



West Bay Receiving Area Analysis

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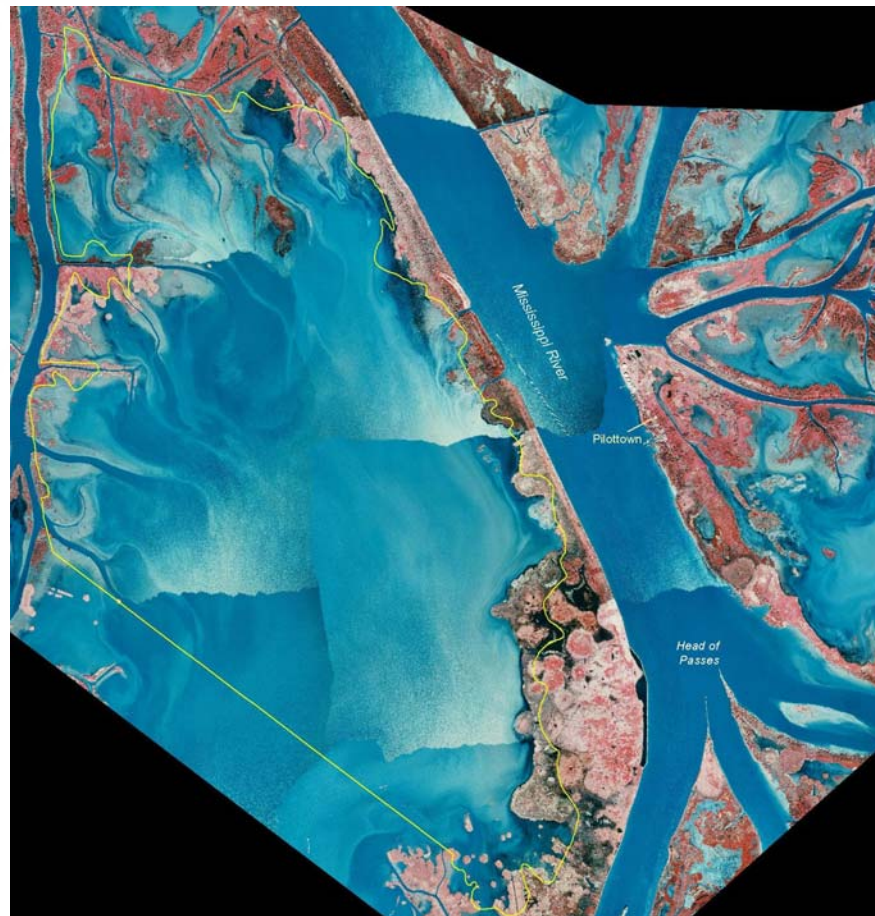
CWPPRA Technical Committee Special Work Group Meeting – West Bay Sediment Diversion Project – 2009 Work Plan

February 27, 2009 @ MVN



West Bay Receiving Area Analysis

Aerial and Bathymetric Spatial Change Analysis of the West Bay Sediment Diversion Receiving Area





Background & Problem Statement

- The West Bay Sediment Diversion consists of a conveyance channel for large-scaled uncontrolled diversion of freshwater and sediments from the Mississippi River.
- The diversion site is located on the west bank of the Mississippi River, in Plaquemines Parish, Louisiana, 4.7 miles above Head of Passes.
- The project diverts Mississippi River water and sediments into West Bay.
- Marshes along the lower Mississippi River are subsiding and converting to open water because of a lack of riverine sediment inputs and fresh water.
- An updated aerial and bathymetric pre and post project analysis is needed to determine the land gain both aerial and subaqueous for the receiving basin.



Objectives

- 1) Provide an updated aerial analysis of land/water change both pre and post construction to include historical and present land loss rates;
- 2) Provide a bathymetric survey comparison of pre construction and the FY09 survey;
- 3) Provide a historical assessment of subsidence;
- 4) Assess whether any historical topographic Lidar exists for the project area in which elevation analysis could be made for comparison.



