GIWW Brazos River Floodgates and Colorado River Locks Feasibility Study

Stakeholder Partnering Forum
Modernizing of the GIWW
August 4, 2016

Partnering Under a Systems Approach for Sustaining Commercial Navigation and the Environment

USACE- Galveston District
Galveston, Texas

US Army Corps of Engineers ®
Galveston District

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Texas Department of Transportation ®

Welcome

- This presentation includes:
  - A general project overview
  - Description of the Brazos River Floodgates and Colorado River Locks
  - Identified problems, objectives, and constraints
  - General feasibility study process
  - Environmental Opportunities along the GIWW
  - USACE Authorities

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Project Overview

- The U.S. Army Corps of Engineers (USACE) Galveston District is leading a feasibility study to:
  - Investigate and recommend solutions to improve safety and navigation efficiency on the Gulf Intracoastal Waterway (GIWW) at the Brazos River Floodgates and the Colorado River Locks
  - Identify and evaluate possible structural and navigation alternatives to reduce traffic accidents and navigation delays
- The non-Federal sponsor for the project is the Texas Department of Transportation (TxDOT).

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Project Location

Brazos River Floodgates

Located where the GIWW intersects with the Brazos River southwest of the city of Freeport in Brazoria County, Texas

Located 40 miles northeast of the Colorado River Locks

Colorado River Locks

Located where the GIWW intersects with the Colorado River at the city of Matagorda in Matagorda County, Texas

Located 40 miles southwest of the Brazos River Floodgates

There are no ports between the Brazos River Floodgates and the Colorado River Locks.

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PROJECT LOCATION

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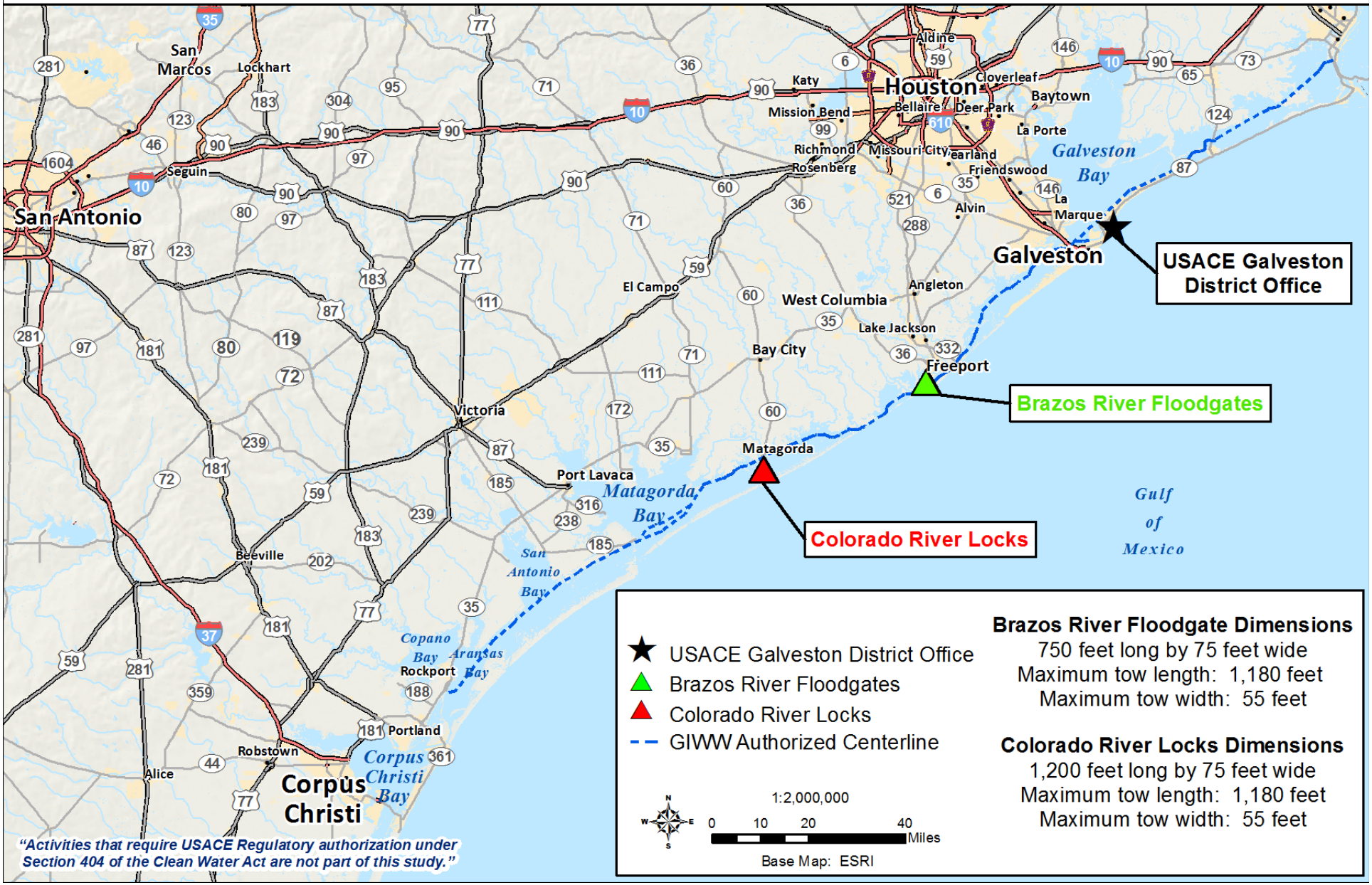

