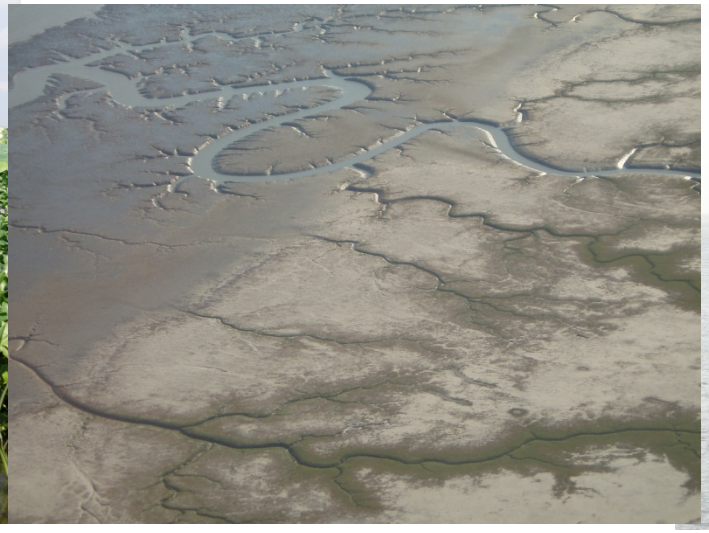
THE WATER INSTITUTE
OF THE GULF

COASTS AS NATURAL SYSTEMS



Denise Reed

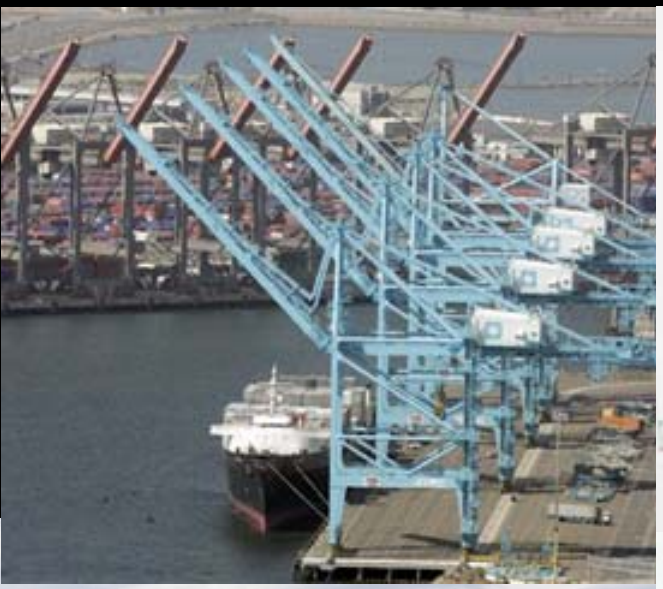
The Water Institute of the Gulf

ASFPM Gilbert White Policy Forum - February 2013

The Coastal Context

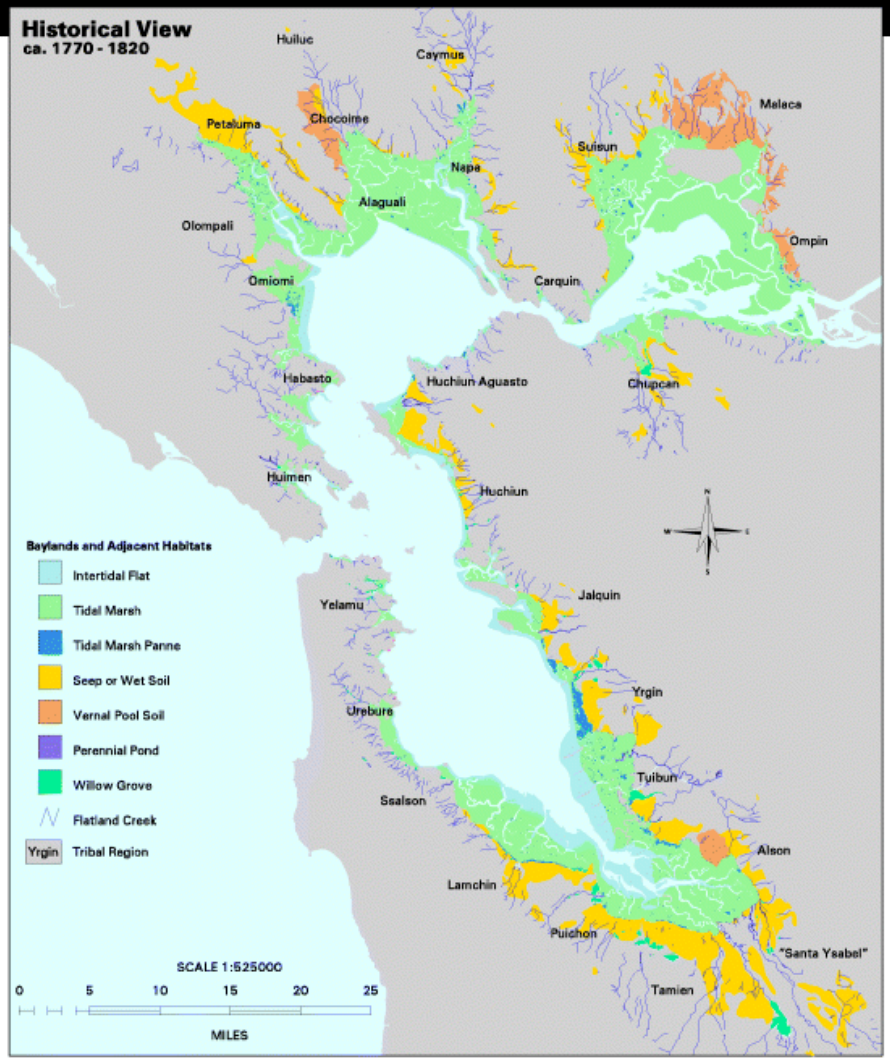
Reefs to Rocks
Sand to Cobbles
Mangroves to Marshes