Approach – Aerial Analysis

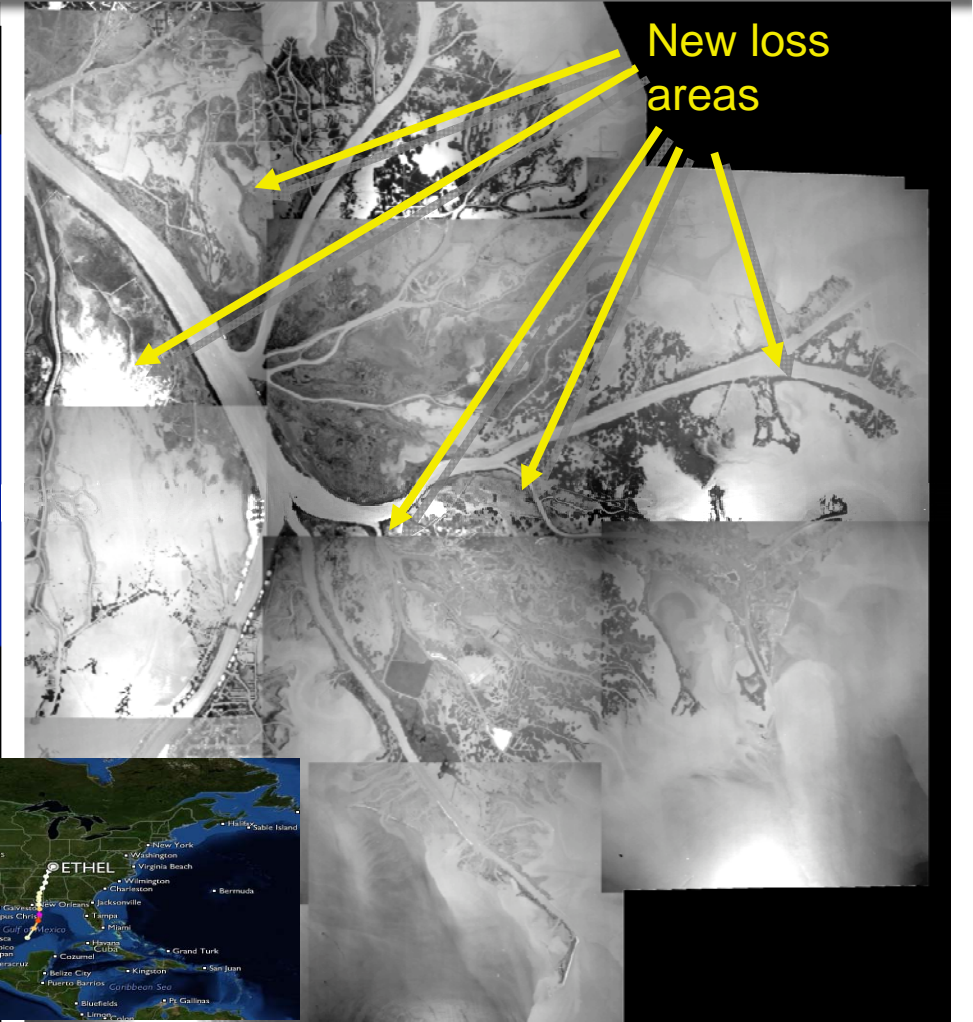
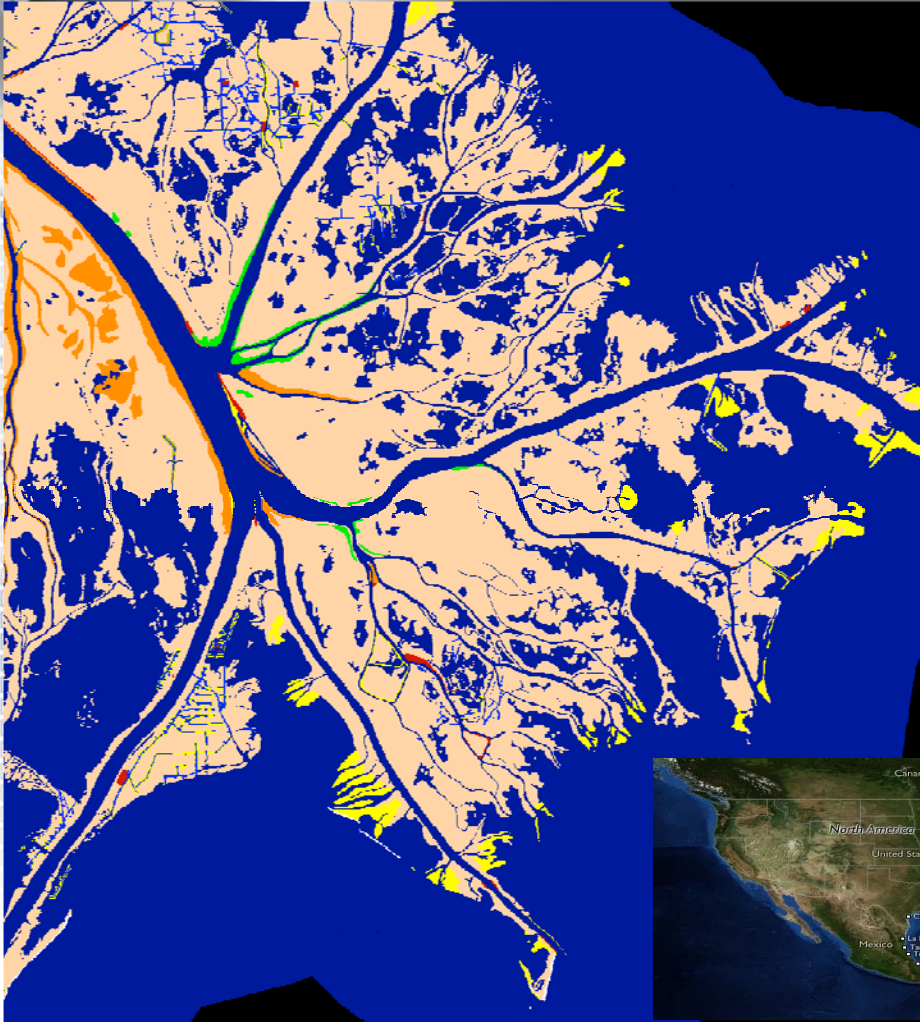
- The approach for the aerial analysis will be to compare all land/water data (Landsat TM & Photography) available back to 1956 to the present and record/display the land gain/loss rates at appropriate intervals pre and post construction.
- Using professional knowledge and expertise, data will be displayed relevant to major events (i.e., construction, storms, etc).



