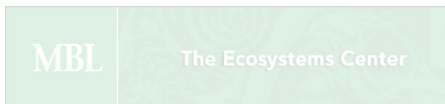
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Research Questions

- Where is the oil now & how has it changed since 2010?
- What are its impacts & how have they evolved since 2010?
- Have parts of the ecosystem been resilient, recovered, or been compromised?
- How do the spill-related stressors interact with other stressors?
- What indicators of stress & recovery can be developed to manage future stressors?
- What data or tools or perspectives need to be applied or developed to improve our understanding?
- How has the use of the ecosystem been modified by these stressors & have ecosystem services recovered?

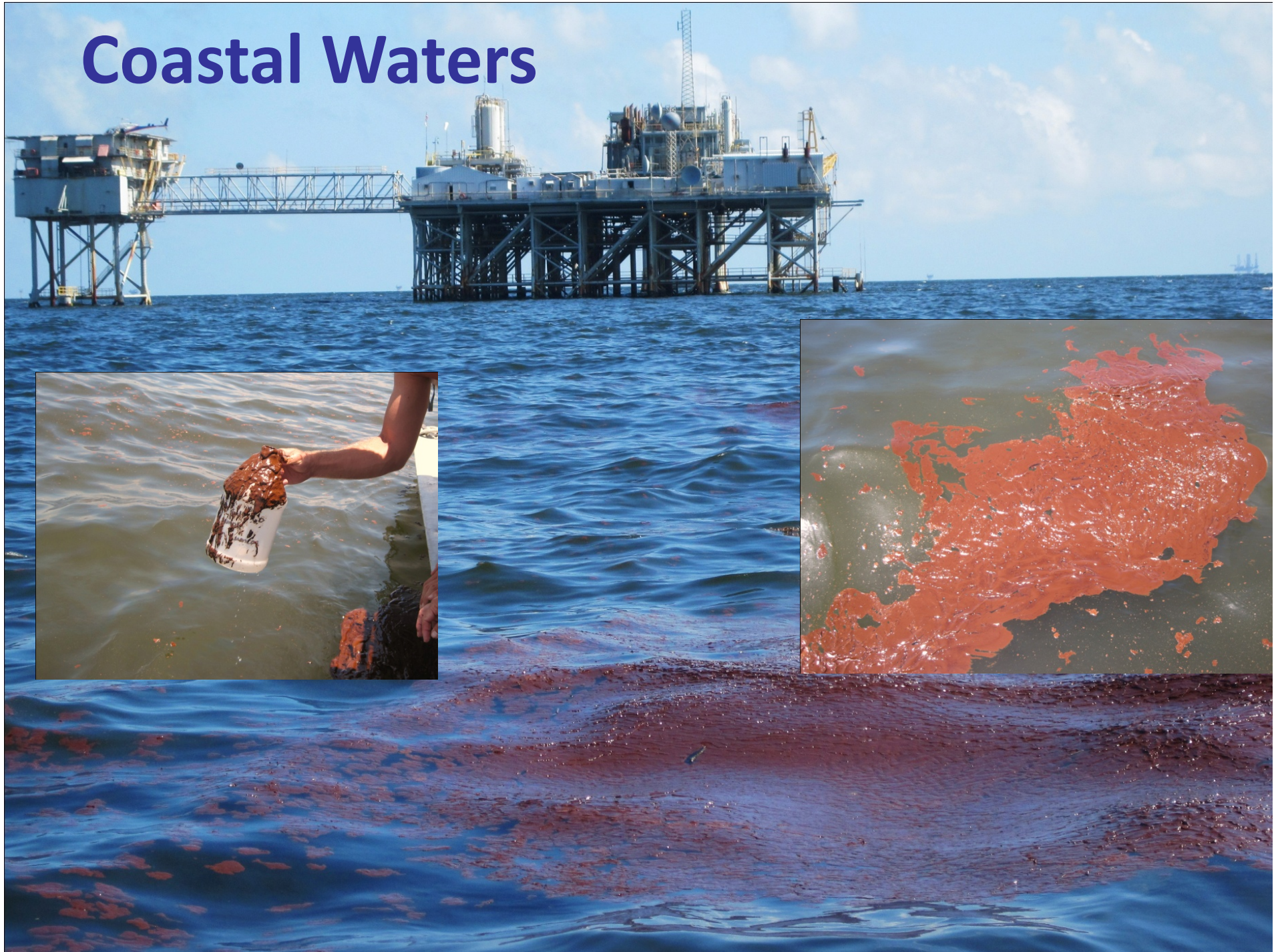


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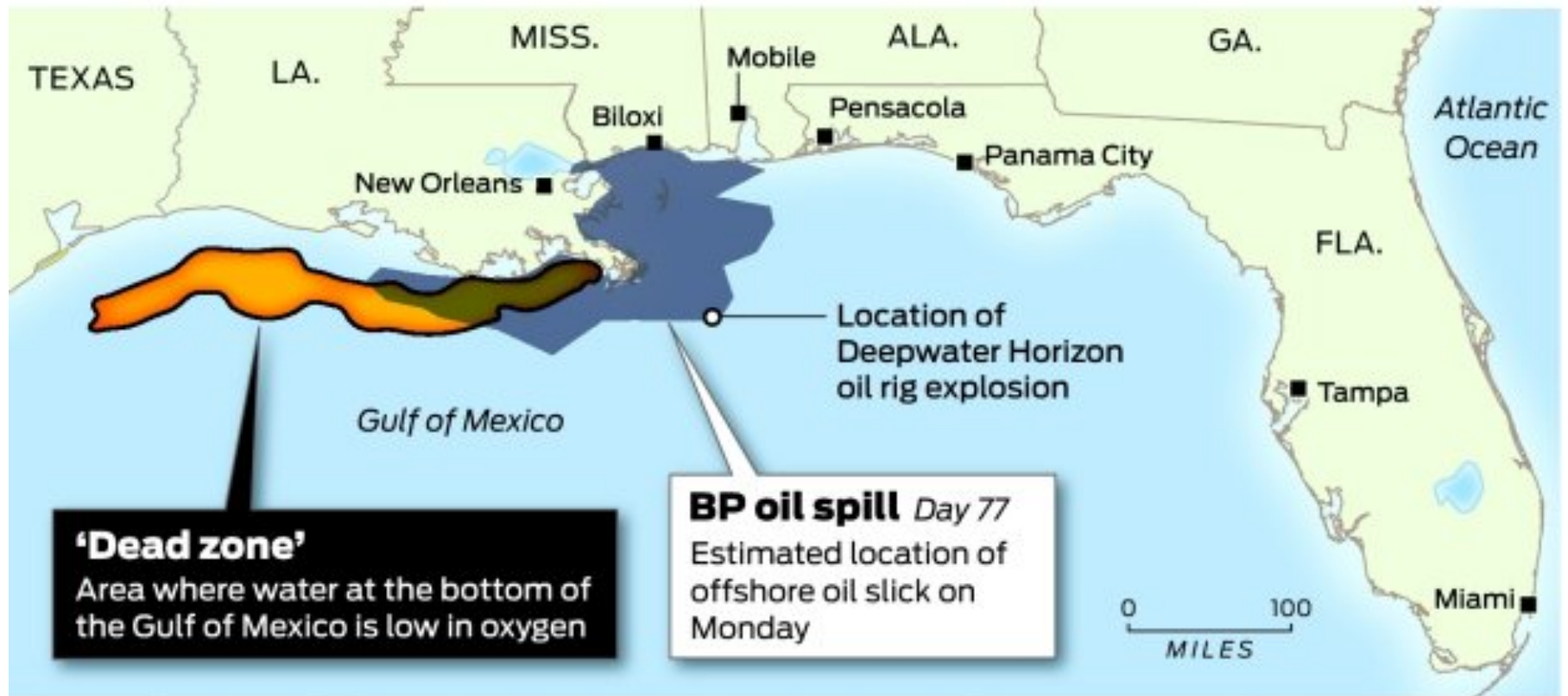
Coastal Waters





Oxygen-depleted 'dead zone' in Gulf of Mexico

Nitrogen-based fertilizer used on farms in the Midwest leaches into the Mississippi River and the Gulf of Mexico, where it feeds giant algae blooms. As the algae dies, it settles on the ocean floor and decays, consuming oxygen and suffocating marine life. Scientists have identified a "dead zone" where seasonal oxygen levels drop too low to support most life in bottom and near-bottom waters.