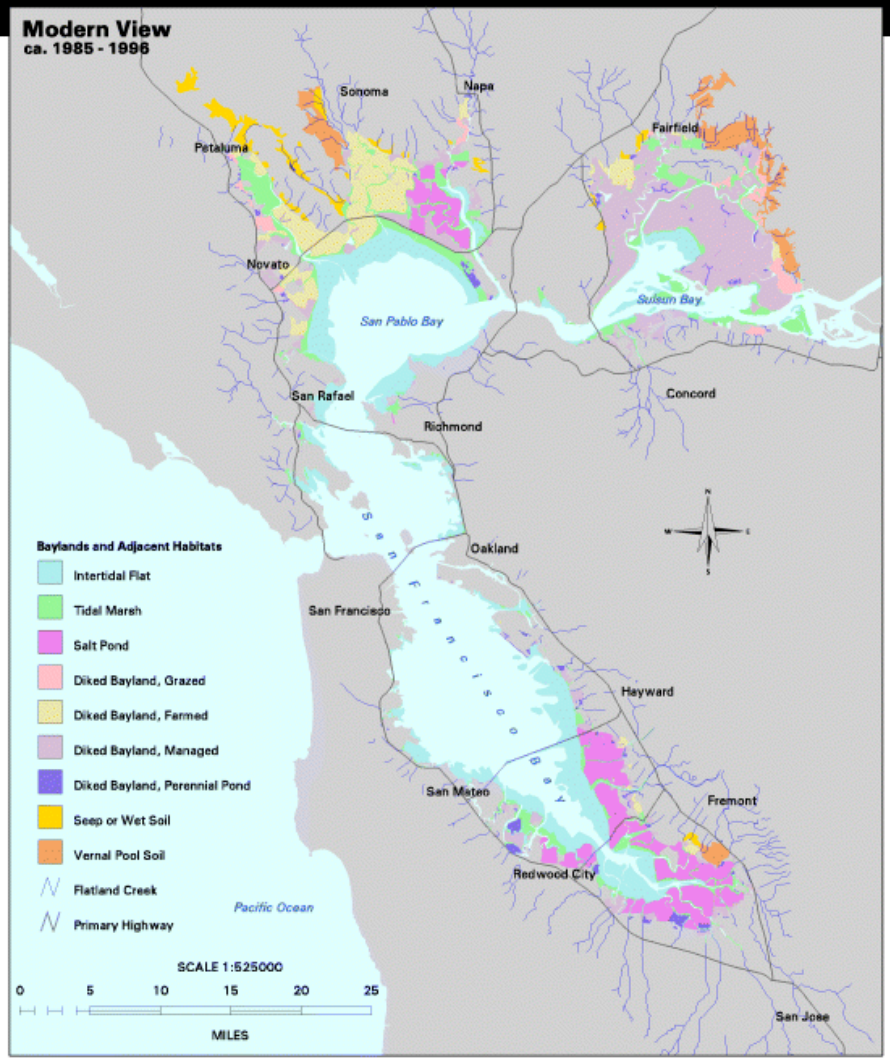
Why do people live at the coast?



Bay Area EcoAtlas

Past and Present





Historical View Primary Sources:
US Coast Survey, US Geological Survey, US Department of Agriculture, Spanish diseños, explorers' journals, and local archives.
Tribal Regions courtesy of Randall Milliken.

Projection:
1927 North American Datum
Universal Transverse Mercator Projection
UTM Zone 10

Modern View Primary Sources:
CA State Lands Commission, US Geological Survey, US Fish and Wildlife Service, US National Aeronautical and Space Administration, and local experts.

Production:
Science coordination, GIS and Map Design by the San Francisco Estuary Institute
Richmond, California http://www.sfei.org
EcoAtlas 1.0 ®1997 SFEI

Coastal Systems

Goods & Services

Climate Change

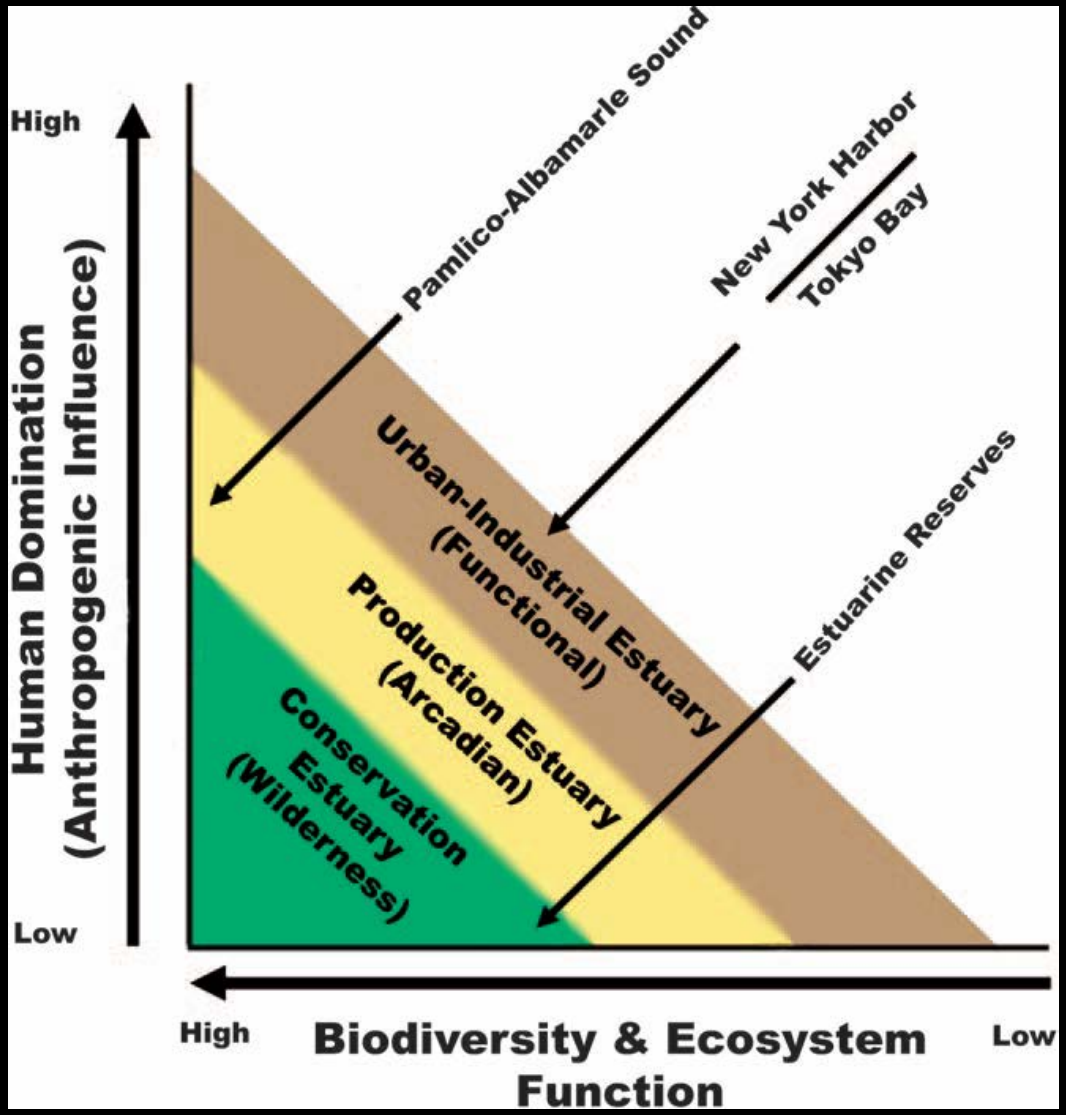
Stress & Impacts

Coastal Uses

What Needs to Change?