Brazos River Floodgates

- Constructed in September 1943
- Dimensions: 750 feet long by 75 feet wide
- Max Tow Length: 1,180 feet
  Max Tow Width: 55 feet
- Prevent excessive tidal action and silting in the GIWW
- Average 38 tows/day transit

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BRAZOS RIVER FLOODGATES

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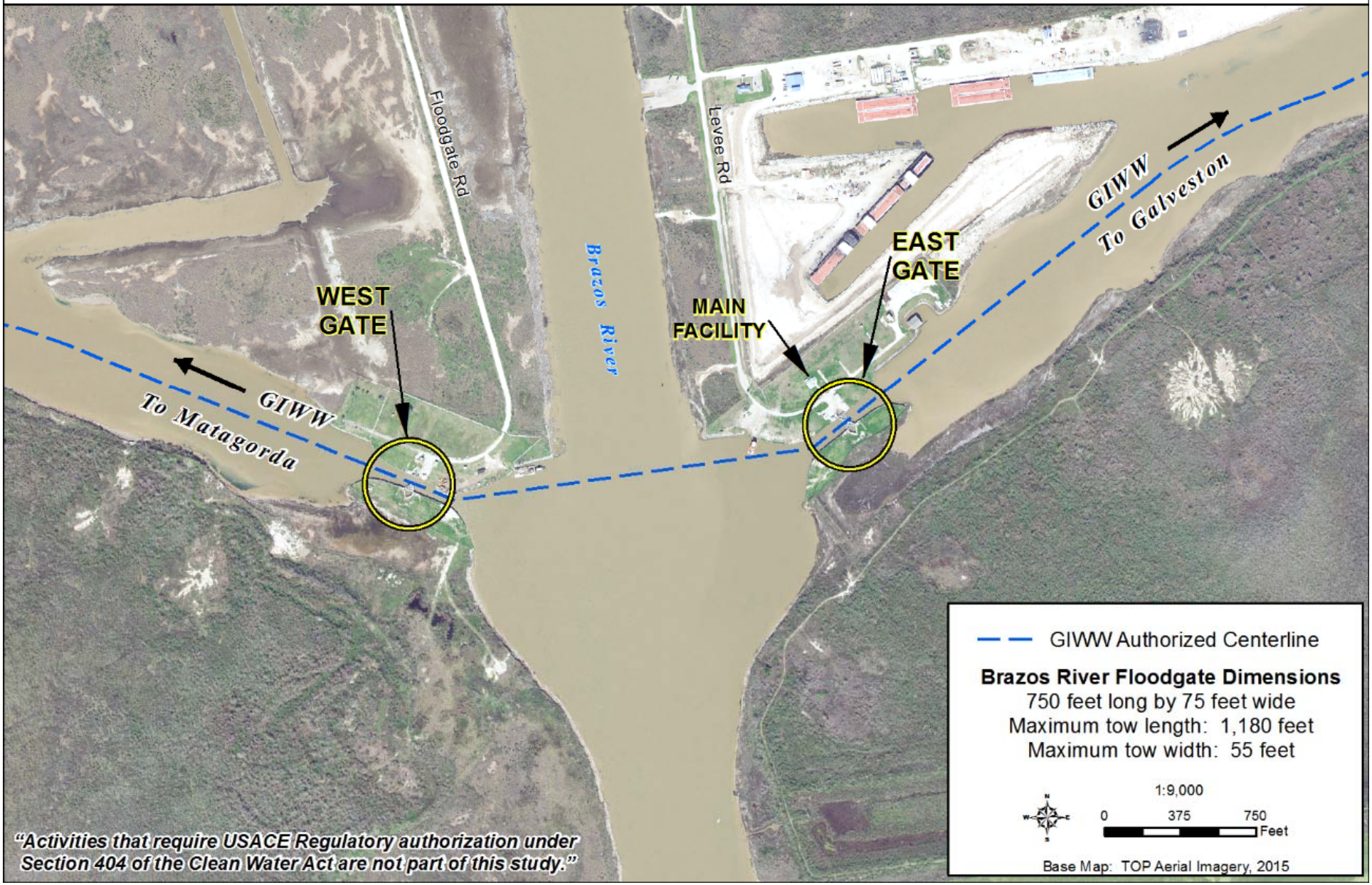