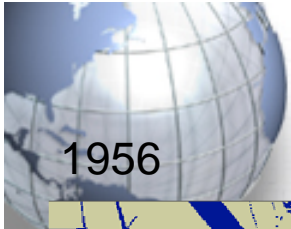
West Bay 1956 to 1965 Comparison

1956

1965 Photomosaic

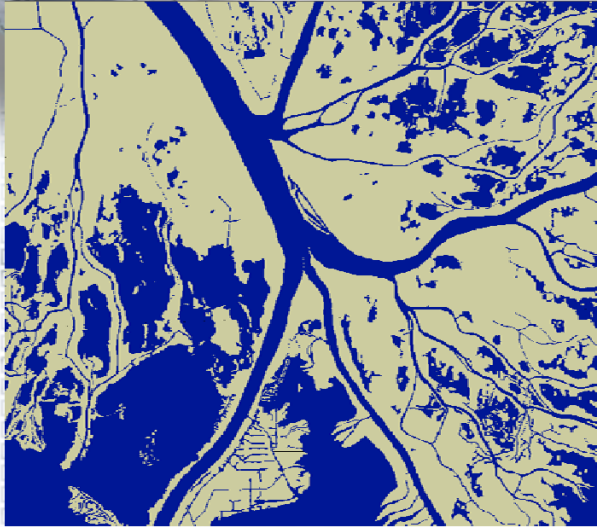


9 Years

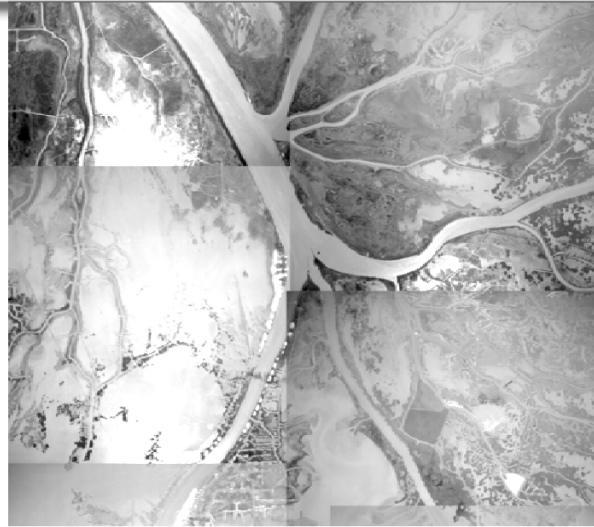


West Bay 1956 to 2008 Classified Land and Water Data

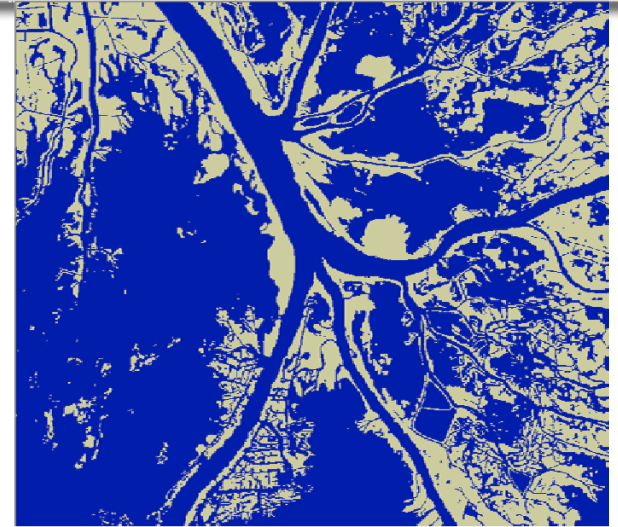
1956



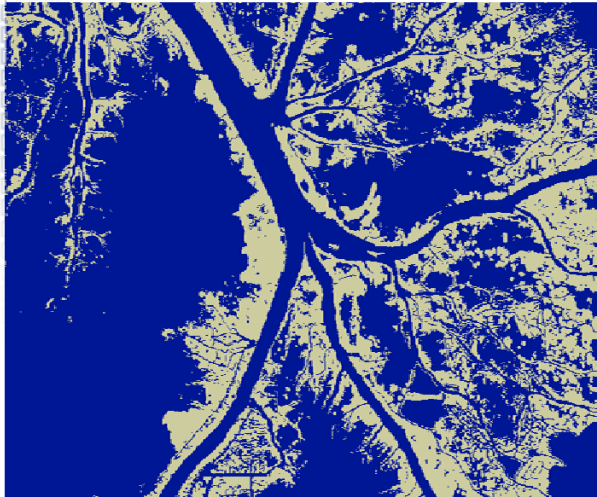
1965 Photomosaic



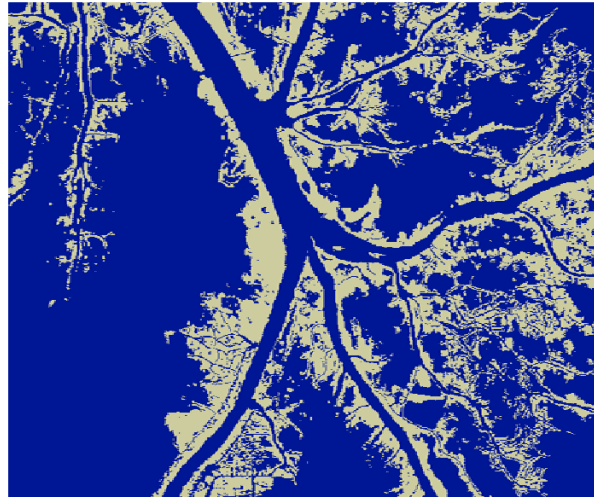
