A HISTORIC LOOK AT GALVESTON DISTRICT'S NAVIGATION PROGRAM & COASTAL RESILIENCY

Christopher Frabotta
Operations Division Chief
USACE-Galveston District

U.S.ARMY

US Army Corps of Engineers®

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Southwestern Division – Galveston District
Date: 11 February 2021

US Army Corps of Engineers®

GALVESTON DISTRICT NAVIGATION SYSTEM

LEADING U.S. PORTS

(2019 tonnage)

Houston #1 – 284.9 million tons
#1 Foreign Tonnage & #2 Total Tonnage

Corpus Christi #4 – 111.2 m.tons
America's Energy Gateway

Beaumont #5 – 101.1 m.tons
#1 Military Port in World

Texas City #16 – 41.3 m.tons
Services Largest Petrochemical Complex

Port Arthur #19 – 33.9 m.tons
Vital Break-Bulk Port

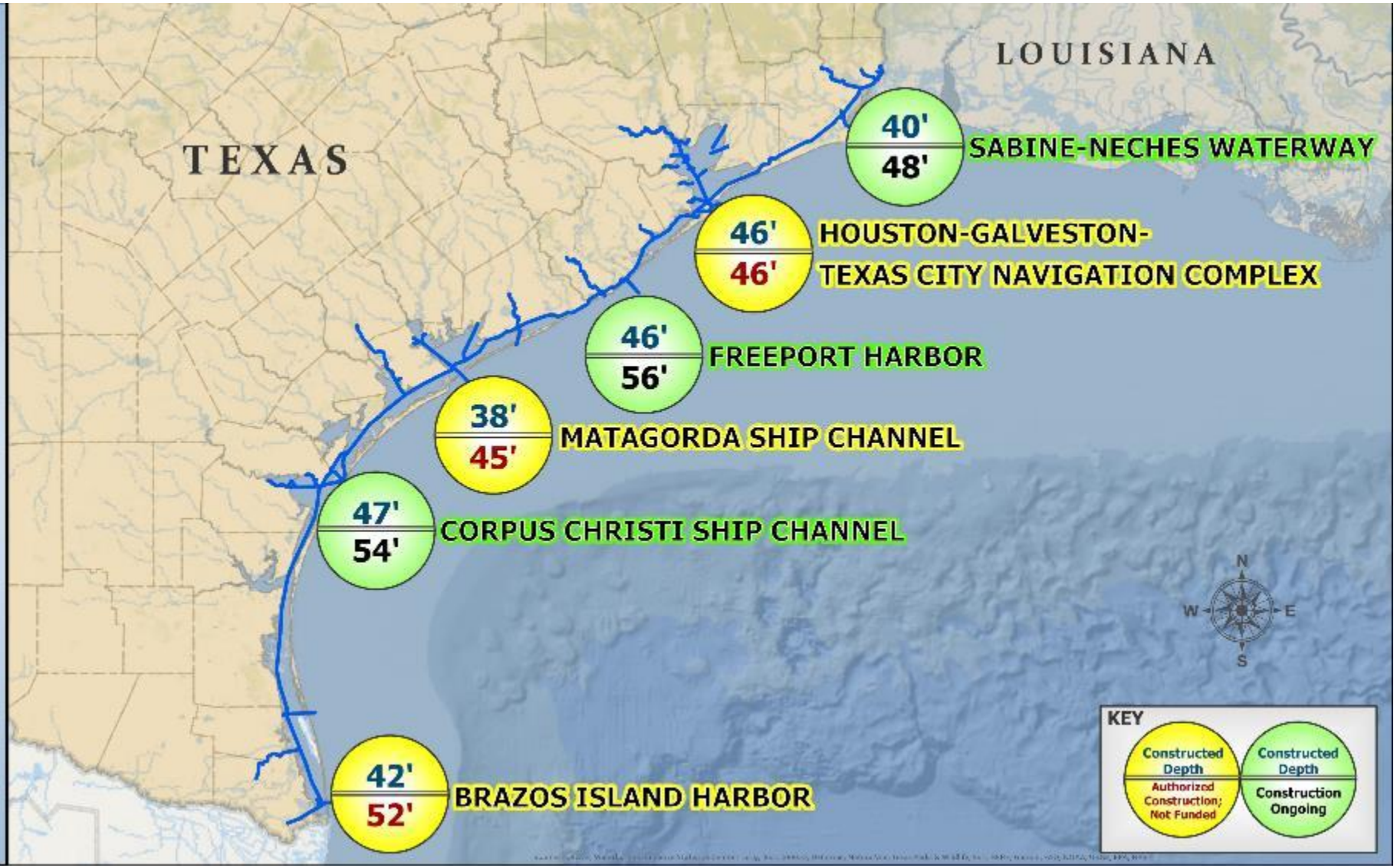
Freeport #23 – 29.8 m.tons
Connecting Global Services
Via Caribbean Relay Port