- More strategic approach
- Focus on a better future, not recreating the past
- Leverage other uses

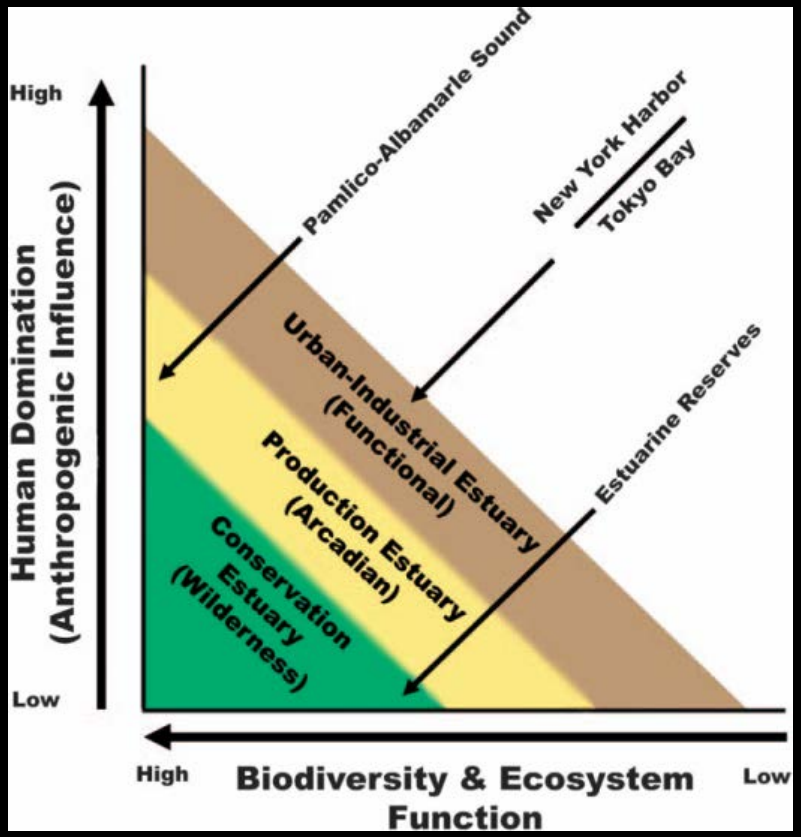
Strategic?



What do we want our coasts to do for us? Where can we make the most difference?