Colorado River Locks

- 1st Operating Navigation Lock in Texas: May 1951
- Dimensions: 1,200 feet long by 75 feet wide
- Max Tow Length: 1,180 feet
  Max Tow Width: 55 feet
- Prevent excessive tidal action and silting in the GIWW
- Average 38 tows/day transit

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COLORADO RIVER LOCKS

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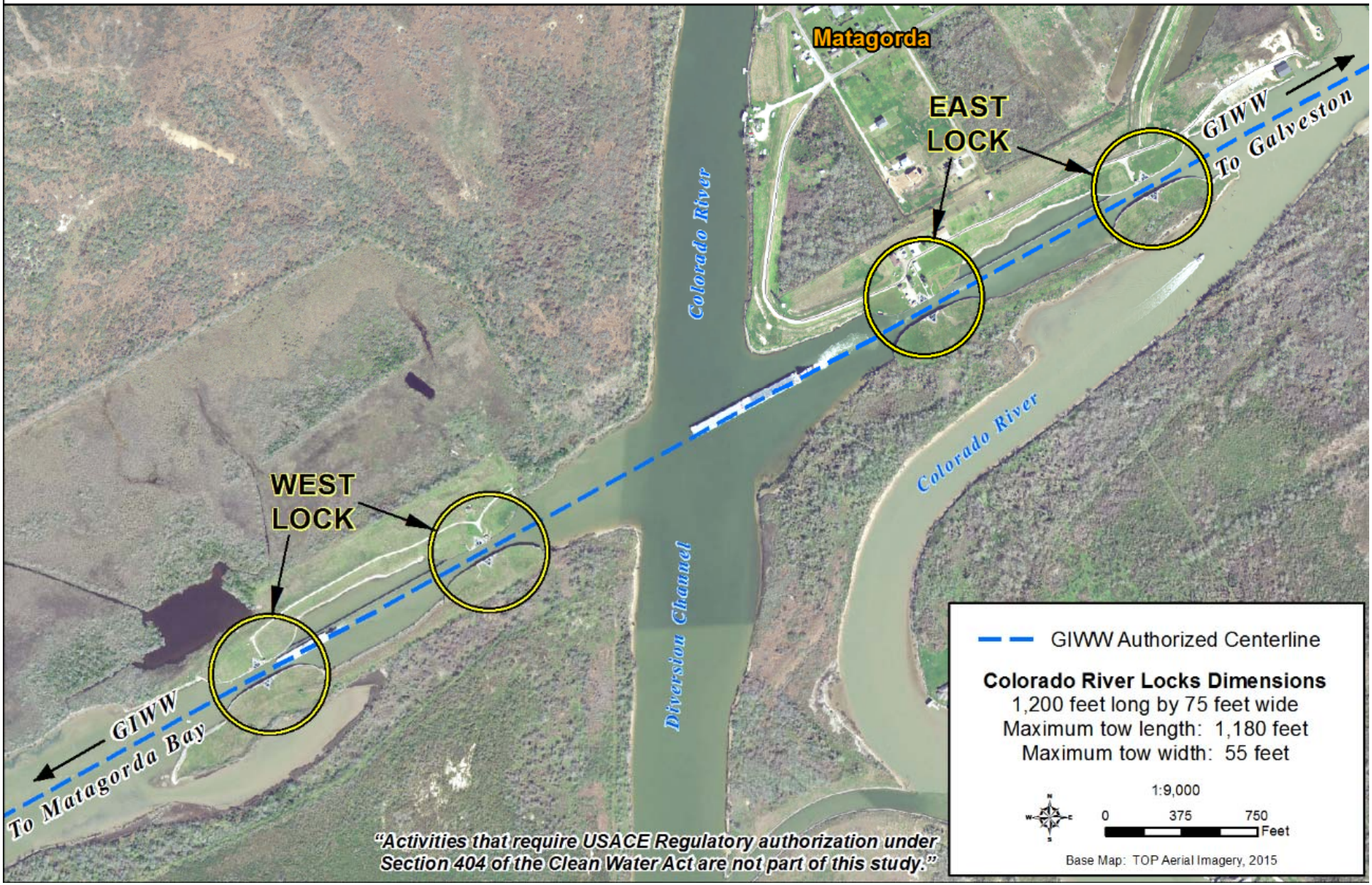
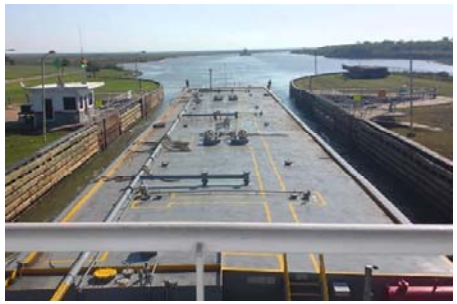