Sources: Professor Nancy Rabalais, Louisiana Universities Marine Consortium; Associated Press

Todd Trumbull / The Chronicle



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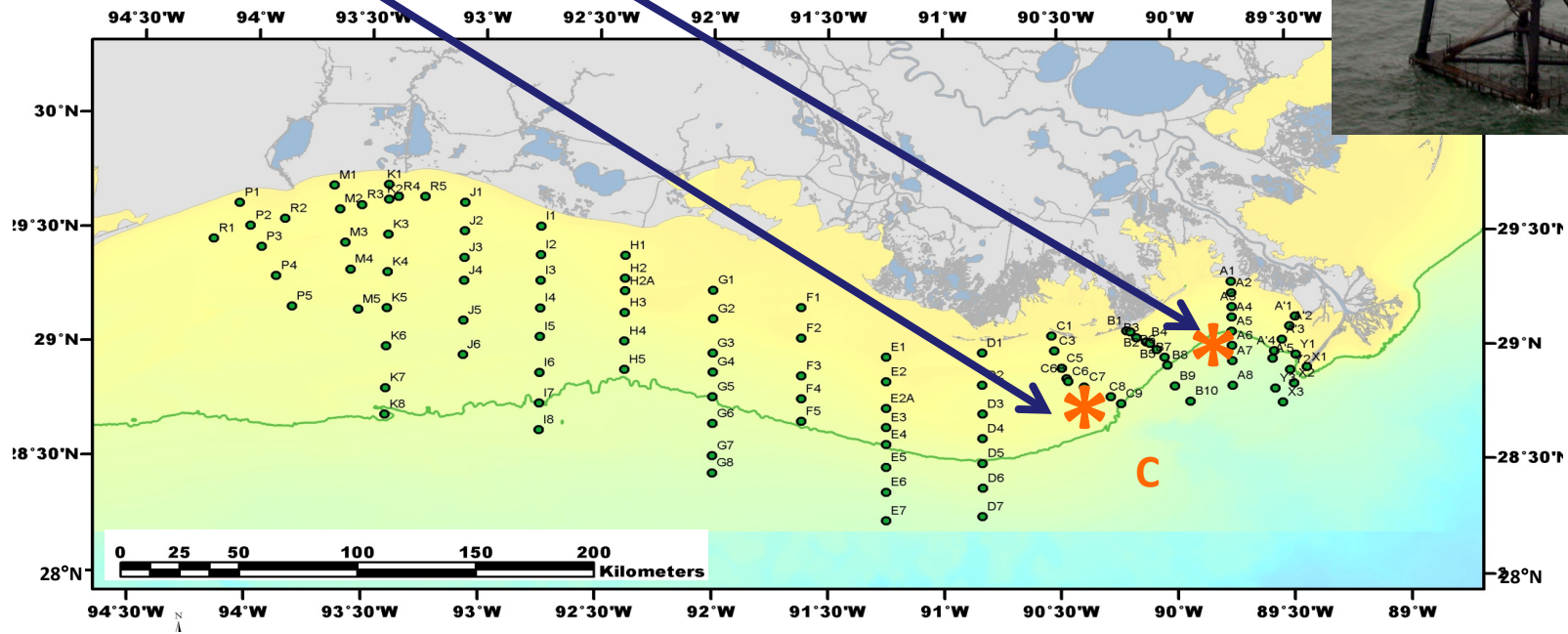
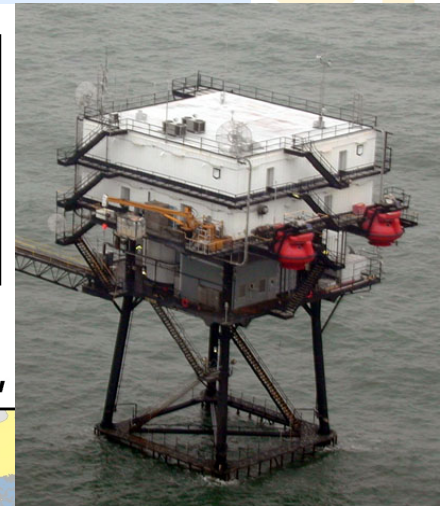