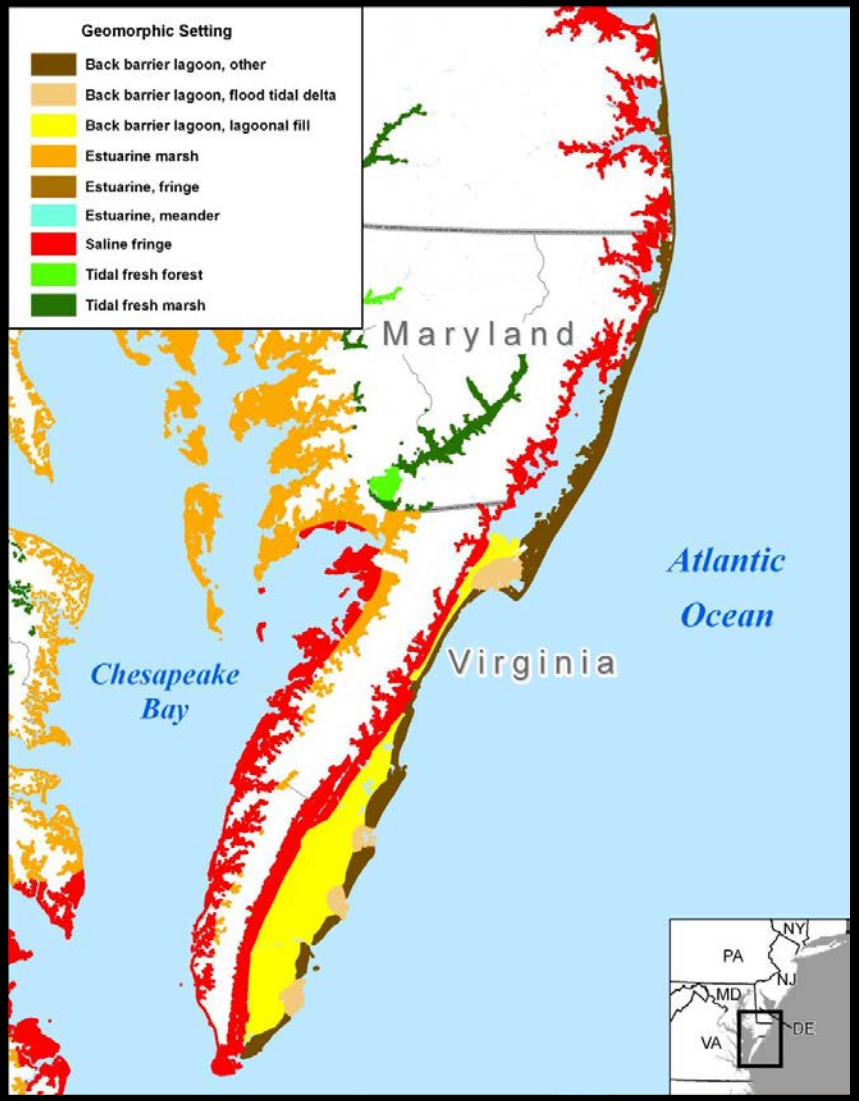
Weinstein & Reed, 2005

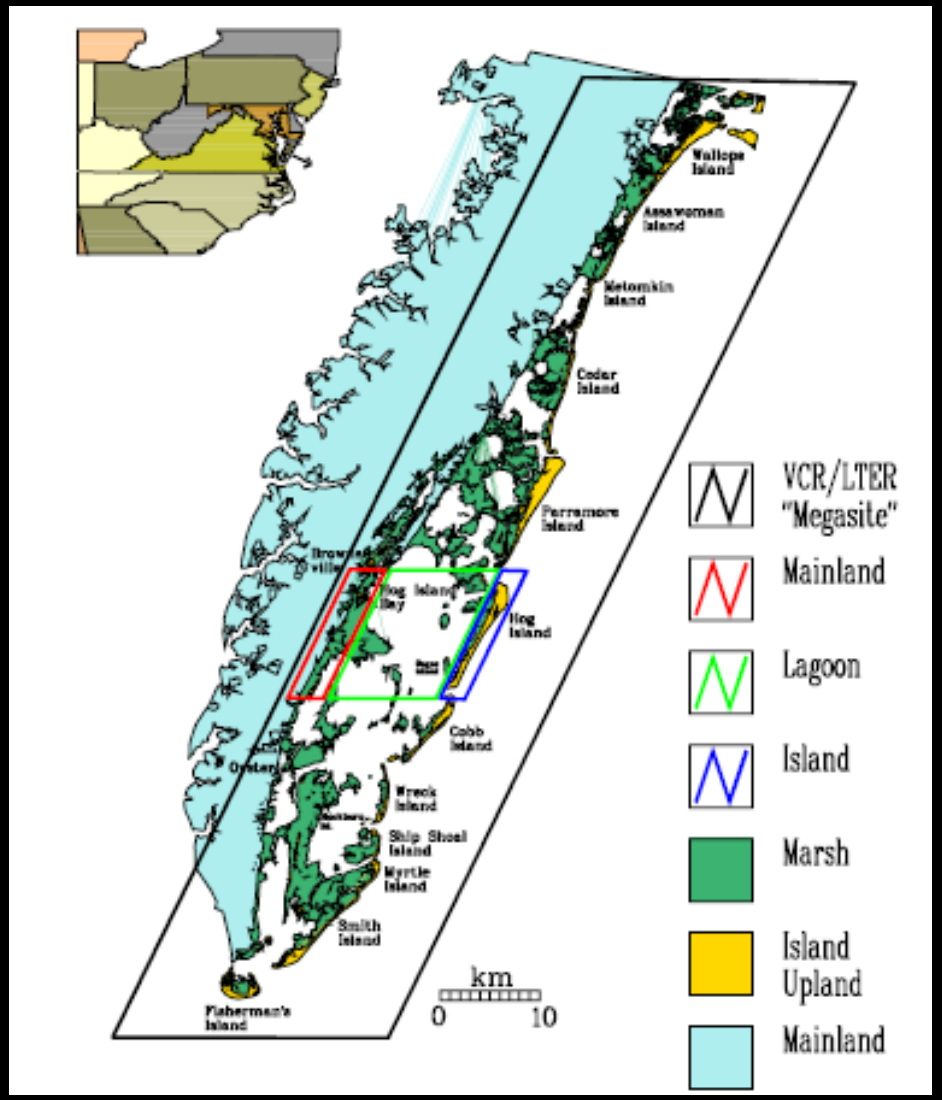
‘Conservation’

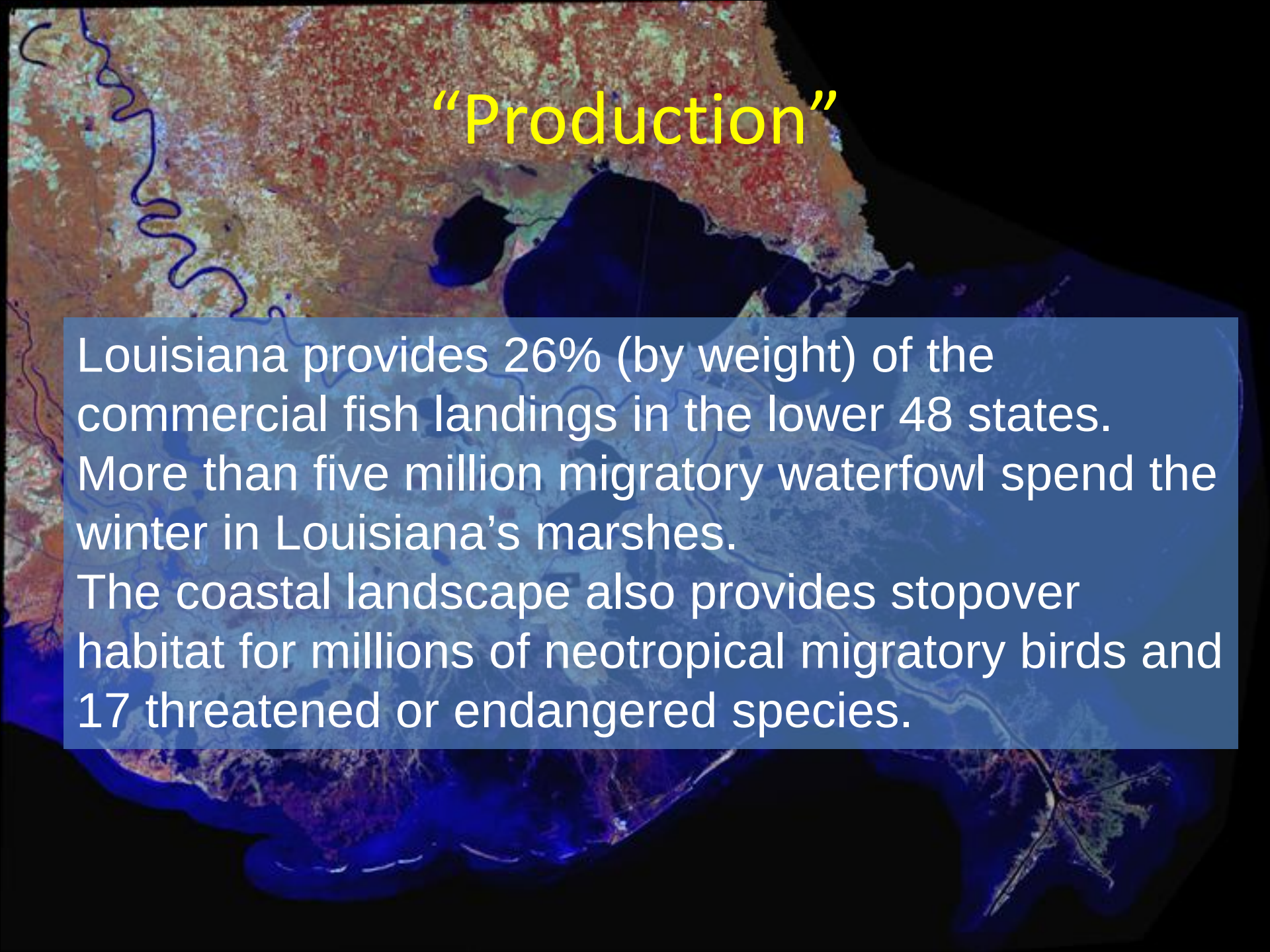


- Minimal human modification
- No Action = Appropriate Action

Virginia Coast Reserve?







“Production”

Louisiana provides 26% (by weight) of the commercial fish landings in the lower 48 states.
More than five million migratory waterfowl spend the winter in Louisiana’s marshes.
The coastal landscape also provides stopover habitat for millions of neotropical migratory birds and 17 threatened or endangered species.

