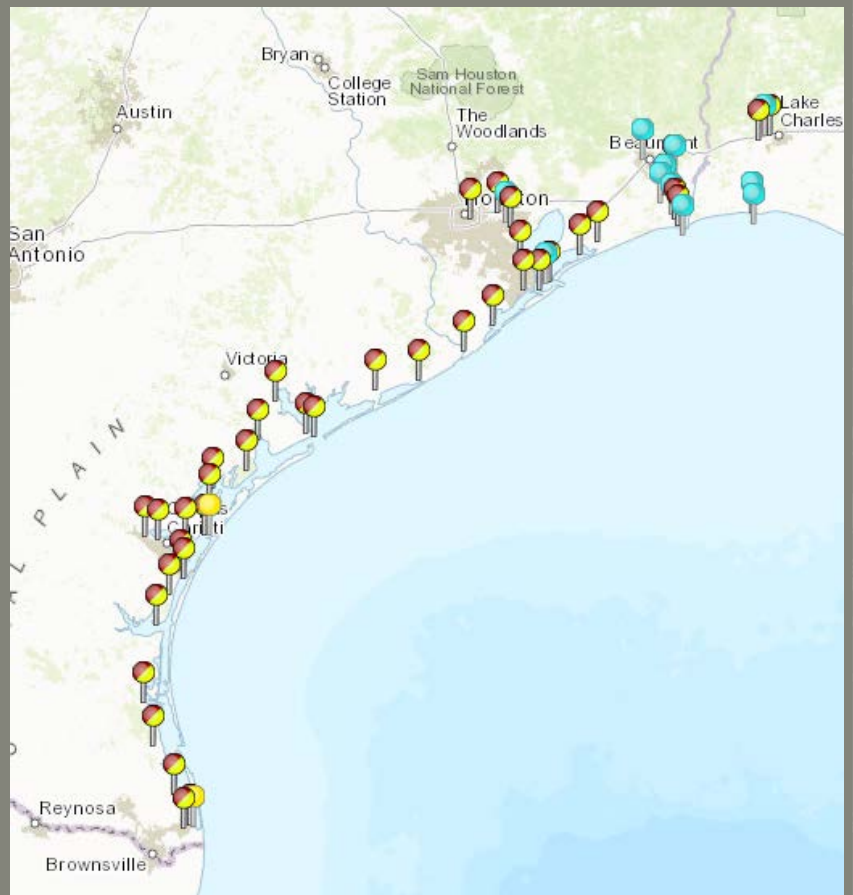
TEXAS GULF COAST DATA COLLECTION NEEDS

Coraggio Maglio, PE – USACE,
Galveston District H&H Branch Chief

23 February 2017



https:/http://tidesandcurrents.noaa.gov/map//

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

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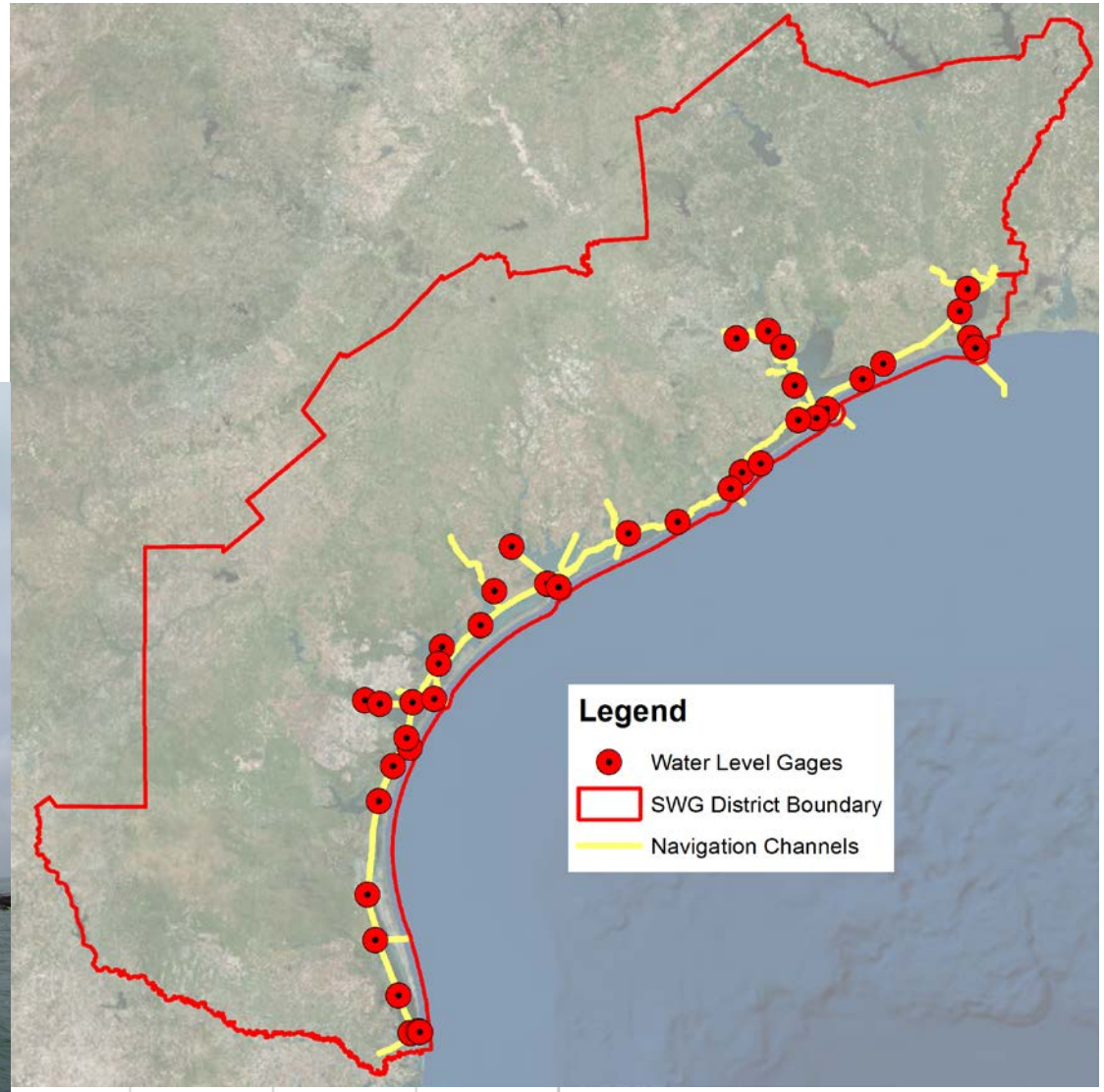
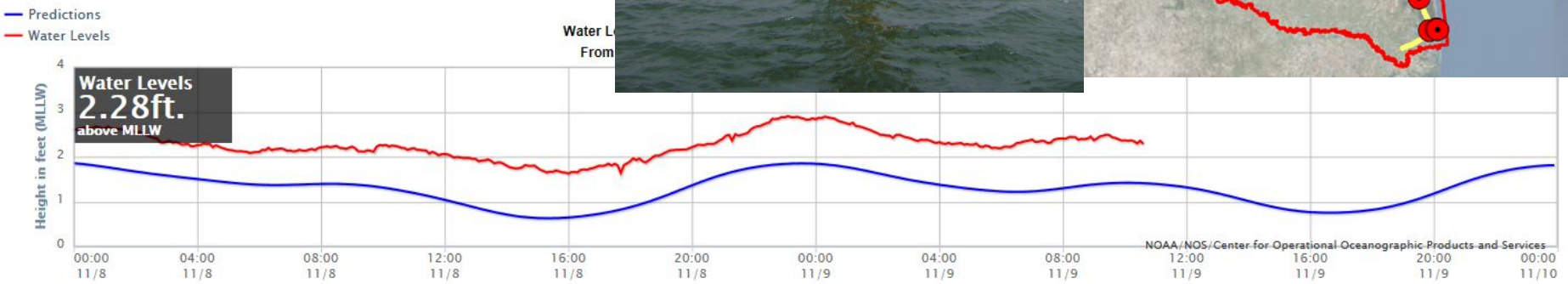
WHAT DO WE HAVE NOW?