Galveston #47 – 11 m.tons
#1 Cruise Ship Port in gulf

Brownsville #68 – 6.6 m.tons
#1 Ship Recycling Port

Calhoun County Port #76 - 5.2 m.tons
(Matagorda Ship Channel)

Victoria #102 – 2.7 m.tons
#2 Shallow-Draft Port for Domestic
Crude Petroleum



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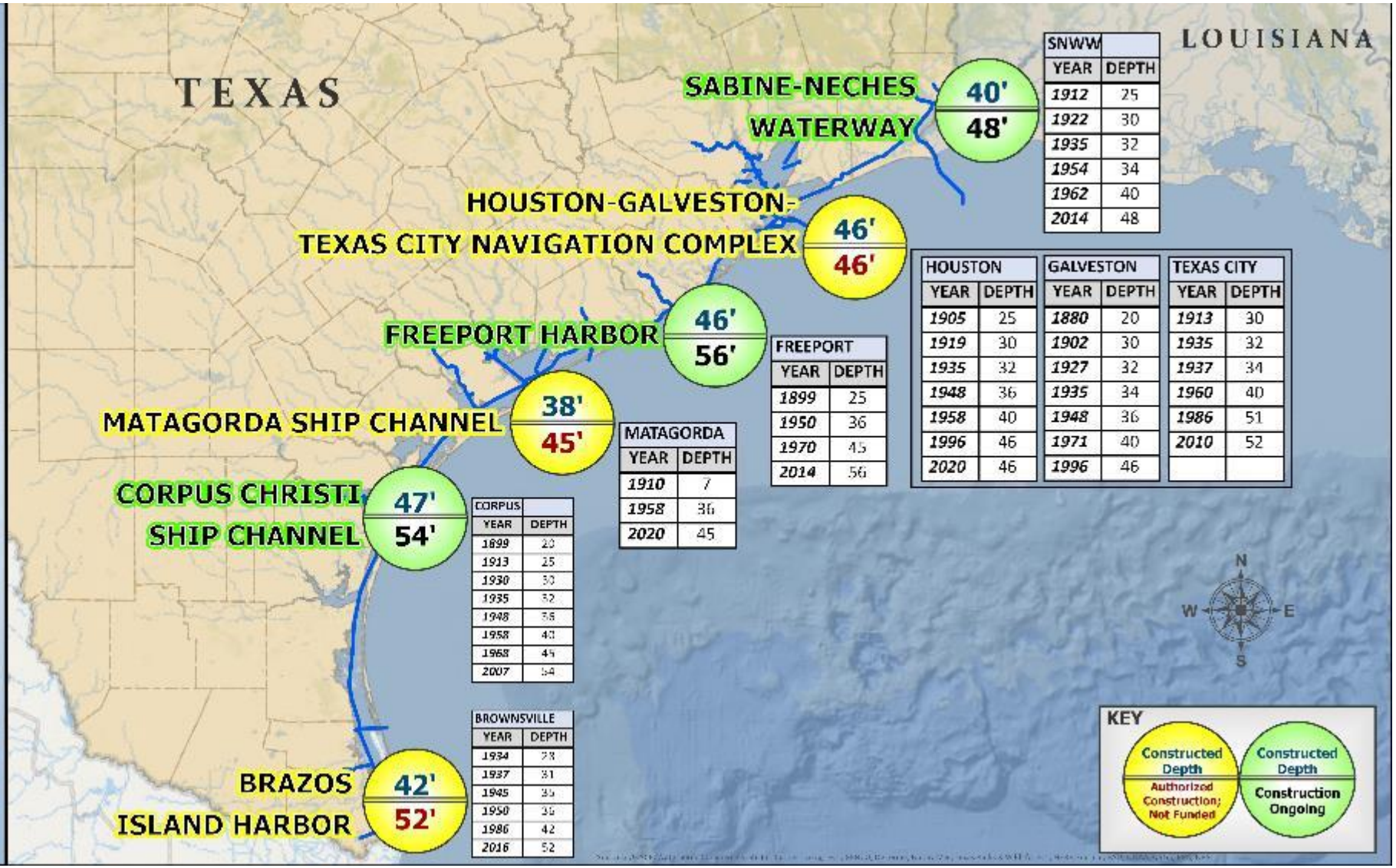
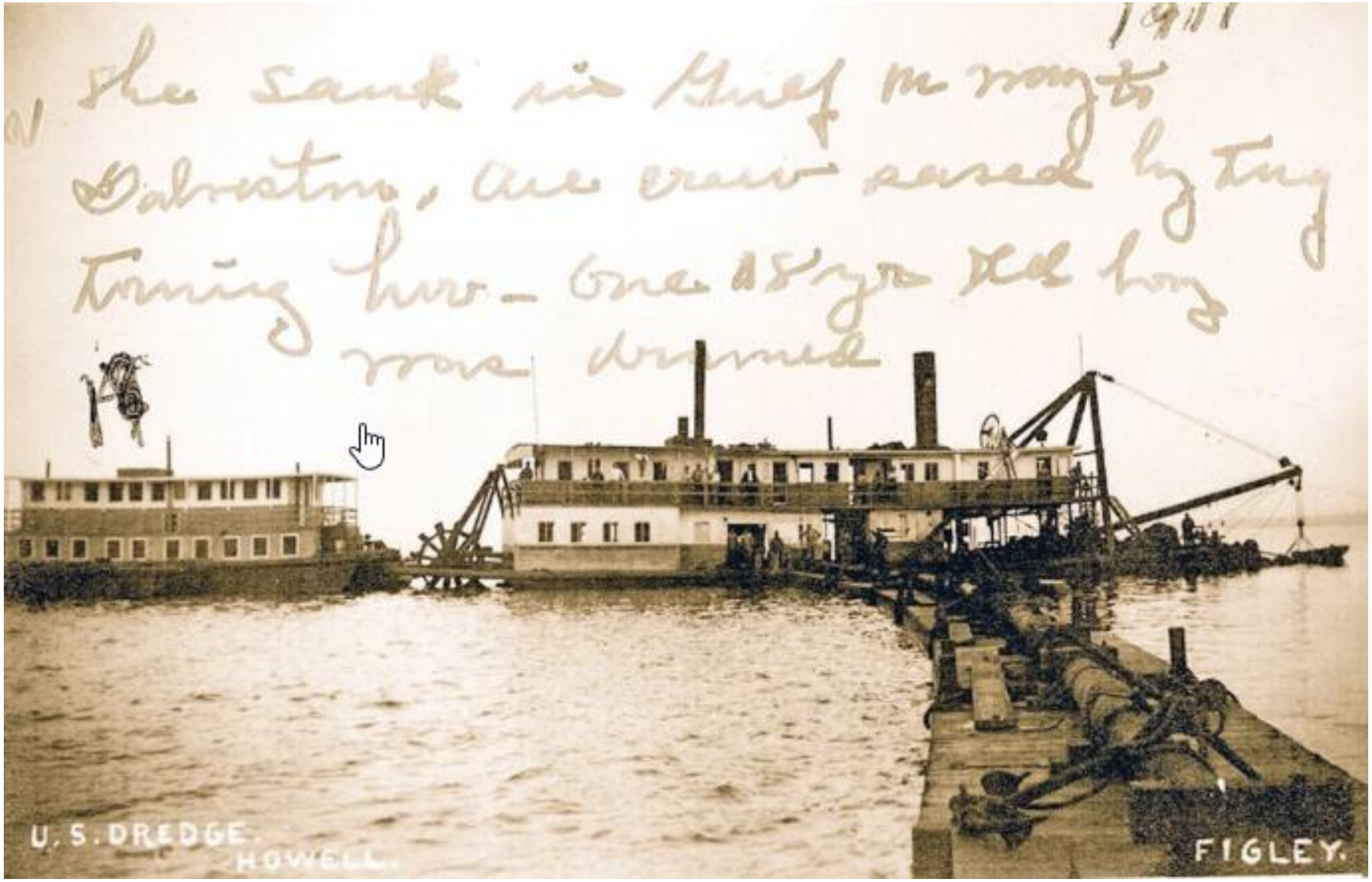


HYDRAULIC PIPELINE DREDGE ‘GEORGE SEALY’