1978



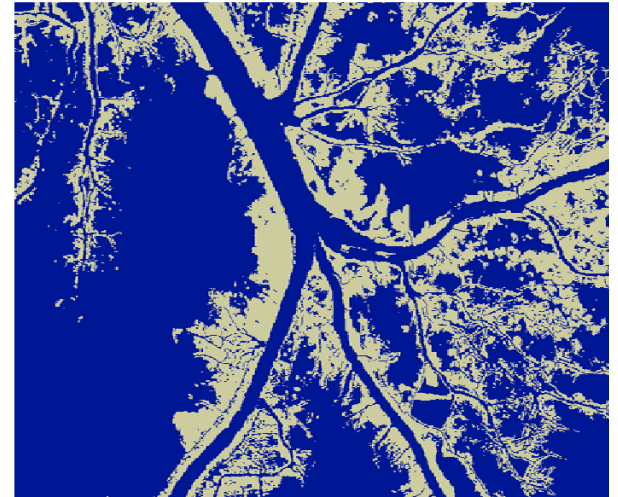
2004



2006



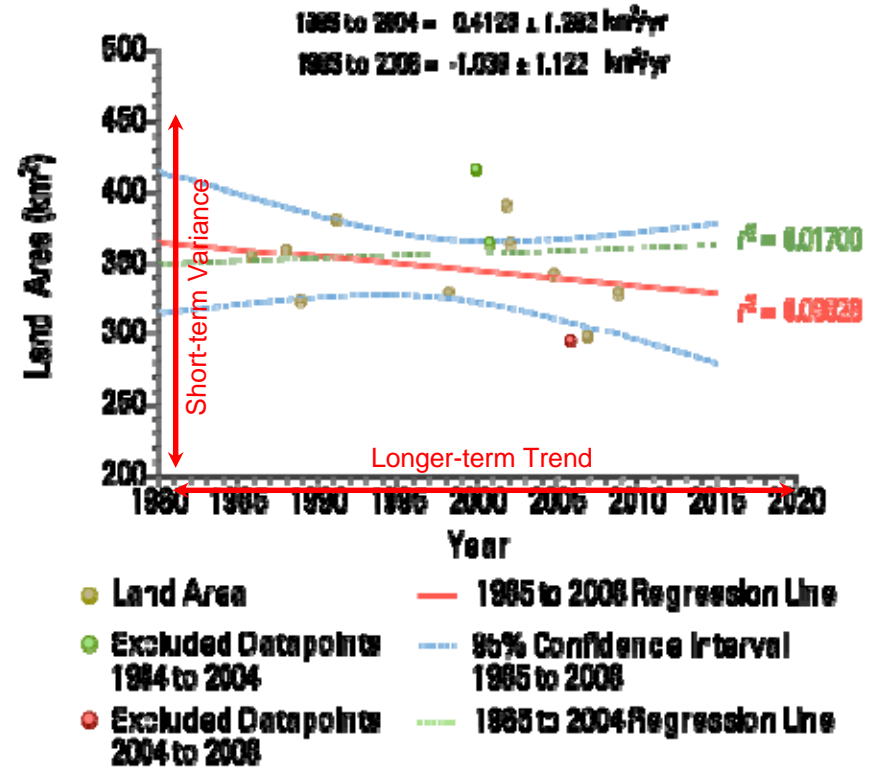
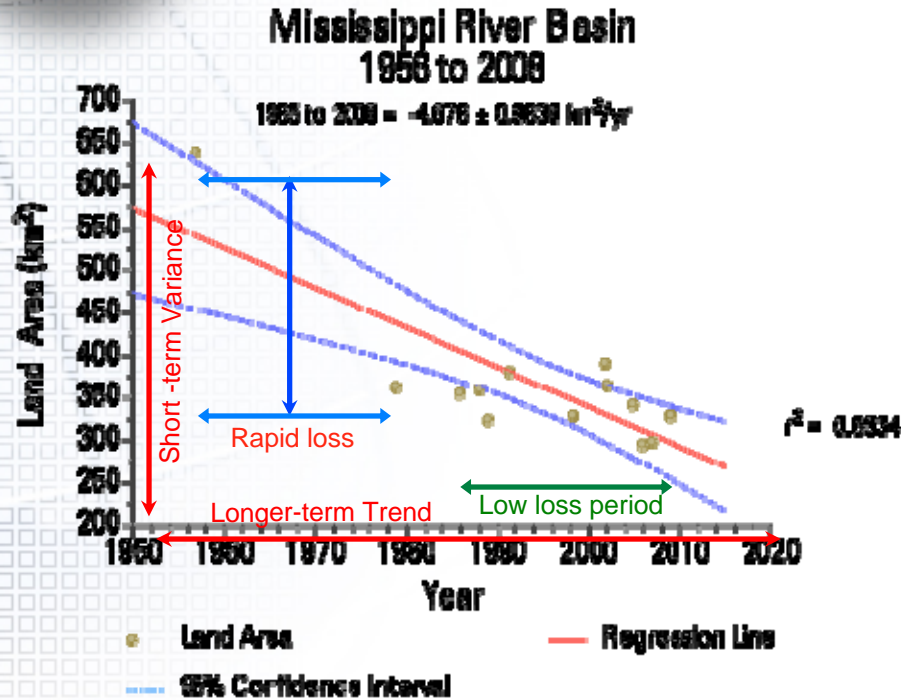
2008





Mississippi River Basin Land Area Regressions Habitat and Landuse Classified Landsat TM Imagery 1958 to 2008

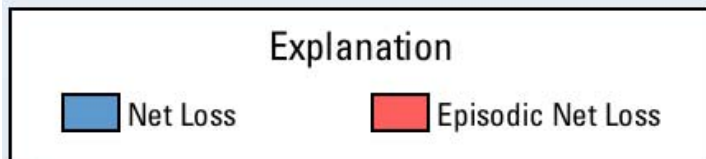
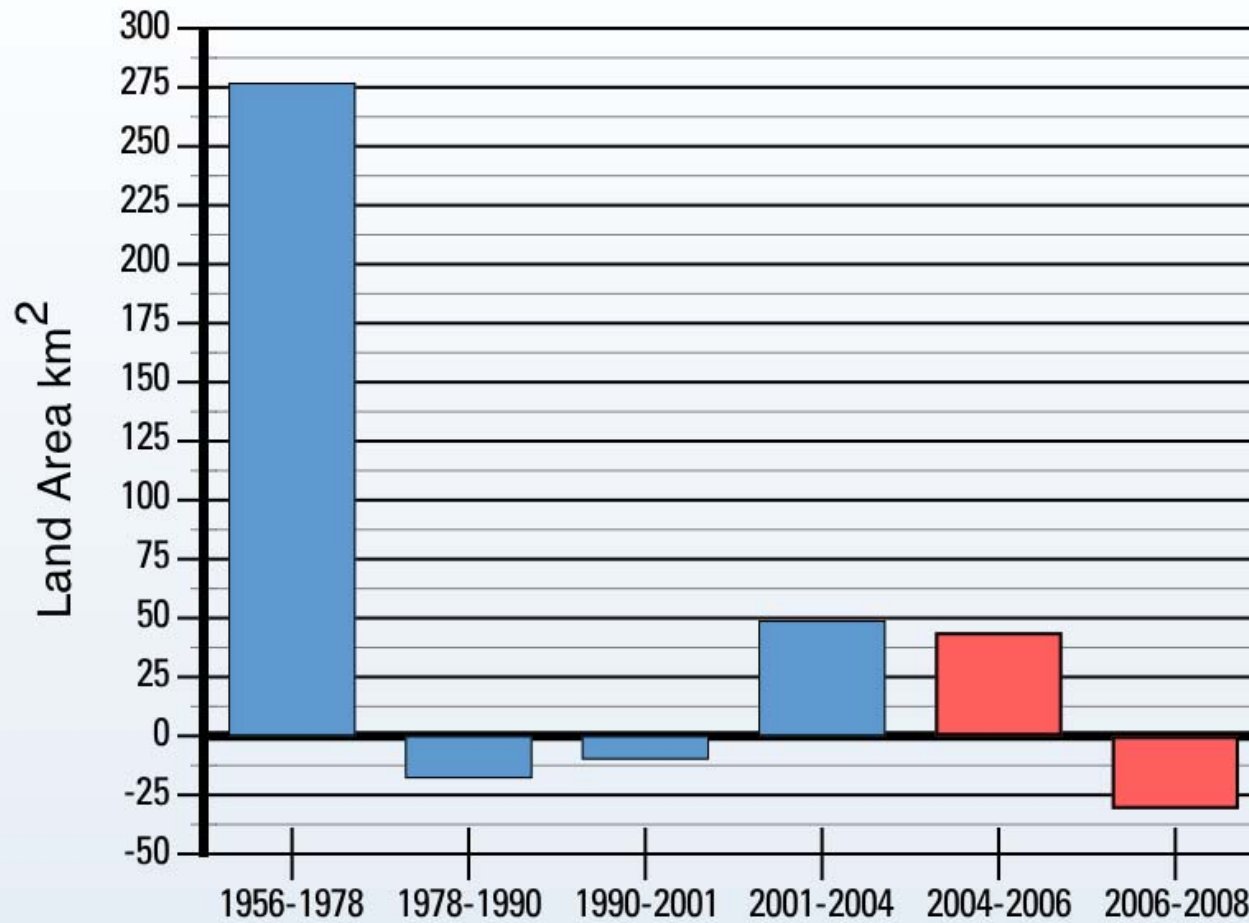
Mississippi River Basin Land Area Trends 1985 to 2008