Natural Coastal Systems

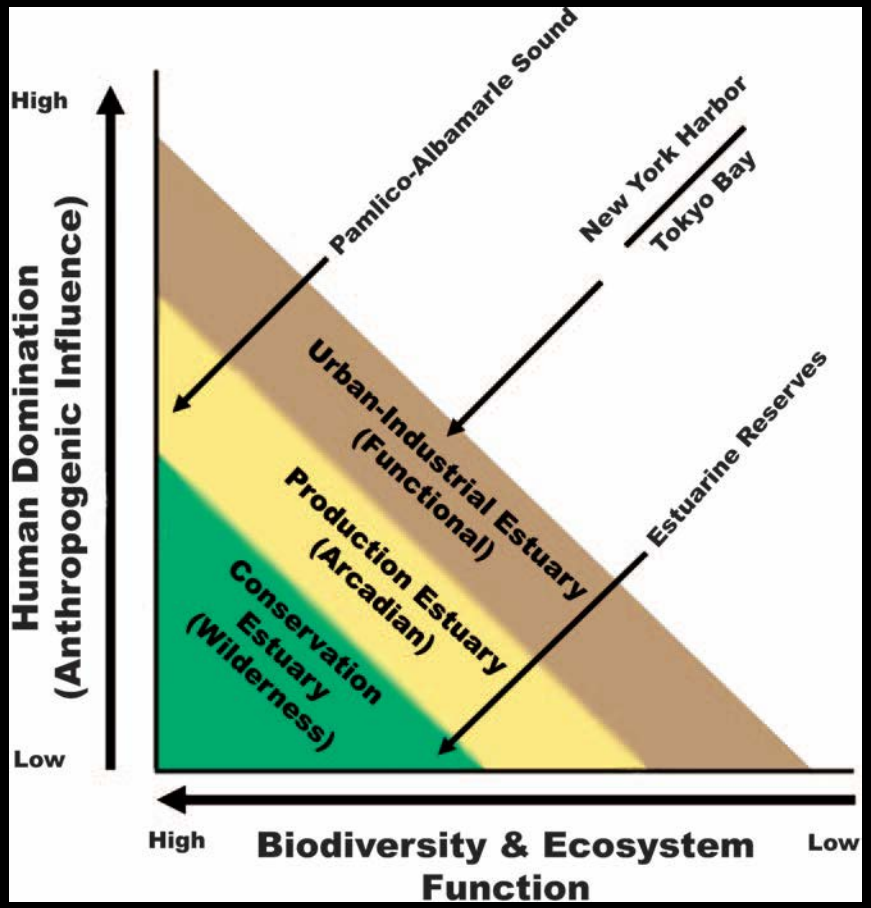
Port facilities
Intermodal transport
Workers

Evacuation routes

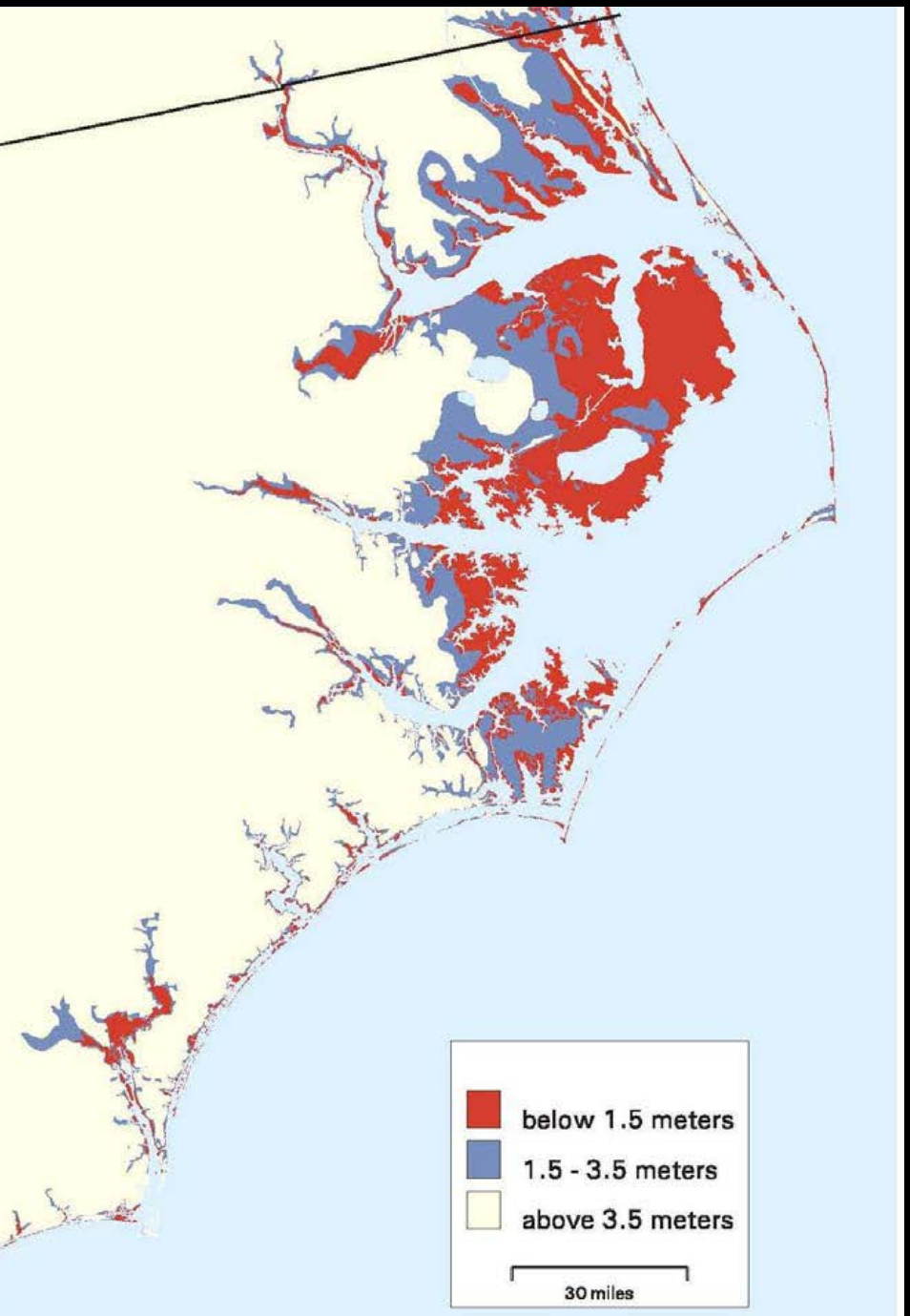
Pipeline corridors
Processing facilities
Onshore support facilities

Natural Coastal Systems

A Better Future - What Constitutes Success?