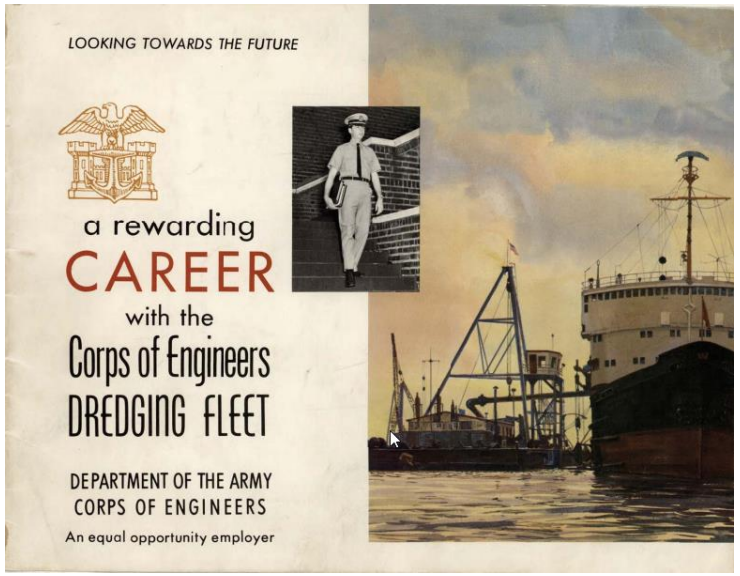
HYDRAULIC PIPELINE DREDGE ‘HOWELL’