DRAFT February 25, 2009

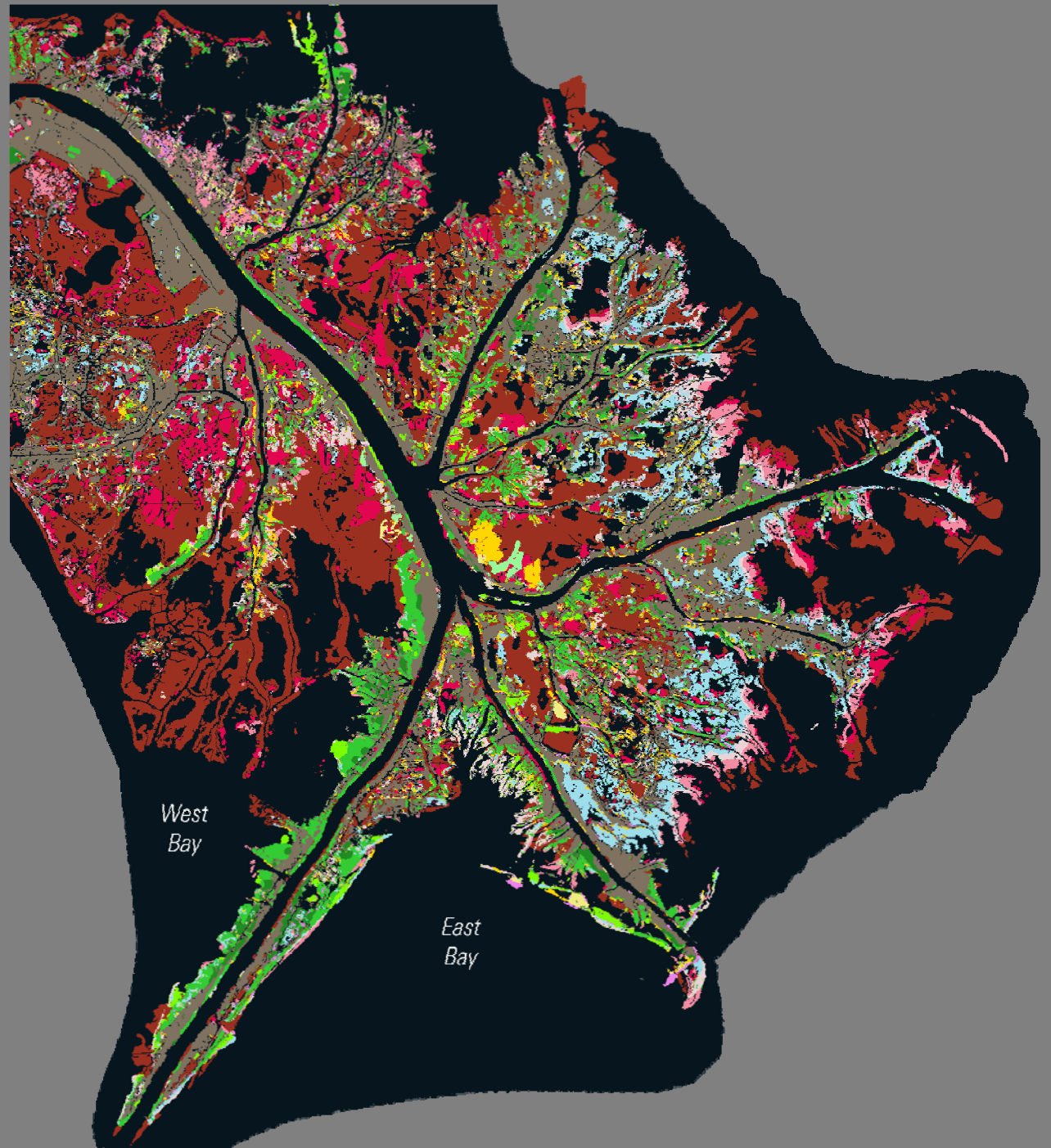
Mississippi River Basin

Land Area Trends



Mississippi River Basin 1956 to 2008 Trends

- 1956 to 1978 Land Loss
- 1956 to 1978 Land Gain
- 1978 to 1990 Land Loss
- 1978 to 1990 Land Gain
- 1990 to 2001 Land Loss
- 1990 to 2001 Land Gain
- 2001 to 2004 Land Loss
- 2000 to 2004 Land Gain
- 2004 to 2006 New Water Areas
- 2004 to 2006 New Land Areas
- 2006 to 2008 New Water Areas
- 2006 to 2008 New Land Areas
- 2008 Land
- 2008 Water