Identified Problems



- Inadequate channel width/crossings for modern vessels
- Outdated floodgate construction and width in floodgate chambers
- Outdated lock construction at Colorado River leads to mechanical failure, presents security concerns
- High river flows due to flood events impact traffic navigation
- Marine buildup on mechanical equipment leads to increased O&M cost
- Sedimentation increases at mouth of rivers
- Shoreline erosion

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Study Objectives

- Improve/modernize critical infrastructure at the floodgates/locks
- Reduce operational delays of structures that contribute to economic impacts to navigation industry
- Improve navigation in channel/crossings
- Minimize environmental impacts
- Reduce risks to life, health, and safety of shipping crews

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Key Considerations

- Navigation/Transportation
  - Impacts to navigation during construction
  - Nearby roadway bridges

- Existing Federal Projects
  - Flood-protection levees
  - Dredged material placement areas
  - Increased silting in navigation channels

- Energy and Mineral Resources
  - Bryan Mound Strategic Petroleum Reserve
  - Existing pipelines/wells

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Key Considerations

- Environmental
  - Wetlands and other local habitats
  - Floodplains
  - Wildlife refuges/management areas and recreation areas
  - Ongoing ecological recovery in West Matagorda Bay
  - Protected wildlife, marine mammals, fisheries
  - Cultural and historic resources
  - Changes in salinity, bank erosion, sedimentation/shoaling
- Land Requirements
- Other – ***Seeking Public Input***

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Potential Measures

Brazos River Floodgates

- Remove floodgates and dredge channel
- Relocate gates further from river
- Widen gates/structure lift
- Create guide wall on river side (lessen angle)
- Straighten crossings
- Construct lock system
- Assess effects of flows from San Bernard River (west of floodgates)
- Raise walls/gates/adjoining levee to match Colorado River Locks

Colorado River Locks

- Relocate locks further from river
- Widen locks
- Move intersection of bypass channel east
- Build gate at the dam to serve as water control structure
- Modify operation at dam to allow for split flow through old channels to Gulf
- Restore/replace southwest point
- Modify scheduled maintenance
- Create openings/outlets to reduce flow/currents through locks