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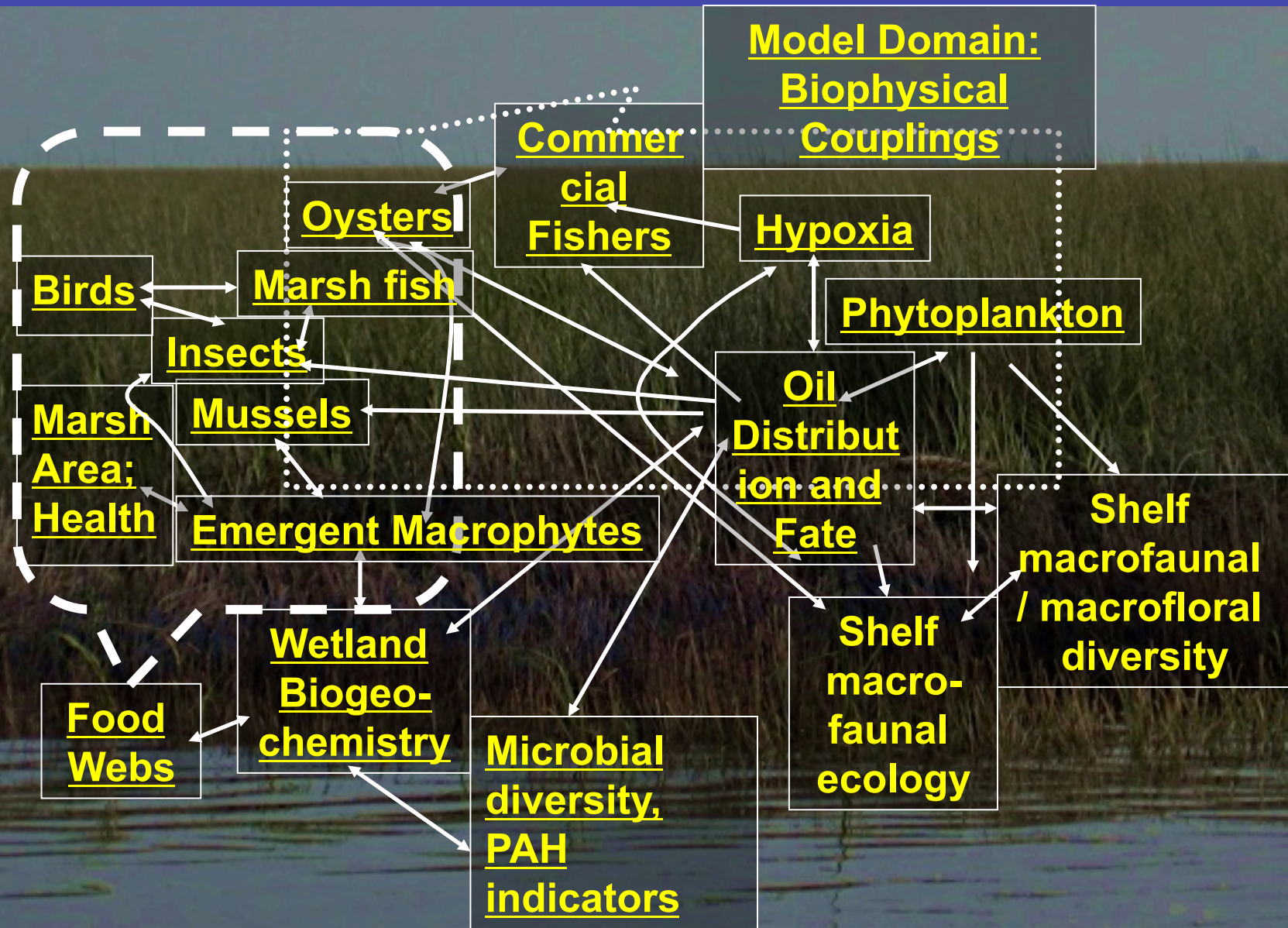


- Long-term data bases
 - Deployed oxygen meters
- CSI-06 CSI-09

(archived samples and data)