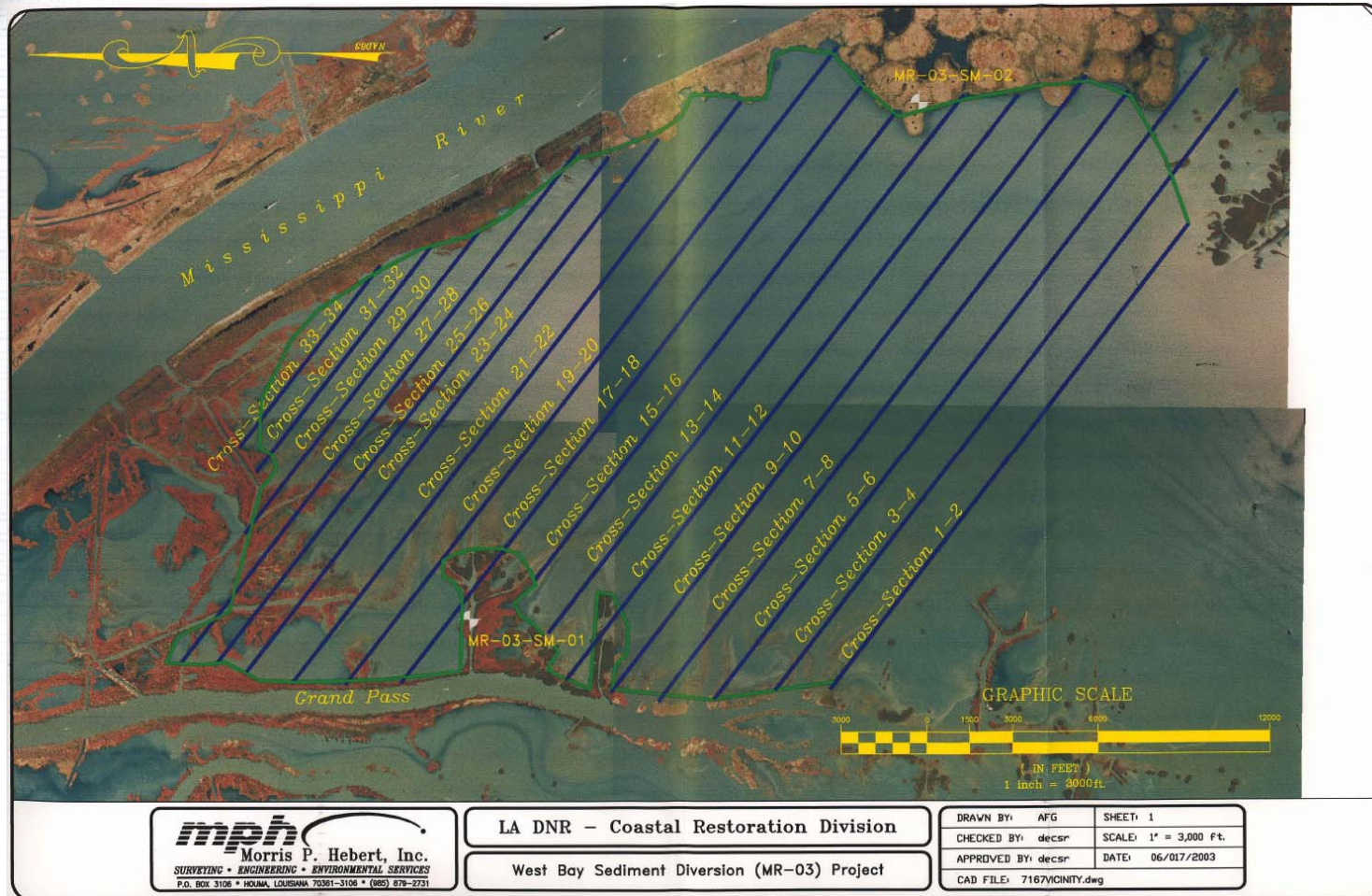


Approach – Bathymetric Analysis

- The bathymetric survey comparison will be generated using a custom eCoastal survey tool application to display the subaqueous land contours and profile.
- Generate a surface TIN/GRID, and
- Calculate a depth difference (3D)