- 'Natural' dynamics
- Sustainable harvest
- Conservation of 'scarce' habitat



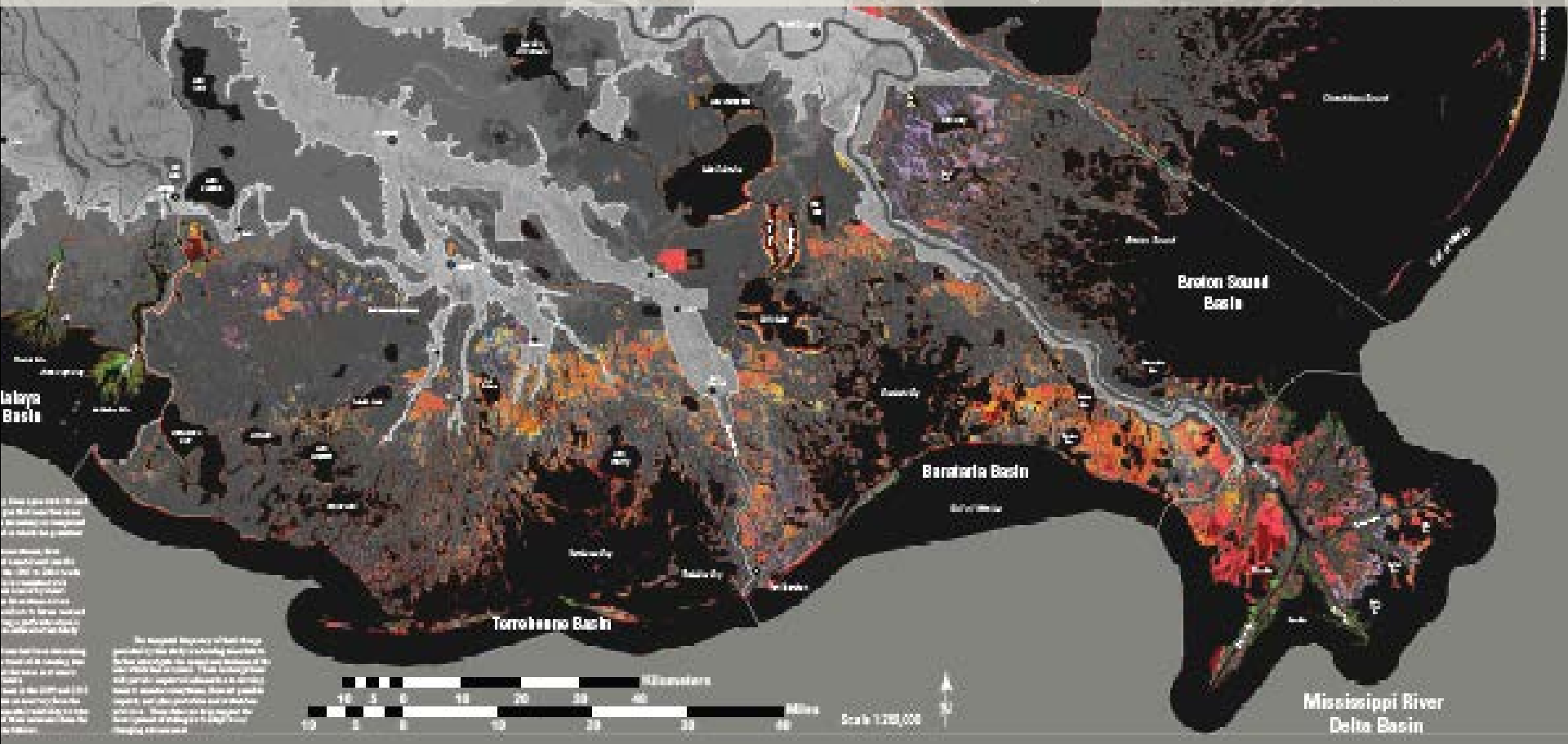
Manage for Transgression

- Identify new futures
- Informed adjustment to new conditions
- Provide for migration/ transgression

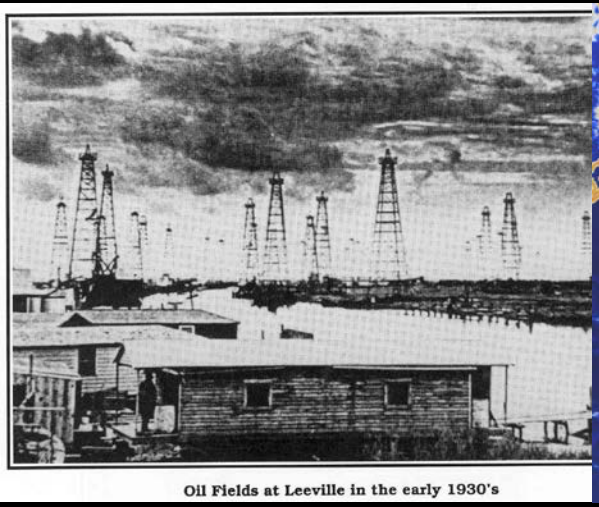
Leverage other uses

…coastal Louisiana has undergone a net change in land area of about -1,883 square miles (mi^2) from 1932 to 2010. This net change in land area amounts to a decrease of about 25 percent of the 1932 land area. … 1985 to 2010 show a wetland loss rate of 16.57 mi^2/year.

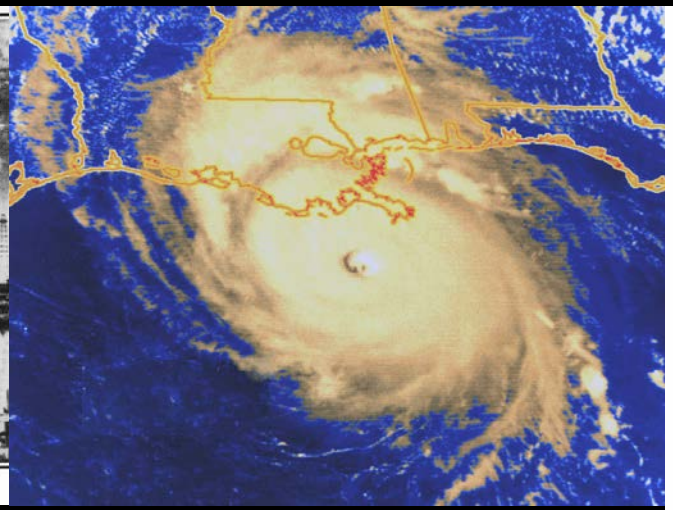
Couvillion et al. (2011)

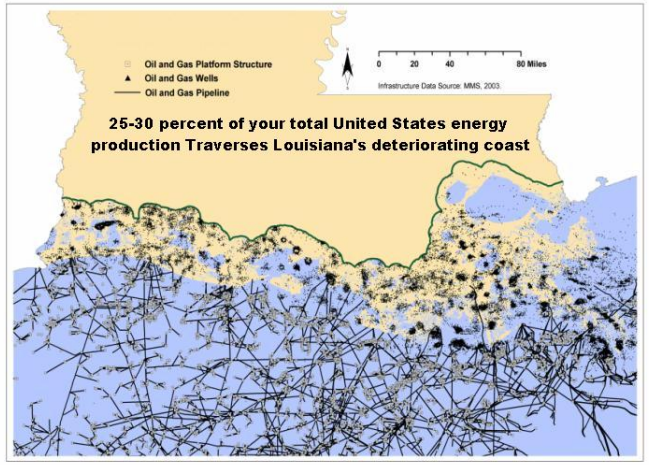


Flood Control + Navigation Channels + Oil & Gas Exploration + Natural Disturbances + …….