Estuary





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MBL The Ecosystems Center



of NORTH CAROLINA at CHAPEL HILL

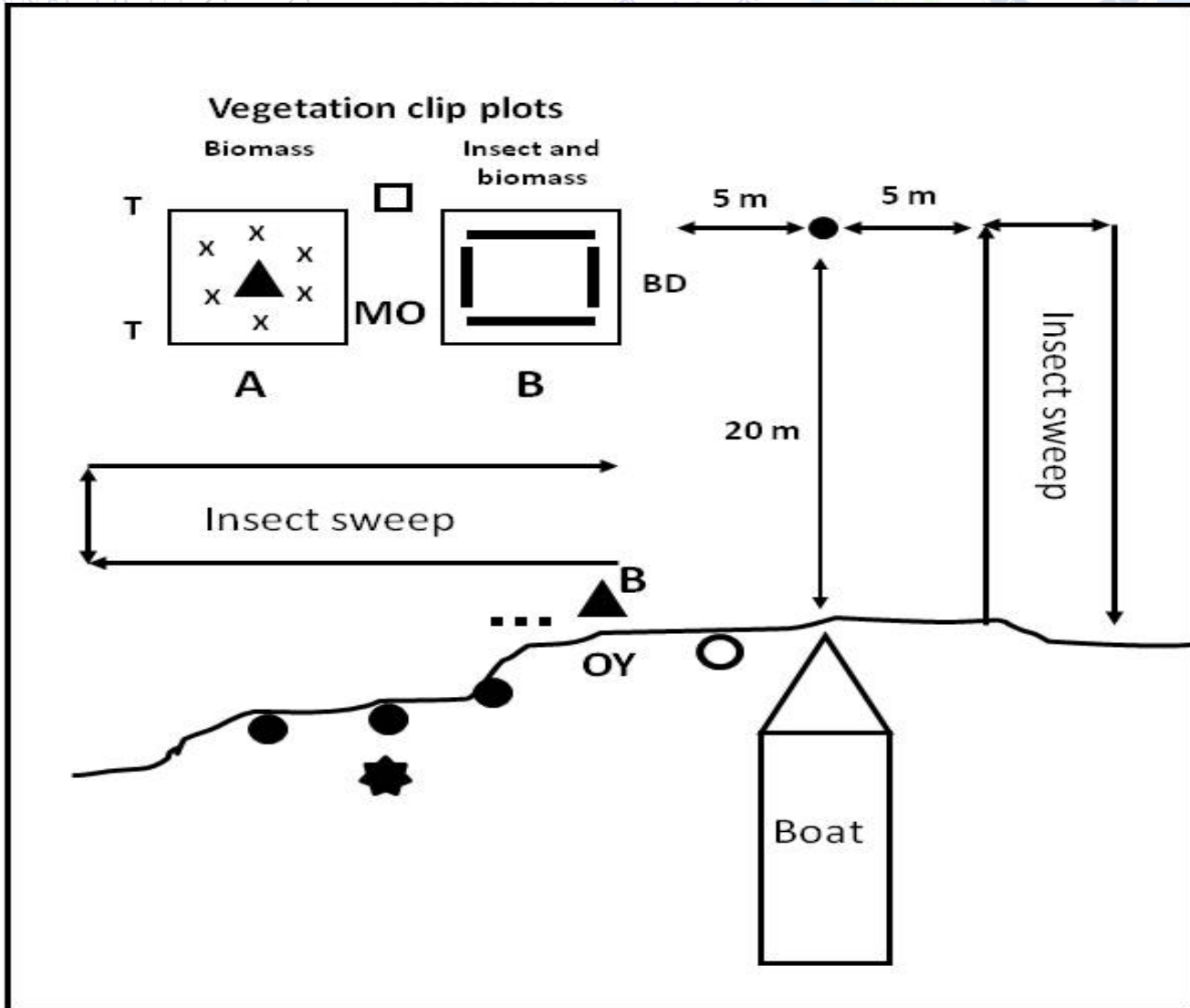