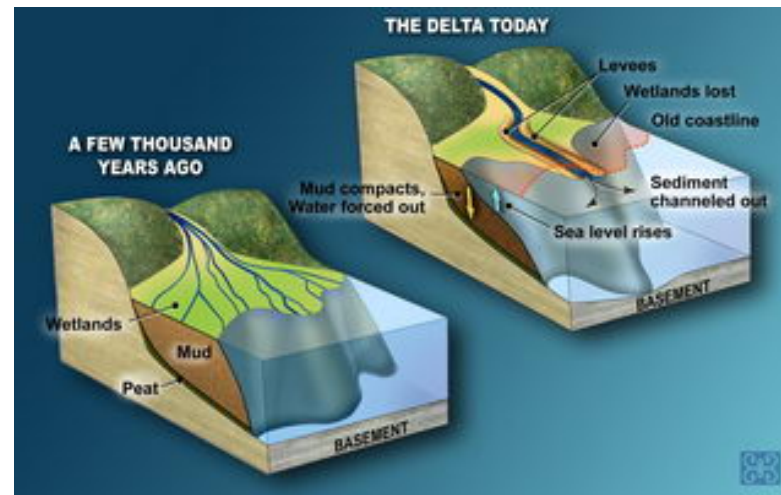
Approach – Bathymetric Analysis





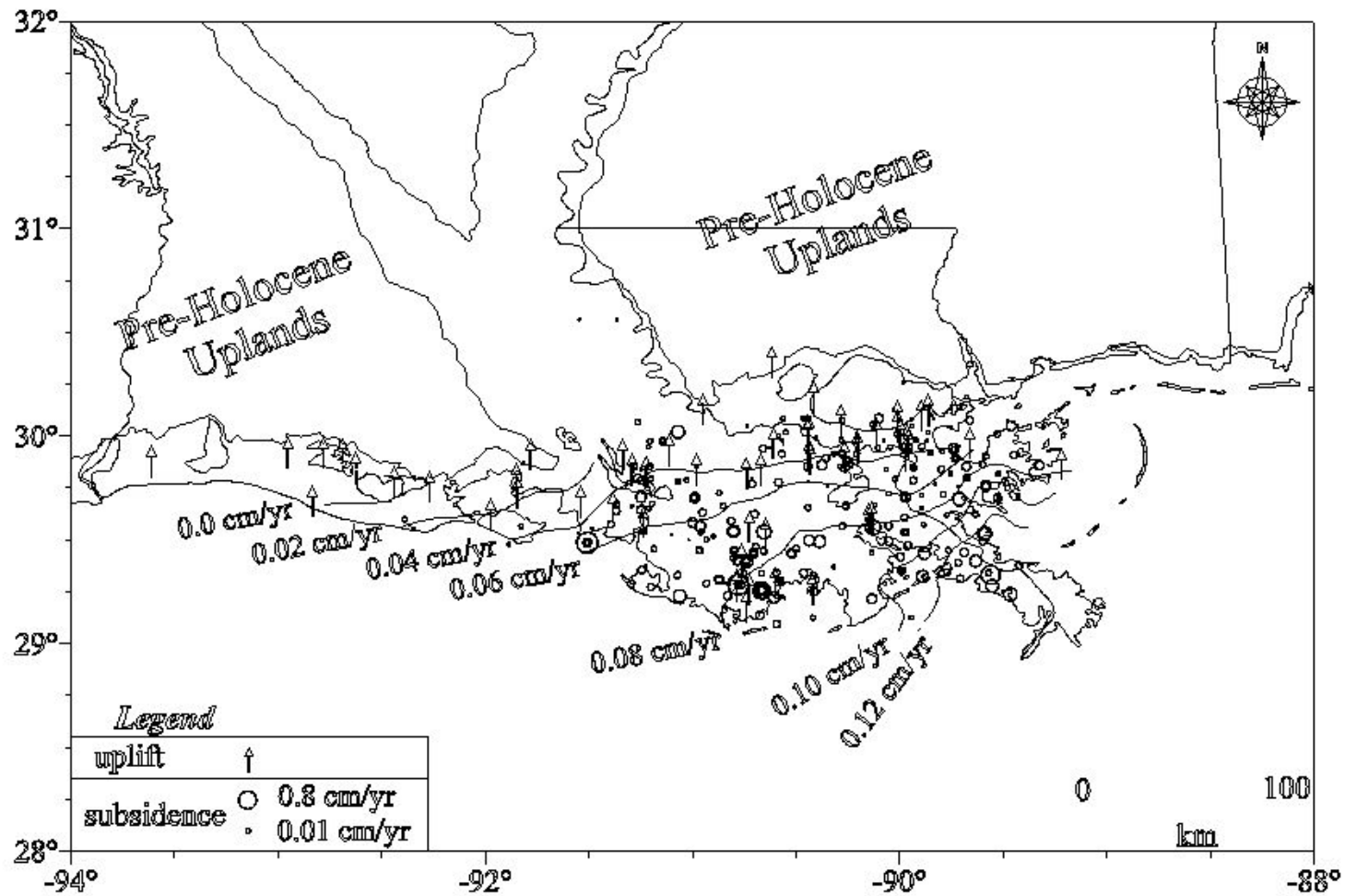
Approach - Subsidence

- The historical assessment of subsidence will be documented for this area and the Mississippi Delta using existing published and/or professional knowledge.