- Tidal Water Level – TCOON
- Stream gages
- Precipitation
- Water quality

TCOON

- 5-year interagency agreement (USACE/NOAA)
  - Awarded March 2016
- Expansive network throughout Texas
  - 30 stations planned
- Real-time data available
  - Water level
  - Wind speed and direction
  - Temp & Pressure
- Currents - ADP





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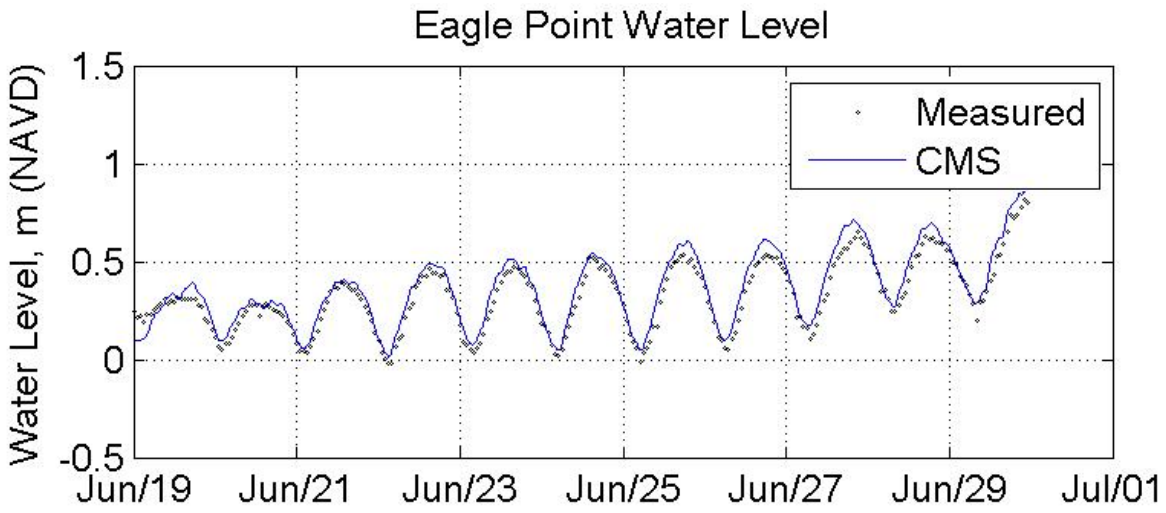
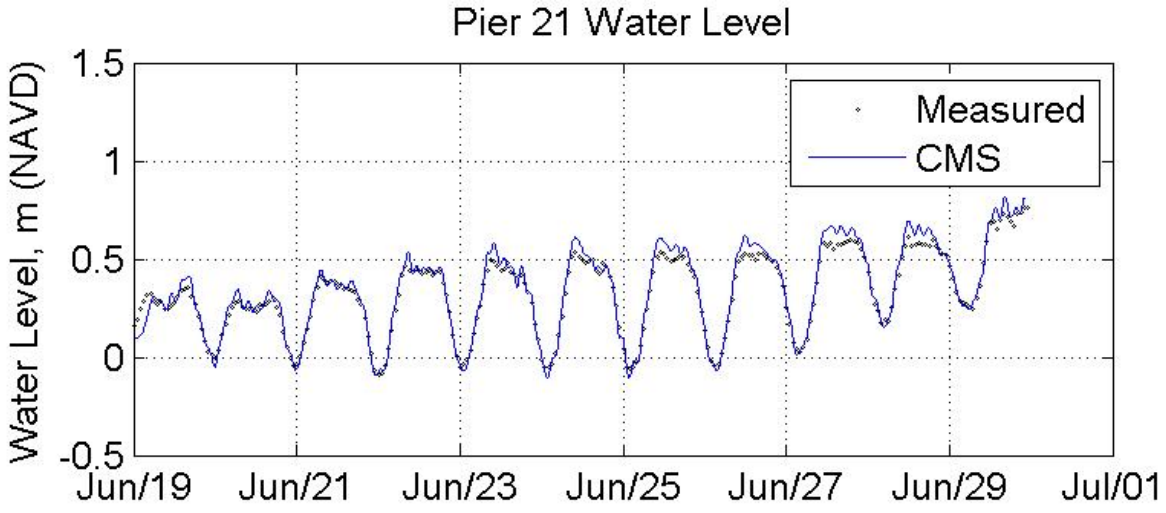
EXAMPLE APPLICATION: MODEL VALIDATION/CALIBRATION