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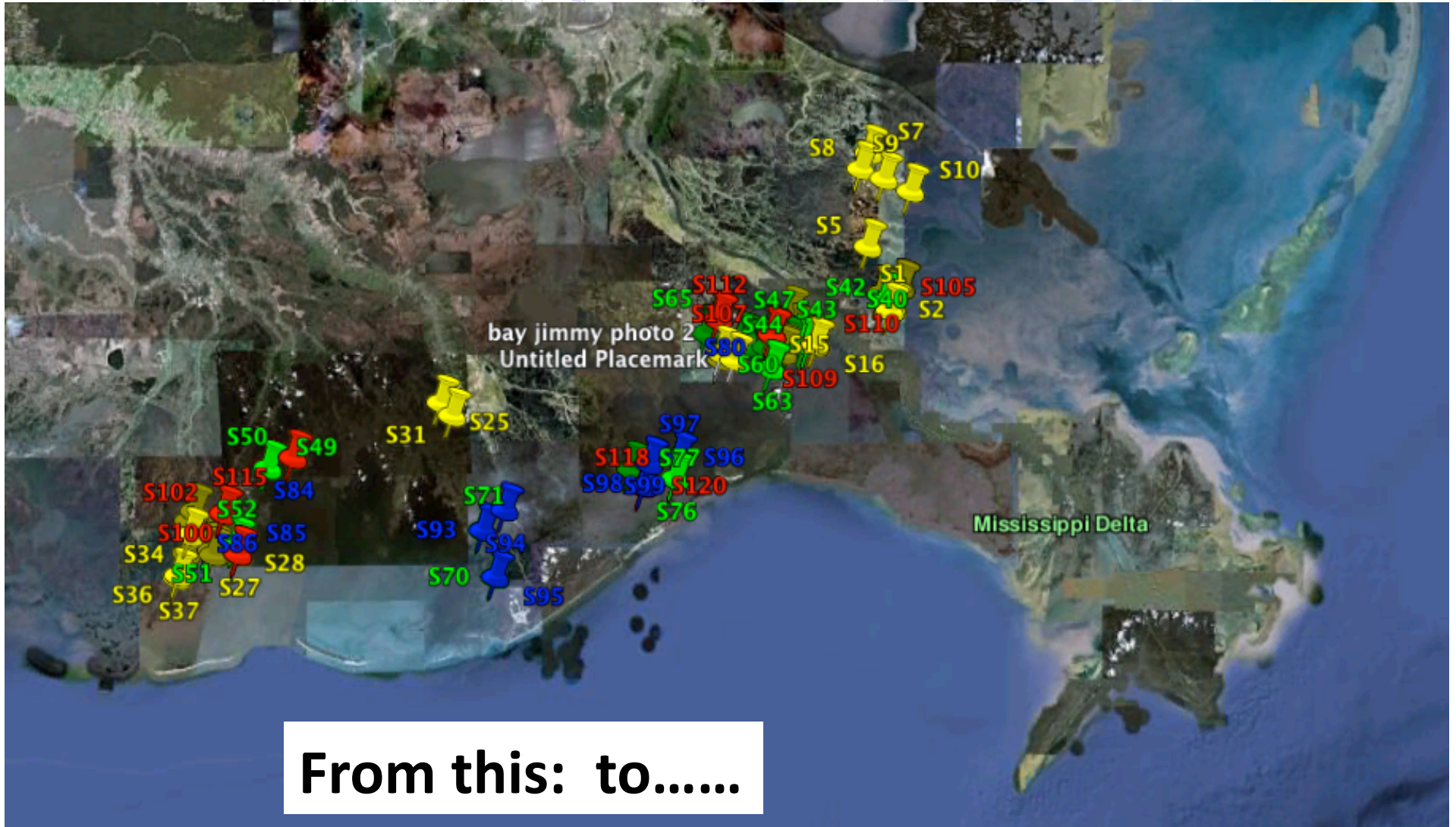
LSU AgCenter Research & Extension