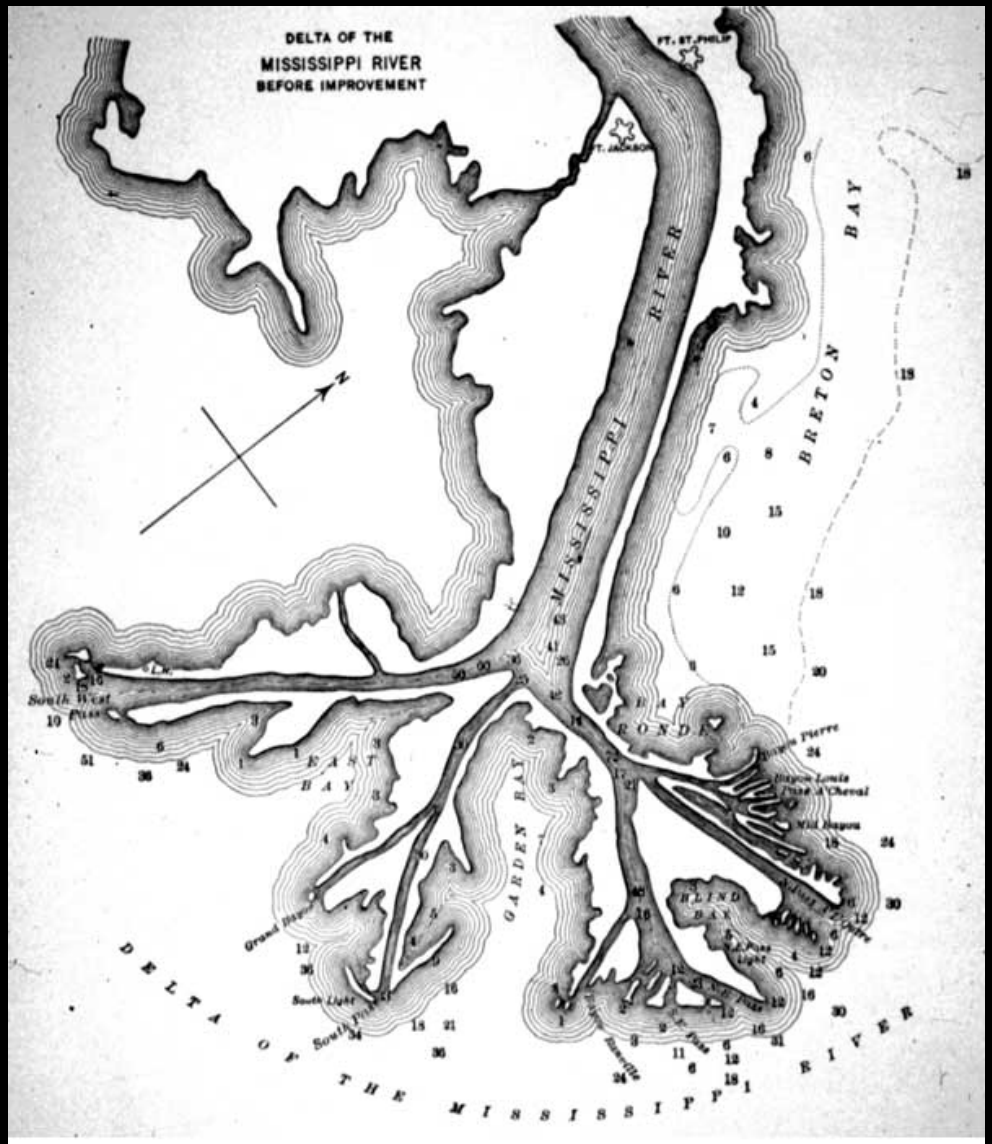


Oil Fields at Leeville in the early 1930's





19th Century River Management



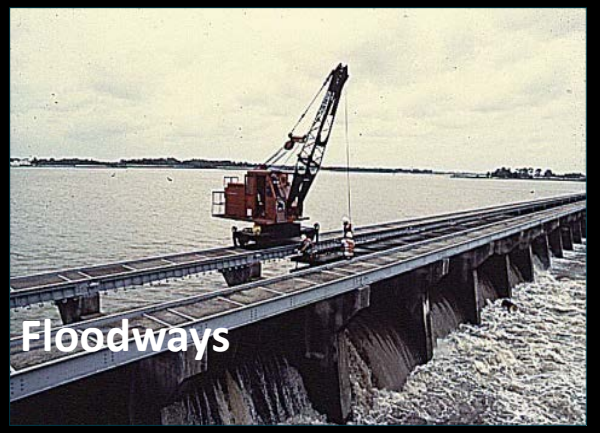
The Head of Passes circa 1870.

20th Century River Management Mississippi River & Tributaries Project

Levees

Channel Stabilization

Tributary Basin Improvements


Floodways

ALAS

A New Approach for the 21st Century

Sweet Spot?

Identifying area where many want things to be different *in the future*

- status quo works for few

Sweet Spot - Coastal Louisiana

Using river resources for coastal sustainability

And….