ERDC/CHL TR-11-10

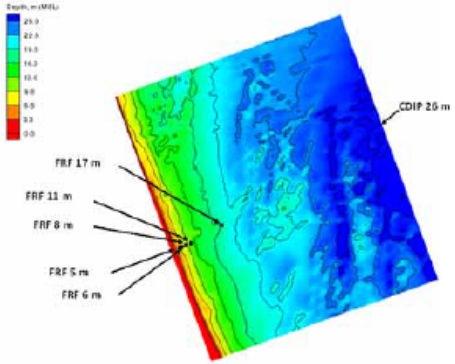
Coastal and Hydraulics Laboratory

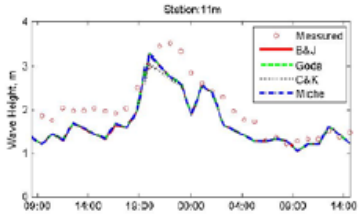
US Army Corps of Engineers®
Engineer Research and Development Center

Verification and Validation of the Coastal Modeling System

Report 2: CMS-Wave

Lihwa Lin, Zeki Demirbilek, Rob Thomas, and James Rosati, III December 2011



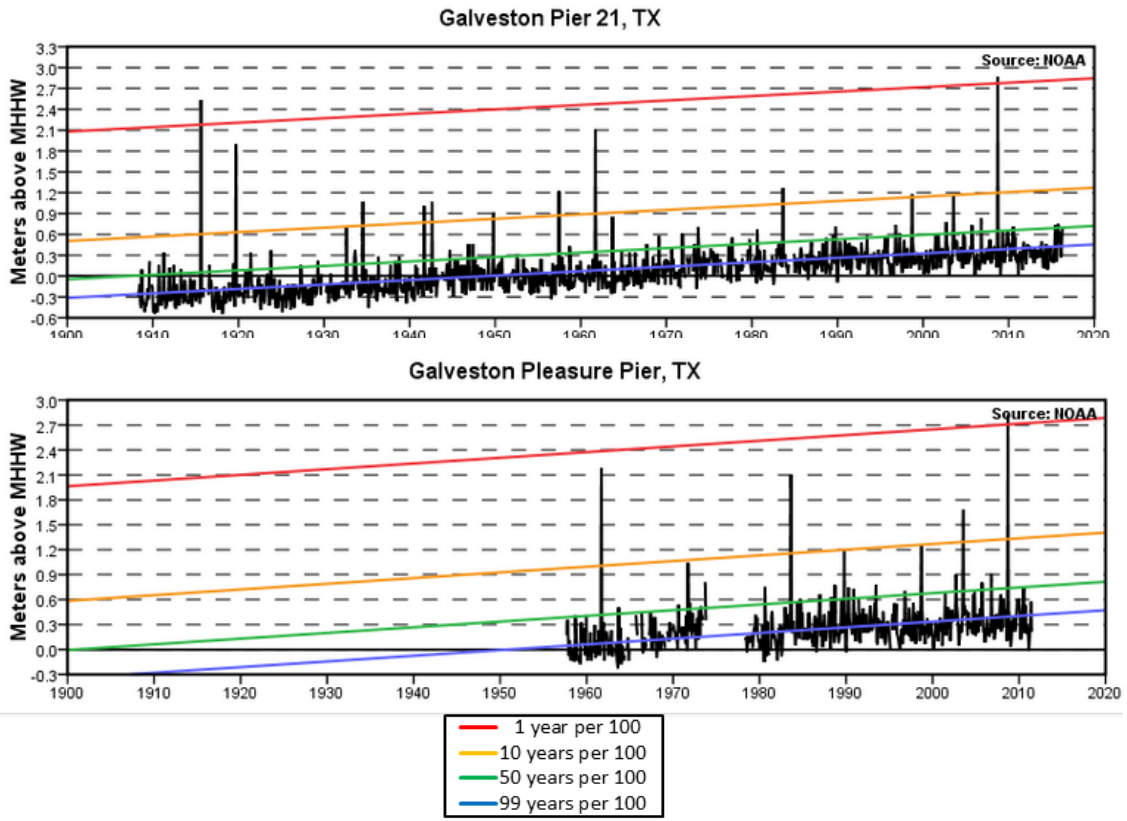


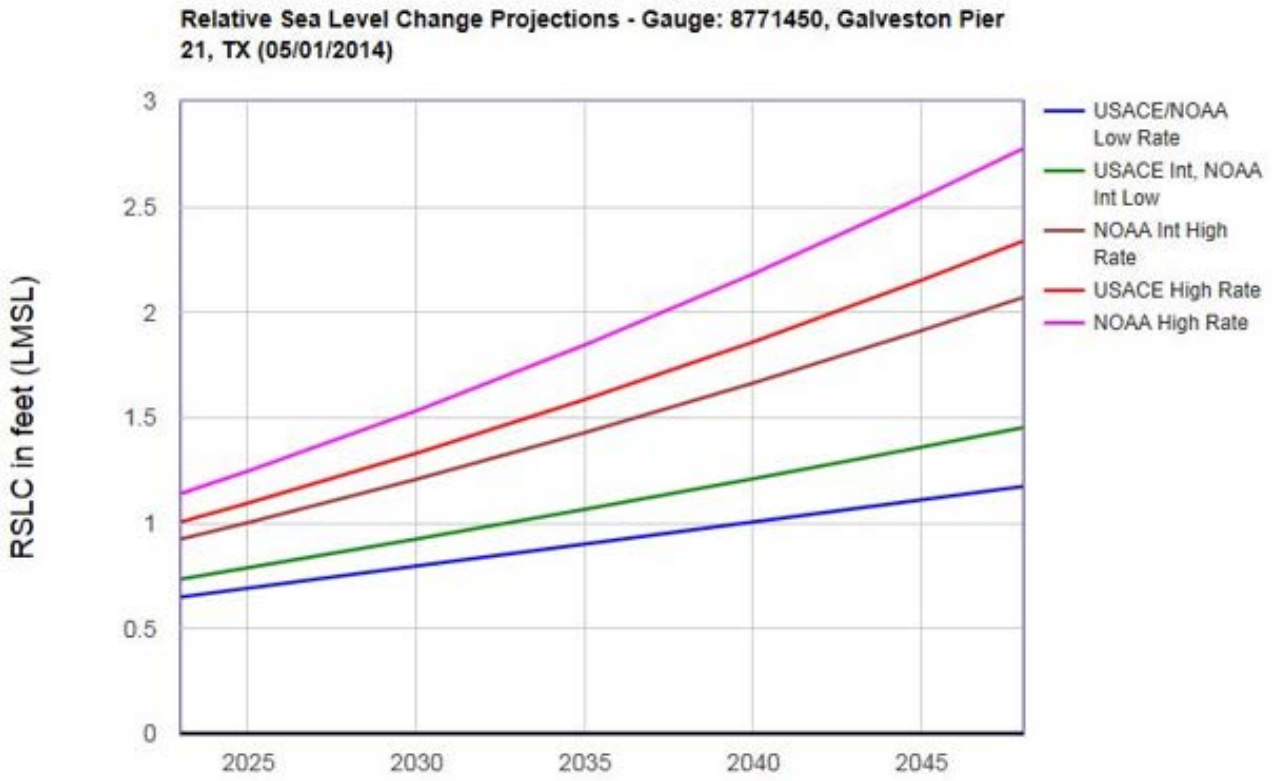
Approved for public release; distribution is unlimited.

EXAMPLE APPLICATION: HISTORICAL DATA WATER LEVEL AND RELATIVE SEA LEVEL RISE

Historical data available:

- Water level
- +100 years at Pier 21





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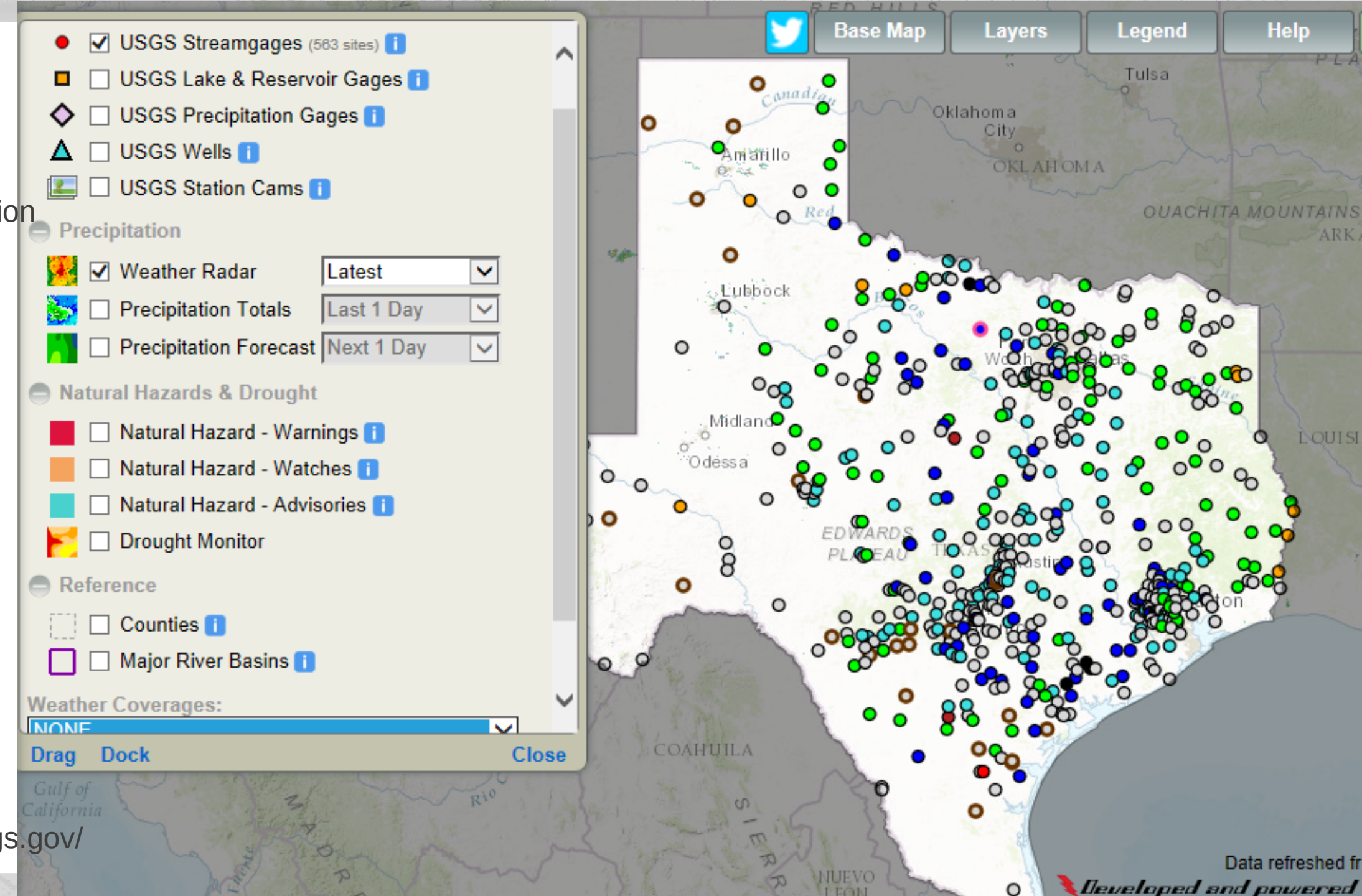
USGS