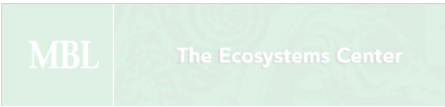
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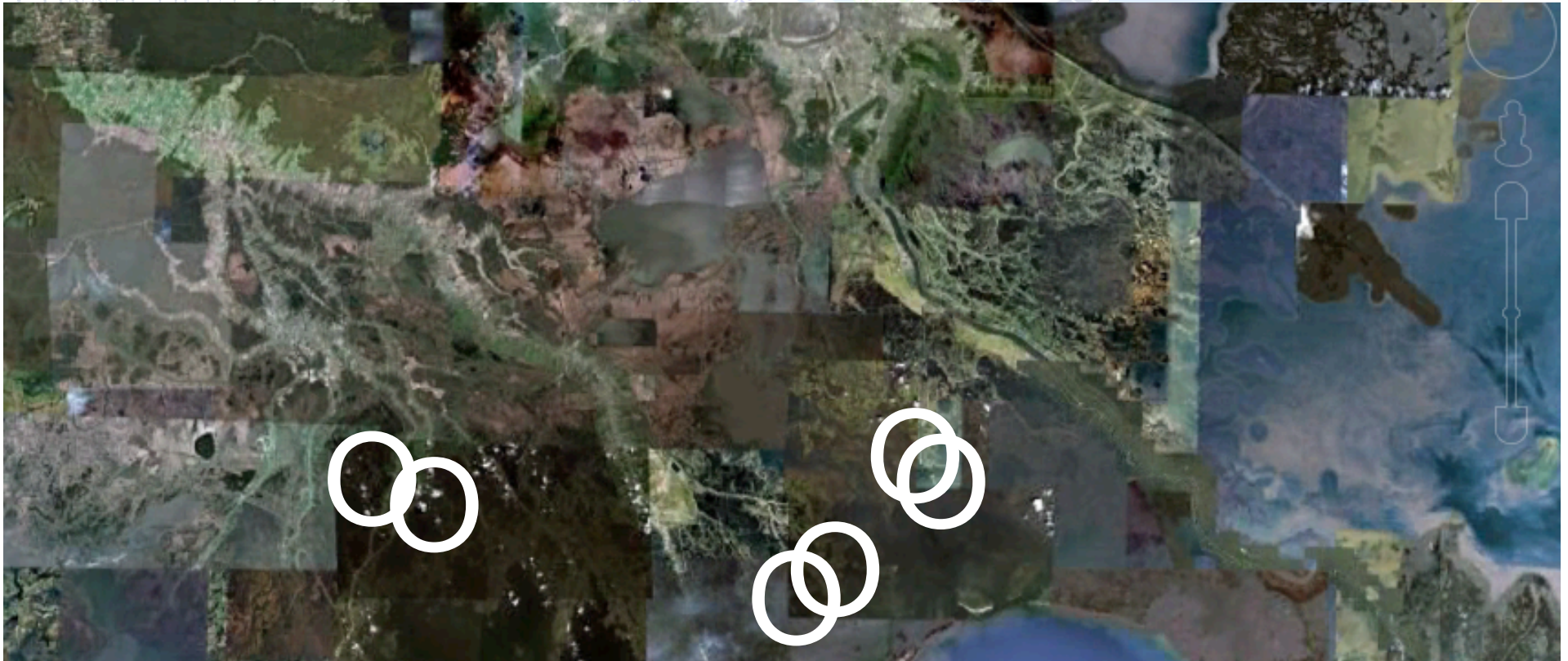
Core Stations