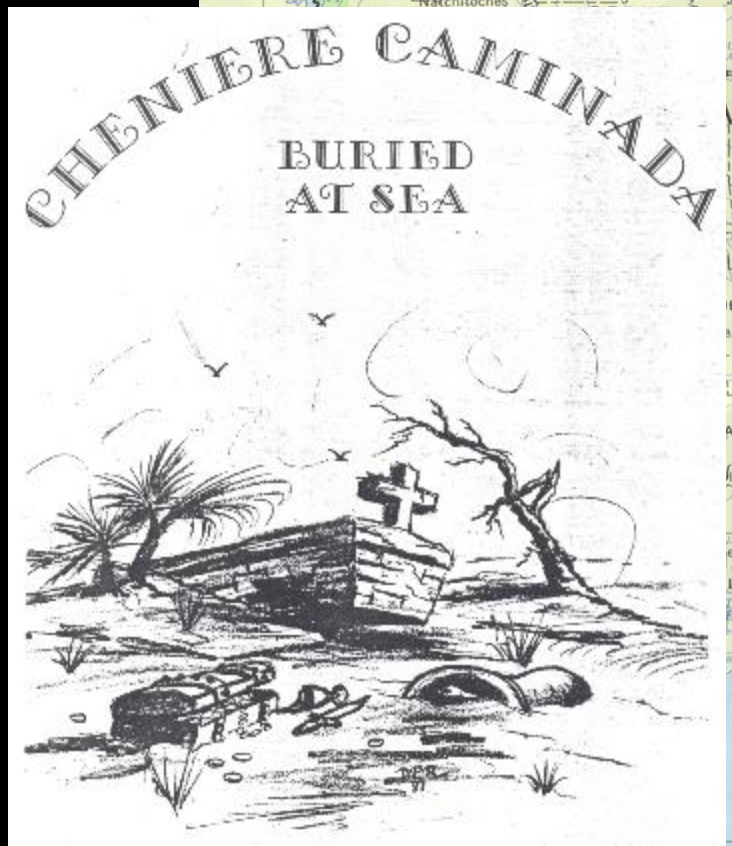
- a new deeper navigation channel?
- more reliable protection from storms?
- direct floodwaters away from communities to benefit the ecosystem?

What do people really need to know?

What not to do?

….or how to plan….

…not just react



Moving Forward……

- No ‘one size fits all’
- Change is inevitable
  - Focus on what the new system provides, not recreating the past
- Leverage multiple uses
  - Seek synergy
  - Allow for transformation

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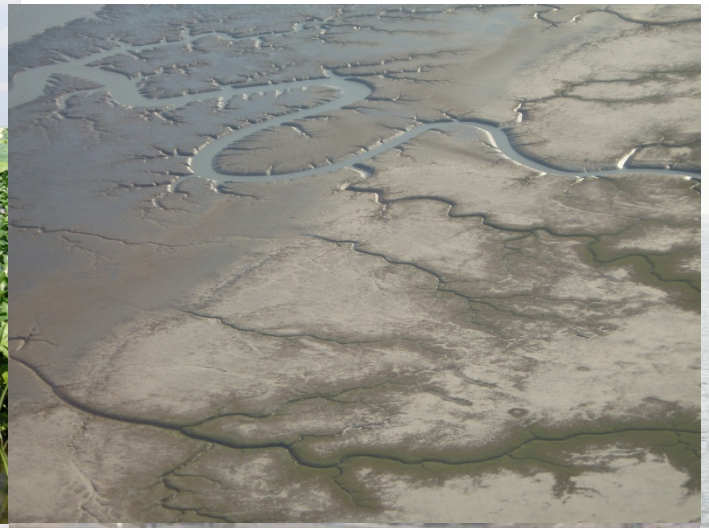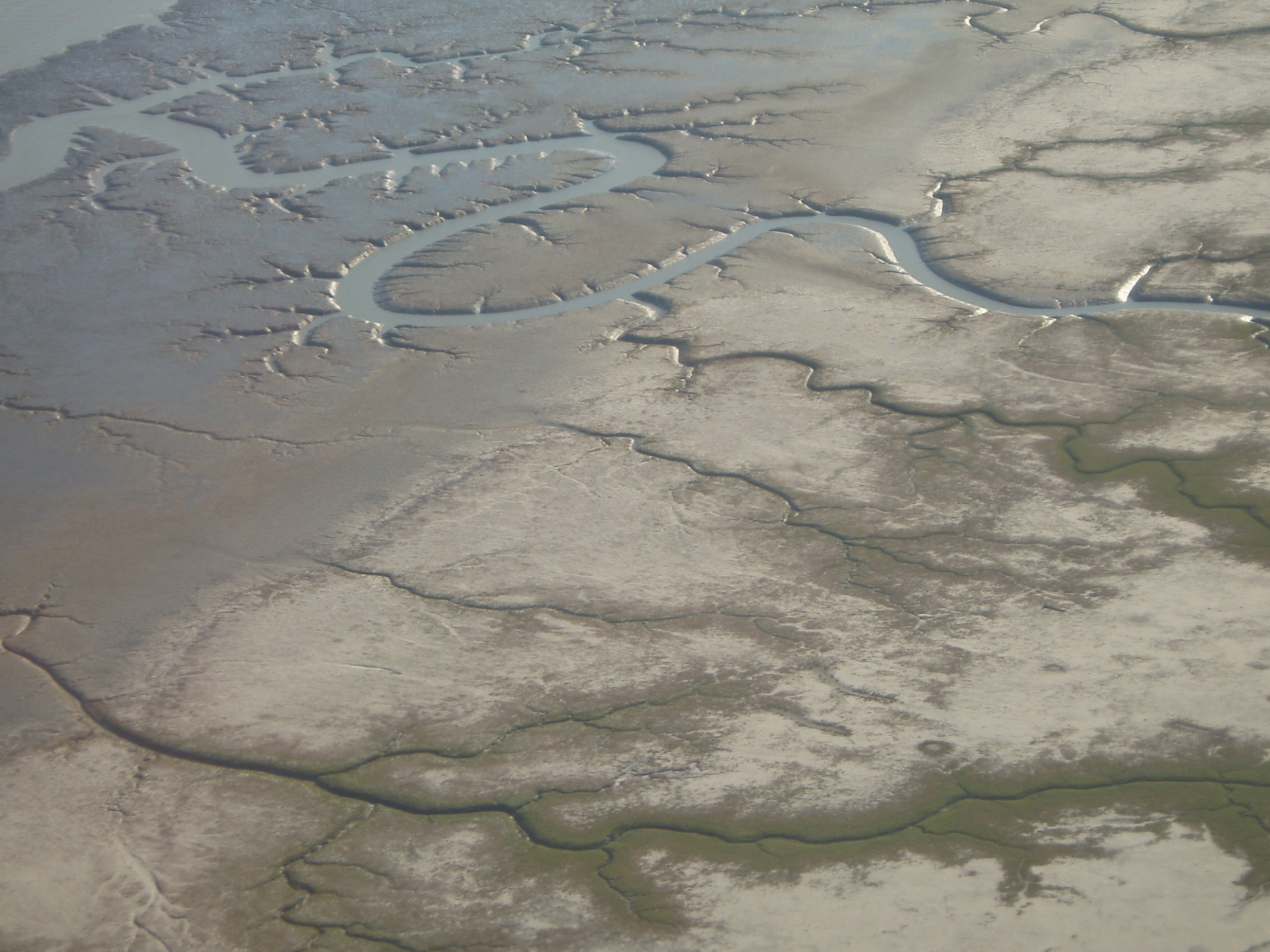
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