- Stream
- Precipitation
- WQ
- Wind



https://tx.usgs.gov/

TNRIS

- Bathymetry
- LiDAR
- Imagery
- Land Cover
- Hydrography
- Soils
- Geology
- Environmental

Texas Natural Resources Information System

GLO Coastal Leases (Point Locations)

Locations of structures and activities permitted by the GLO

Direct Download

Environmental

GLO Coastal Leases (Polygonal Locations)

Locations of structures and activities permitted by the GLO

Direct Download

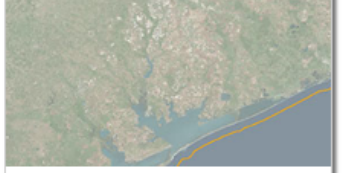
Environmental

GLO Colonial Waterbird Rookery Areas

Locations of waterbird rookery sites in the coastal counties of

Direct Download

Boundary



GLO Dispersant Use Pre-Approval Zone

Boundaries of pre-approved area for use of dispersant in oil spill

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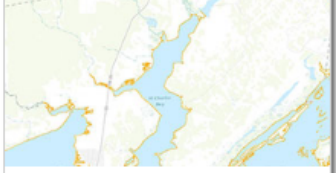
Boundary



GLO Environmental Sensitivity Index Shoreline

Shoreline of Texas with Environmental Sensitivity Index

Direct Download

Boundary

GLO In-Situ Burn Exclusion Areas

Areas designated by the Oil Spill Regional Response Team VI

Direct Download

Boundary

GLO Oil & Gas Lease Sale Nominations

Nominations for the upcoming oil/gas sealed bid lease sale (tracts

Direct Download

Environmental

GLO Oil & Gas Leases

Oil and Gas Leases managed by the Texas GLO - General Land

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Environmental

GLO Oil & Gas Pooling Agreements/Units

Oil and Gas pooling agreements managed by the Texas GLO -

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Environmental

GLO Pipelines and Miscellaneous Easements

Pipelines located in state-owned submerged lands and other areas

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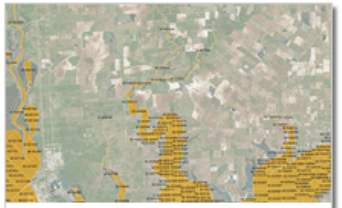
Environmental

GLO Priority Protection Habitat Areas

Priority coastal habitat areas to be protected during oil or hazardous

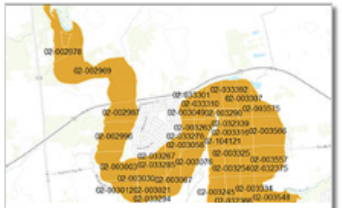
GLO Species/Habitats

Coastal distribution of animals, plants and habitats potentially at



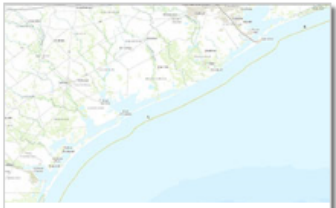
GLO State Submerged Lands

State-owned tracts in offshore waters and coastal bays.