From this: to.....





This (plus individual efforts)

**12 CORE Stations:
6 paired oiled and non-oiled sites in 3 basins**

MBL

The Ecosystems Center

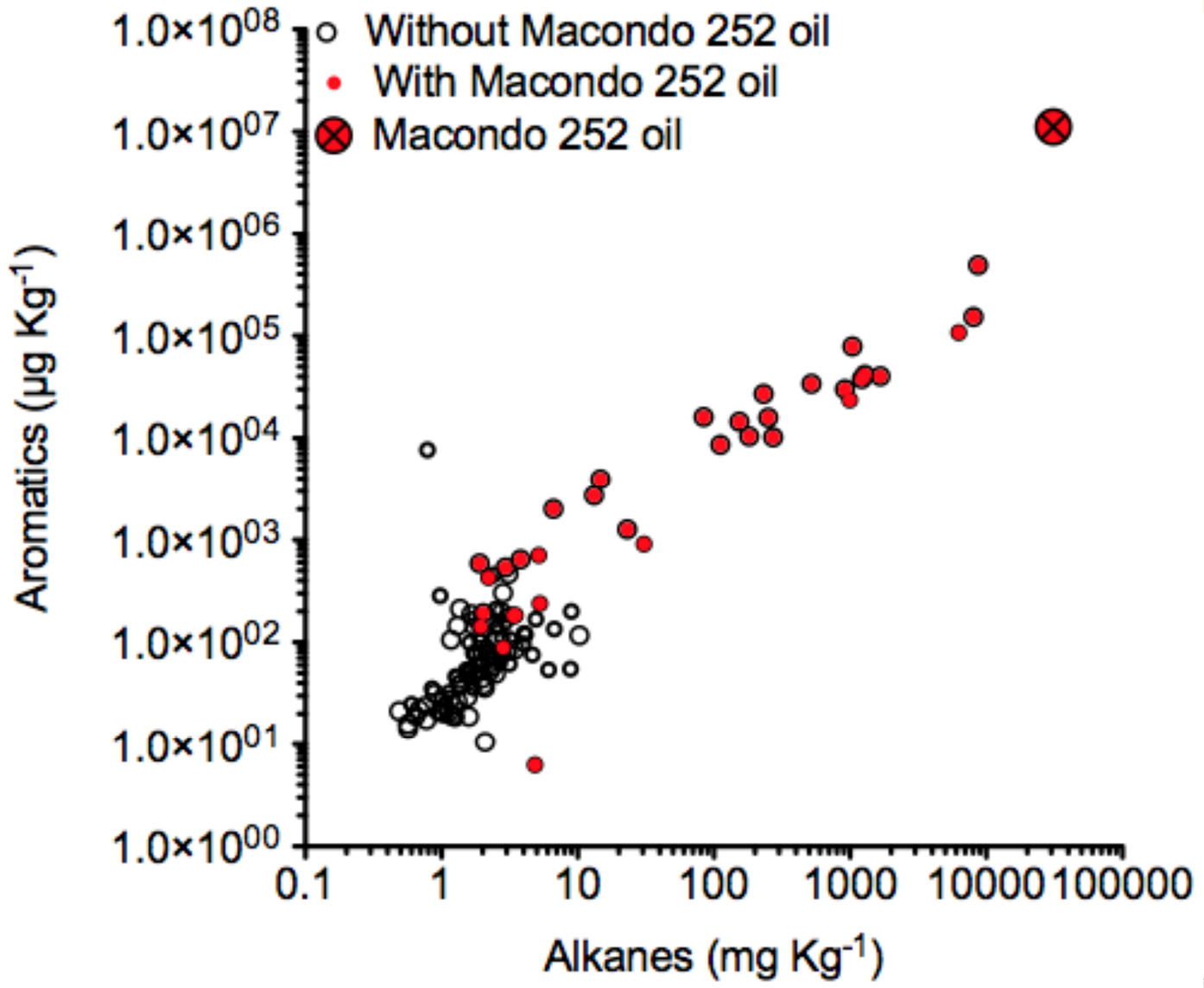


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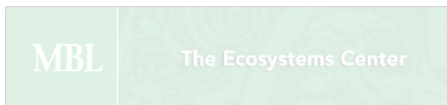
Oil in the marsh





Projects: marsh

- Oil distribution & fate
- Macroflora & soil stability
- Wetland biogeochemistry
- Wetland microbial genetics
- Food webs: stable & natural isotopes
- Insects & spiders
- Seaside sparrows
- Marsh fish
- Oysters
- Estuarine macrofauna
- Commercial fisheries
- Marsh health & shoreline erosion
- Oil transport



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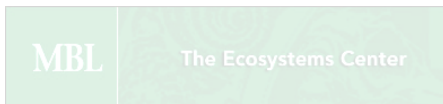


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Projects: coastal

- Oil transport
- Shelf macroinfauna
- Benthic responses
- Phytoplankton
- Hypoxia & oil



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Outcomes: Science

- Long-term data based to measure impacts
- Insightful tools to investigate future stressors
- Data archived
- Educational materials and interactions
- Publications - lots of them
- Insightful analyses of the impacts from the DWH disaster
- Comparisons with other spills
- Geographic-specific knowledge
- Synthesis of efforts





Improvements in Society, Understanding and Collaboration: examples

- Collaborative engagement with fishing community (oysters/fish)
- Evaluation of short- and long-term change in salinity (from river diversion opened)
- Evaluation of consequences of various mitigation measures
- Context in which to evaluate the effects of the physical removal of oil





Thank you