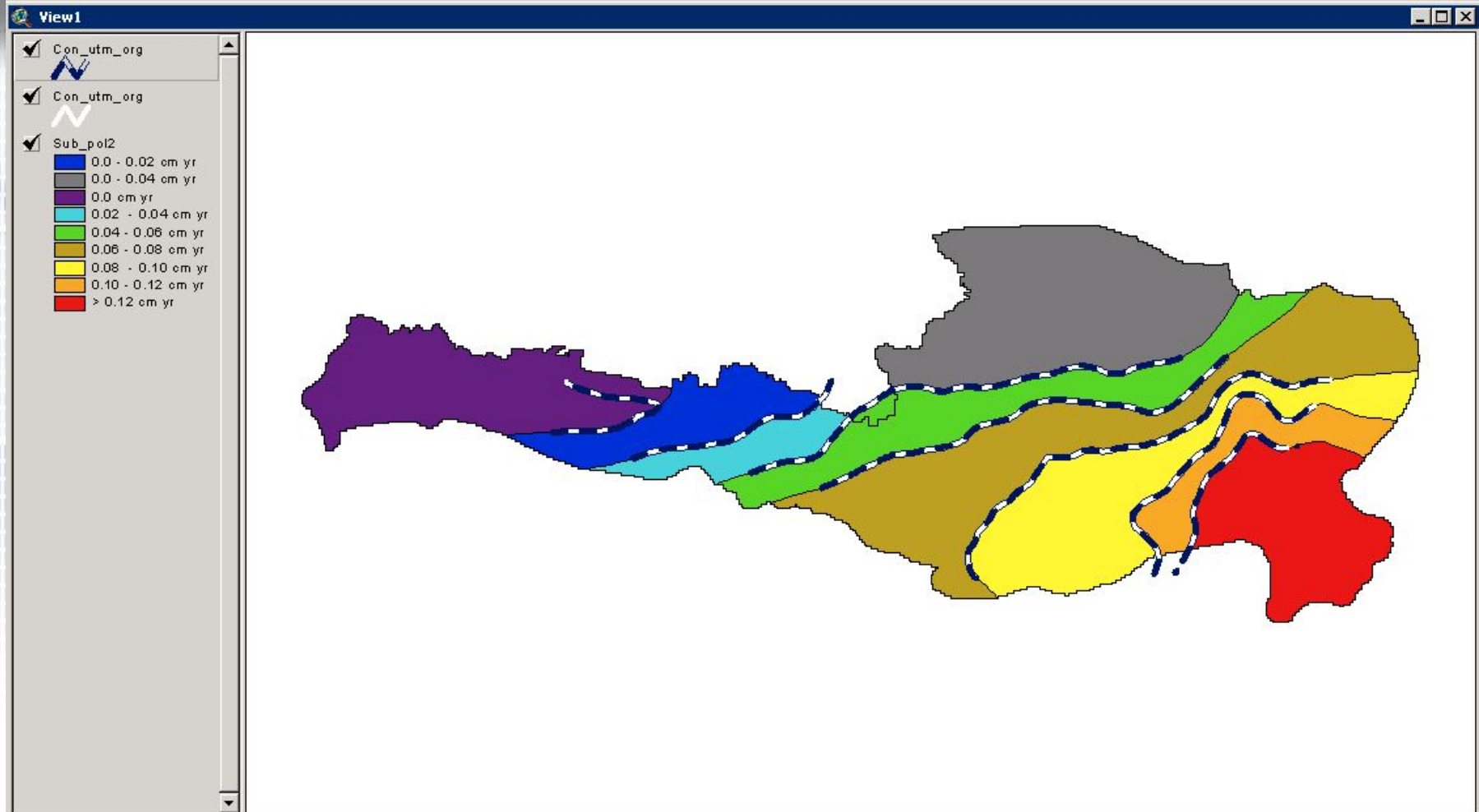


Approach - Subsidence





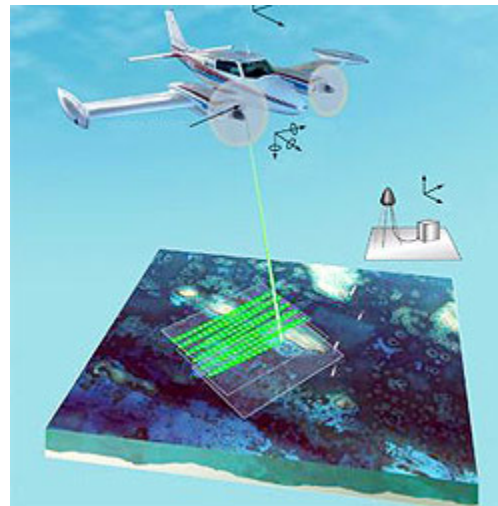
Approach - Subsidence





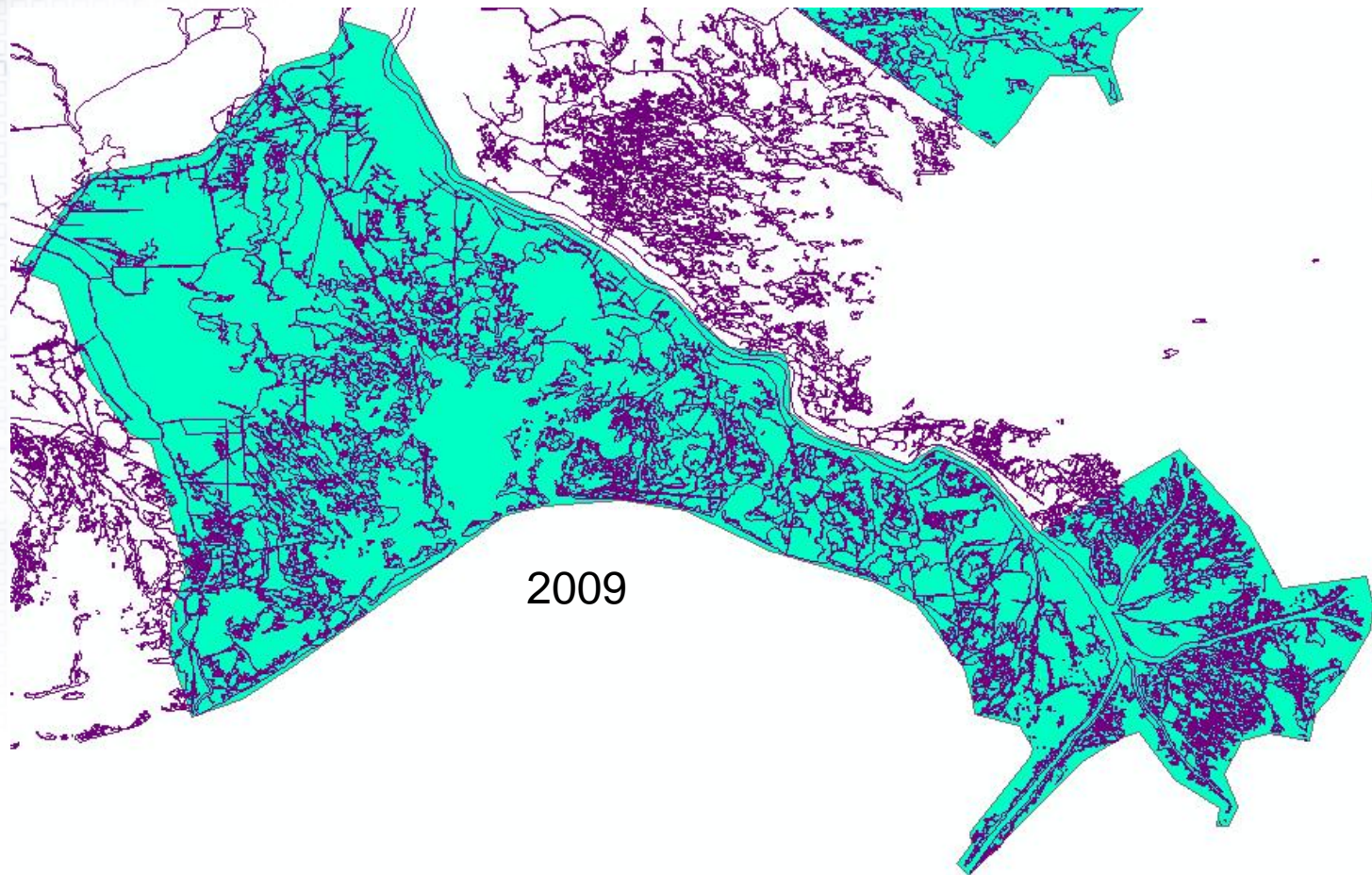
Approach – Topographic Lidar

- The Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX) and others' data will be mined for appropriate topographic Lidar so a elevation comparison can made.





Approach – Topographic Lidar



West Bay
Sept. 14, 2006

Questions ???





Point of Contact

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