GLO State Tracts with Resource Management Codes

State-owned tracts in offshore waters and coastal bays, with



GLO Three Marine League Line

The boundary between state and federal jurisdiction located three

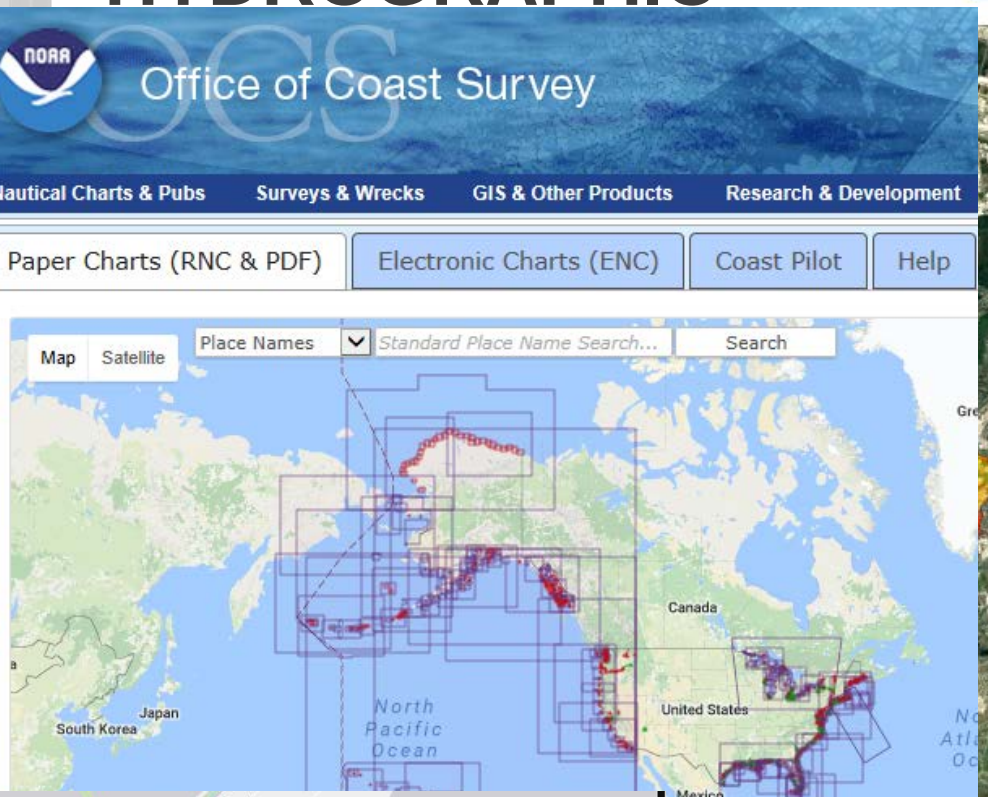
JABLTCX

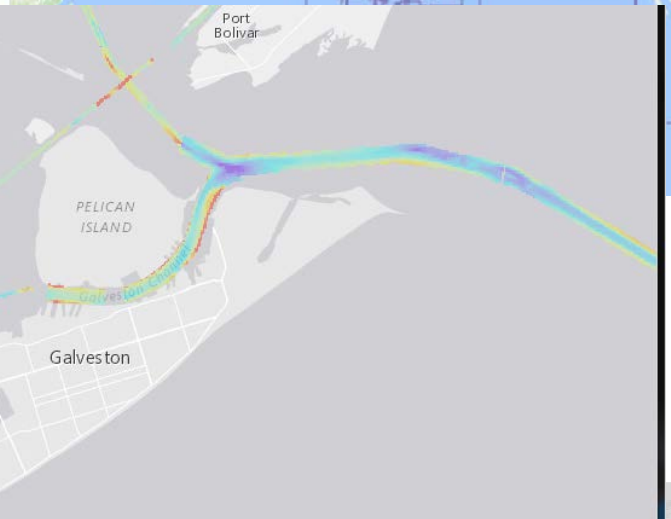
- LiDAR – flights along the coast every 3 to 5 years
  - 10 cm vertical accuracy