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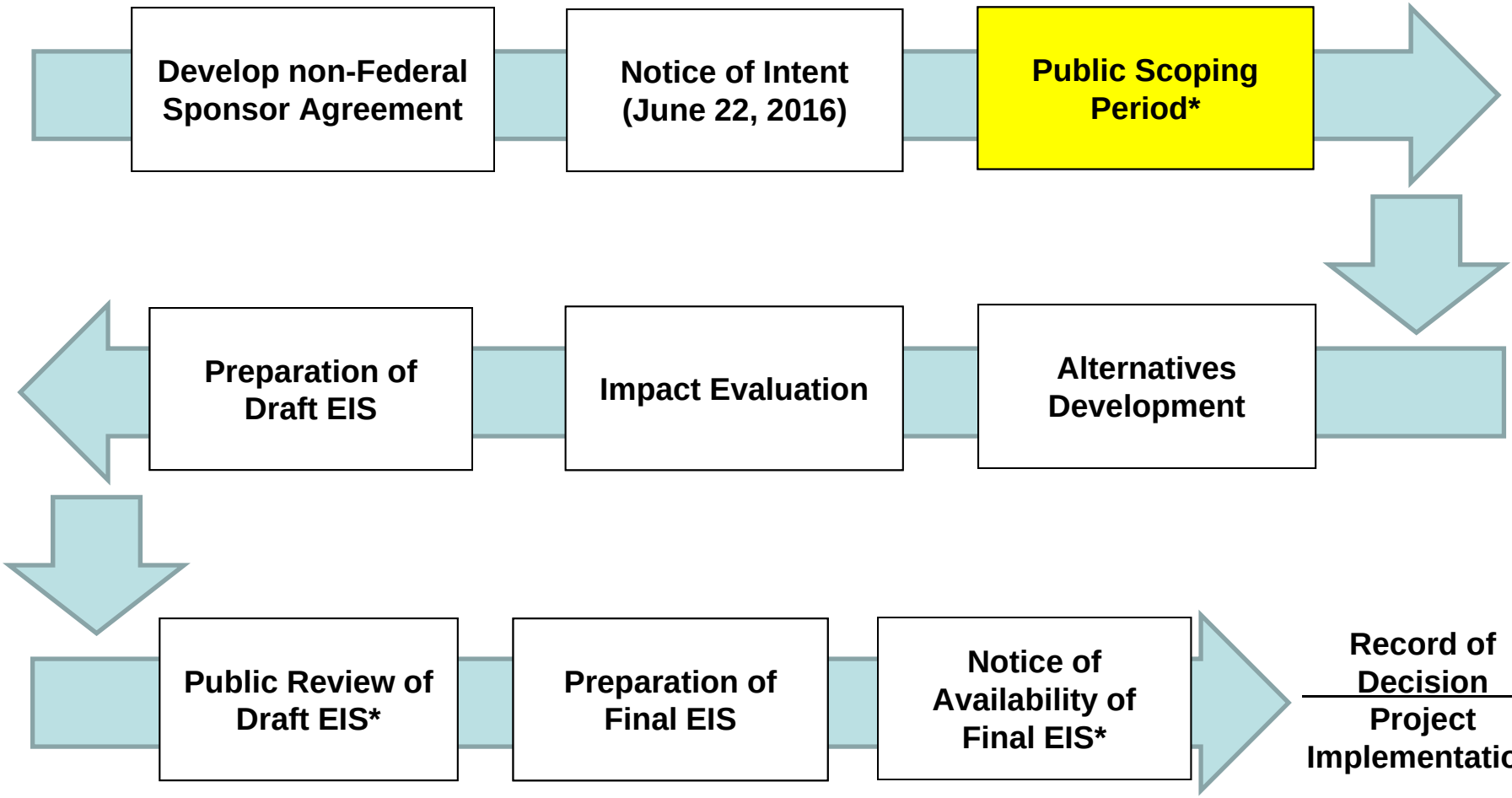
Overview of Feasibility Study/NEPA Process