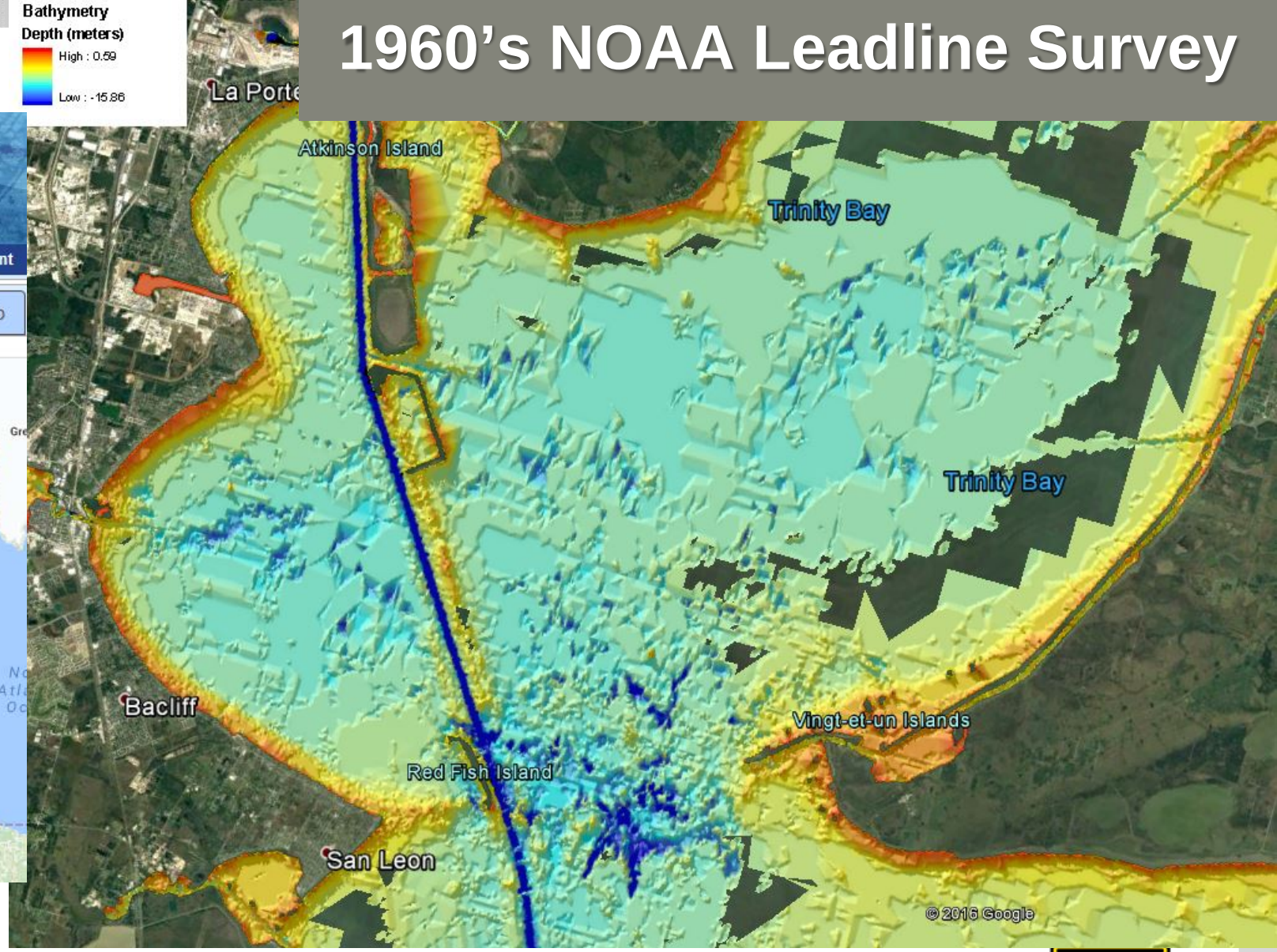
https://tx.usgs.gov/

1960's NOAA Leadline Survey

HYDROGRAPHIC







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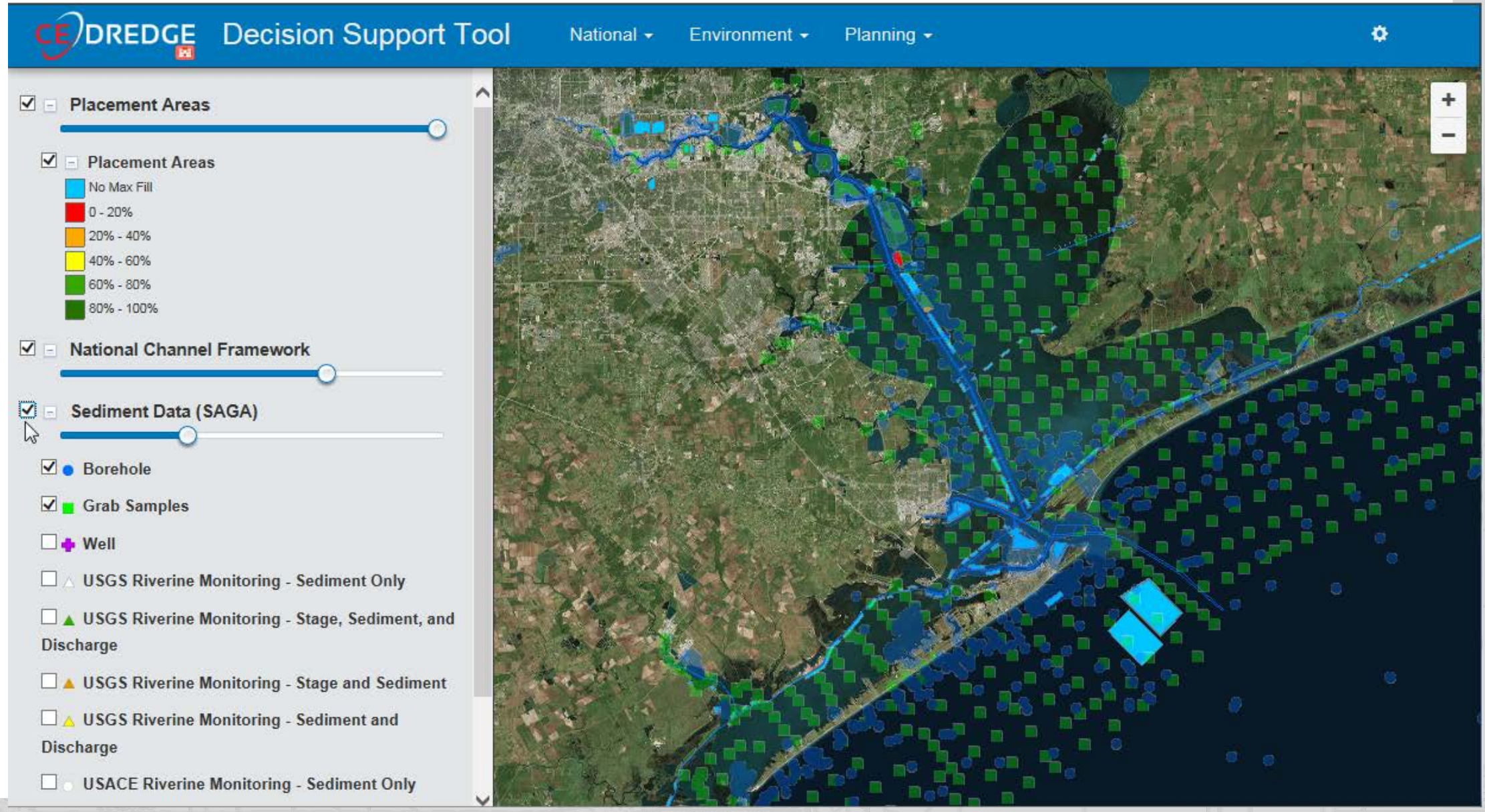
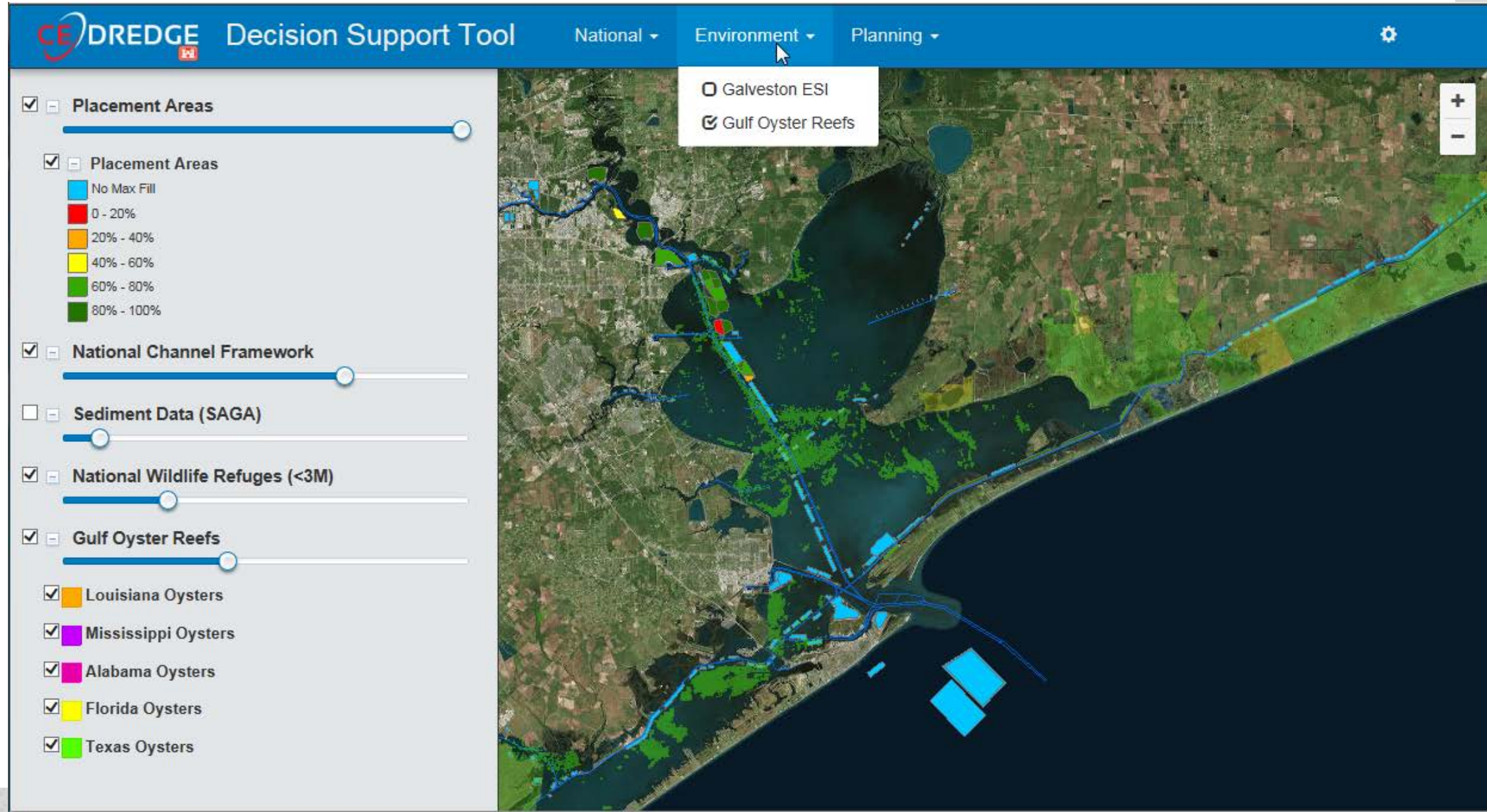
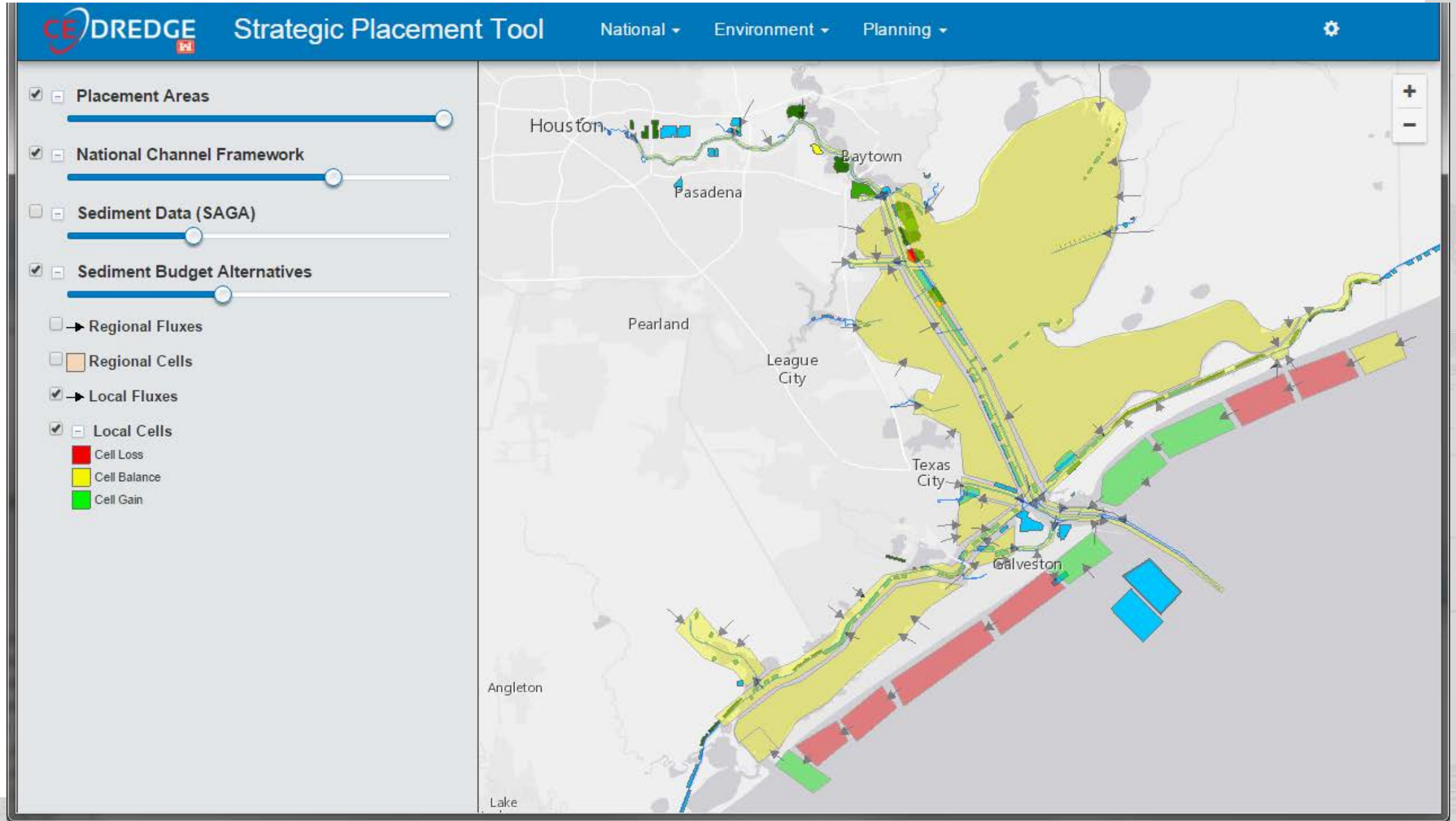
SEDIMENT DATA



ENVIRONMENTAL LAYERS



SEDIMENT BUDGETS



WHAT DO WE WANT?

- Water Level
  - Relative sea level rise response
    - Ecological
    - Geomorphic
- Sediment Budgets
  - Riverine sediment budgets – bedload and suspended load long-term measurements - USGS
  - Long and cross shore transport rate measurements
- Ecological
  - SAV or oyster frequent mapping
  - Vegetation species evolution
  - Density and diversity
  - Water quality
- Improved precipitation forecast accuracy
- Improved remote sensing technologies
- Data-Hub – geospatial and metadata searchable
- All of this will improve our models and decisions

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WHAT ARE WE DOING TO GET THERE?

- Meeting with you!
- CESC
- EwN proving ground
- CESU - In-Situ Measurements of Physical Forces and Biological Parameters in Coastal and Estuarine Systems, Galveston District
- Hiring well… maybe??

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