*** Opportunities for public comment**

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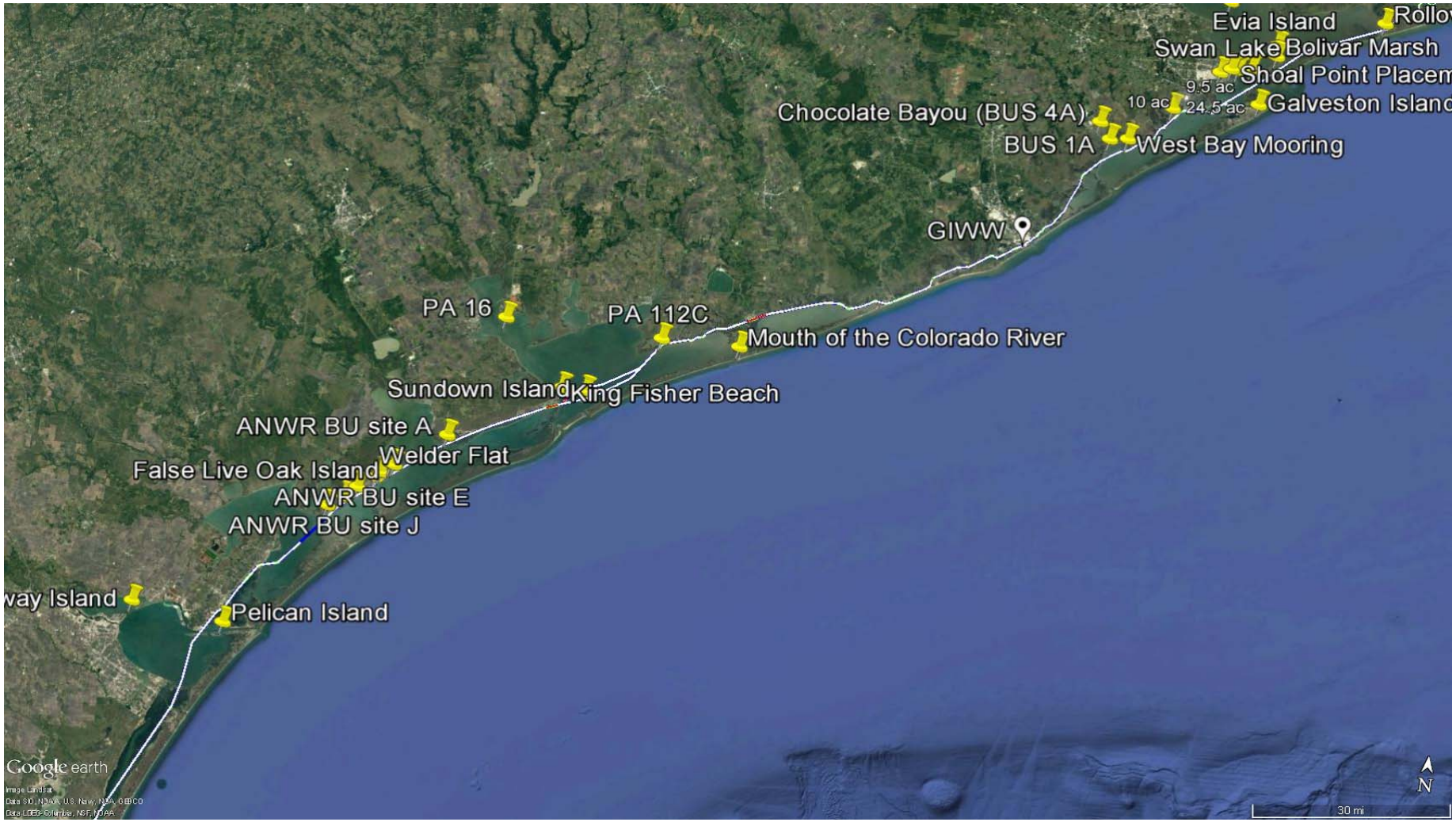
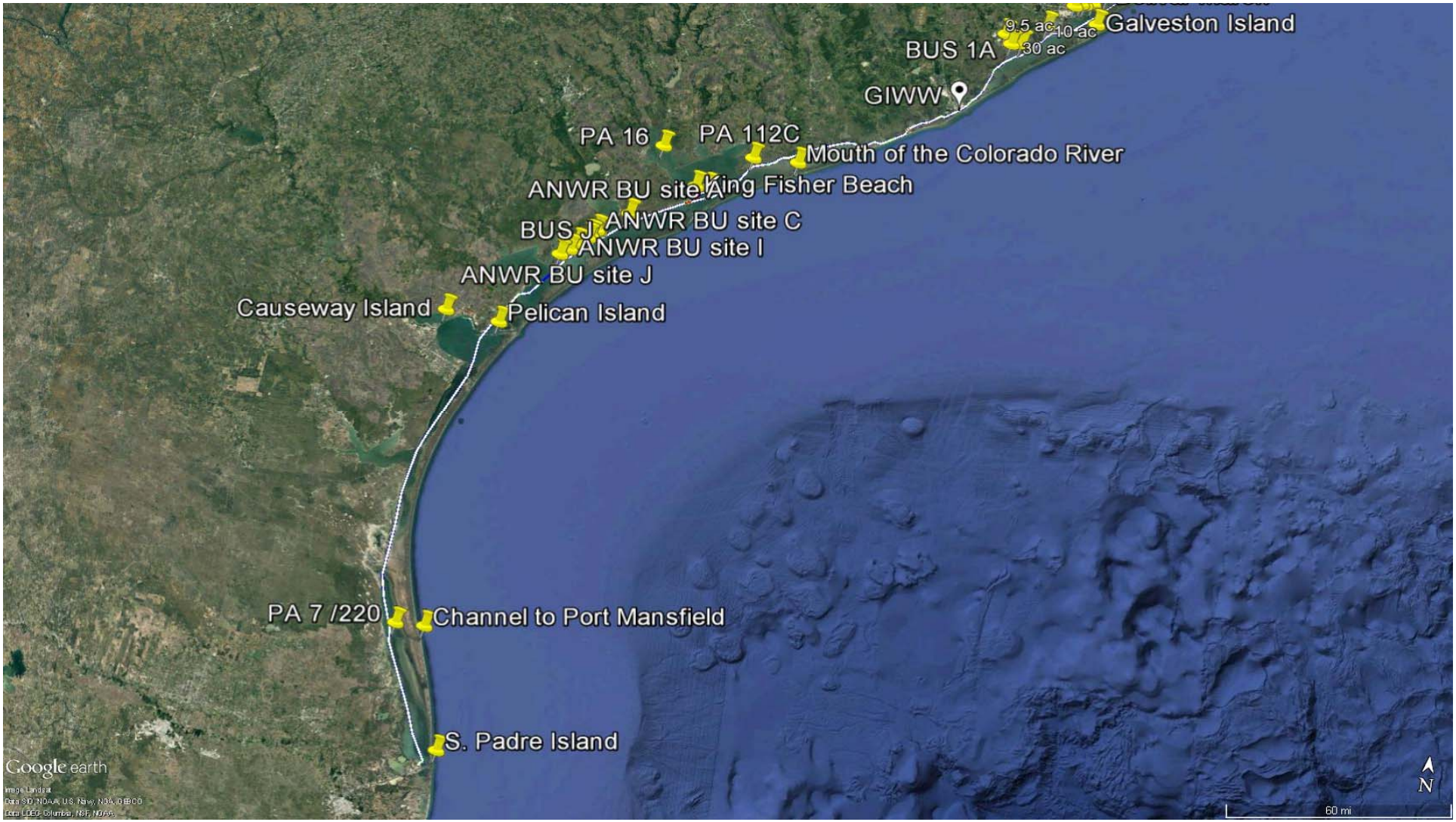
Beneficial Use Opportunities

- Environmental Opportunities along the GIWW
  - Marsh / Seagrasses
  - Bird Islands
  - Beach Nourishment
- USACE Authorities (Section 203, CAP studies, USACE / GLO MOA, Regulatory Permits
  - Examples: Pierce Marsh (multiple agencies), Rollover Beach Nourishment, SPI beach nourishment, Bird Islands (USAFWS led using Regulatory permits), multiple opportunities (kmz file map showing

Beneficial Use Opportunities

Beneficial Use Opportunities




Galveston Island
9.5 ac
10 ac
30 ac
BUS 1A
GIWW
PA 16
PA 112C
Mouth of the Colorado River
ANWR BU site A
King Fisher Beach
BUS J
ANWR BU site C
ANWR BU site I
ANWR BU site J
Causeway Island
Pelican Island
PA 7 /220
Channel to Port Mansfield
S. Padre Island
Google earth
Image Landsat
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA
N
60 mi