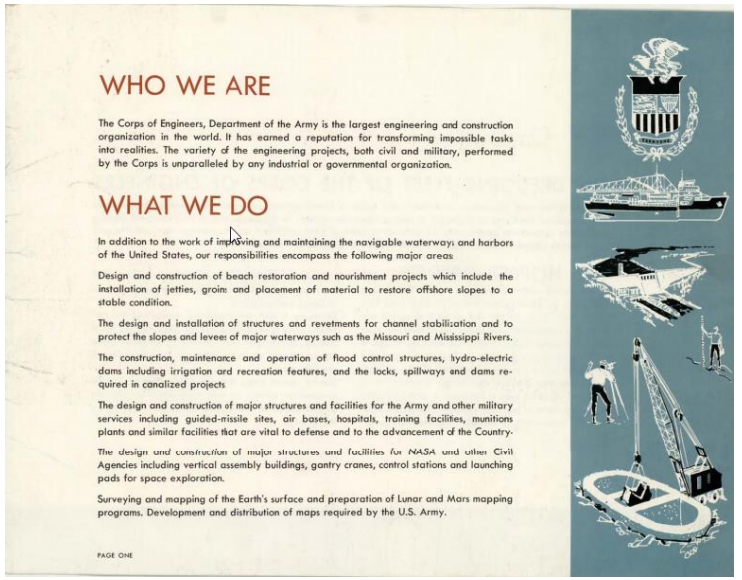


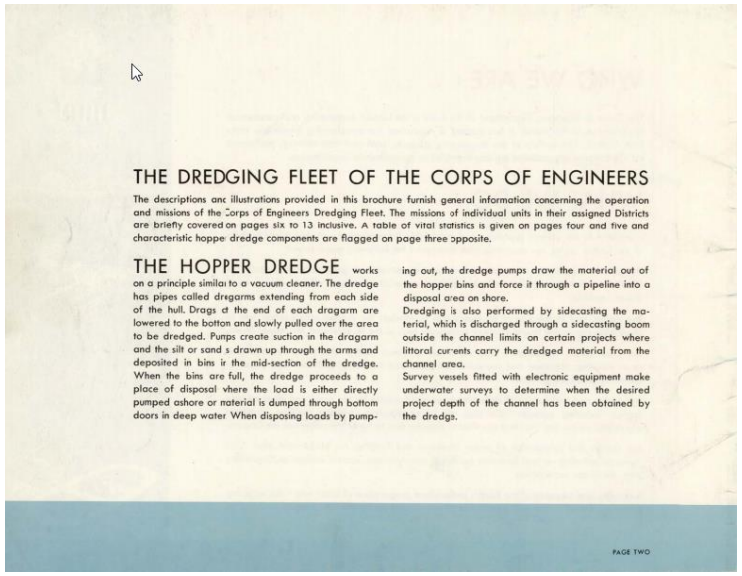
‘

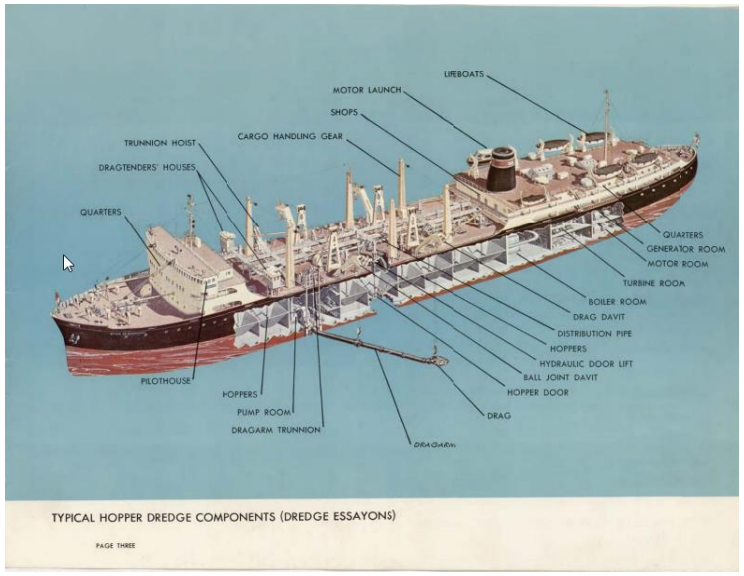
HYDRAULIC HOPPER DREDGE ‘GENERAL C.B. COMSTOCK’

U.S. ARMY CORPS OF ENGINEERS
DREDGE PLANT RECRUITMENT PAMPHLET









SALIENT FEATURES of the HOPPER DREDGES of the CORPS OF ENGINEERS

Dredge	Year Built	Length Beam & Depth (feet)	Maximum Hopper Capacity (cu. yds.)	Maximum Draft Loaded	Propulsion H.P. & Type* (all twin screw)	Dredge Pumps No.	Dredge Pumps Size	Horsepower Each Hopper	Horsepower Each Pump-out
ESSAYONS	1950	525 72 40	8270	31′ 0″	8000 TE	2	32″	1850	—
GOETHALS	1938	476 69 36	6422	29′ 0″	6000 TE	2	30″	1300	3000
BIDDLE	1947	352 60 30	3060	24′ 4″	6000 TE	2	28″	1150	—
COMBER	1947	352 60 30	3524	24′ 4″	6000 TE	2	28″	1150	3000
GERIG	1947	352 60 30	3060	24′ 4″	6000 TE	2	28″	1150	—
LANGFITT	1947	352 60 30	3060	24′ 4″	6000 TE	2	28″	1150	—
HARDING	1939	308 56 29	2682	20′ 3″	4240 D	2	20″	1000	—
MARKHAM	1960	339 62 28	2681	20′ 0″	5300 DE	2	23″	650	1000

*TE—Turbo-Electric; DE—Diesel-Electric; D—Diesel Direct Drive

PAGE FOUR

Dredge	Year Built	Length Beam & Depth (feet)	Maximum Hopper Capacity (cu. yds.)	Maximum Draft Loaded	Propulsion H.P. & Type (all twin screw)	Dredge Pumps No.	Dredge Pumps Size	Horsepower Each Hopper	Horsepower Each Pump-out
MACKENZIE	1924	268 46 23	1656	21′ 0″	2400 DE	1	26″	900	—
HAINS	1942	216 40 16	885	13′ 0″	1400 DE	1	20″	410	4 0
HOFFMAN	1942	216 40 16	920	13′ 0″	1400 DE	1	20″	410	—
HYDE	1945	216 40 16	720	13′ 0″	1400 DE	1	20″	410	—
LYMAN	1945	216 40 16	920	13′ 0″	1400 DE	1	20″	410	—
DAVISON	1945	216 40 16	720	13′ 0″	1400 DE	1	20″	410	—
PACIFIC	1937	180 38 14	500	11′ 3″	1200 D	1	18″	340	—
MCFARLAND	1967	300 74 33	3140	23′ 0″	6000 DE	2	26″	2800	2800

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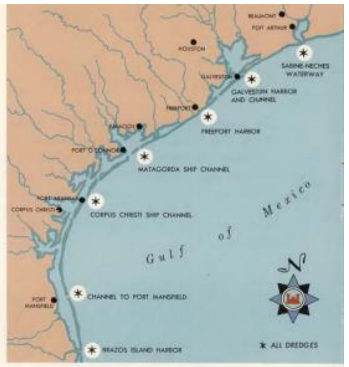
GALVESTON DISTRICT

The GALVESTON District is responsible for the maintenance and improvement of the navigable waterways, rivers, and harbors along the entire Texas coast. In addition, assistance is rendered occasionally to other districts in performing required dredging of entrance channels from the Gulf of Mexico along the coast from Louisiana to Florida.

To accomplish this mission, the GALVESTON District operates two hopper dredges, the 3060 cubic yard capacity McFARLAND and the 1656 cubic yard capacity A. MACKENZIE. These vessels operate 24 hours a day, six or seven days a week, 12 months a year, except when under repair. Work schedules for the crew are arranged on a rotating shift basis to allow two to four consecutive days off duty each two weeks, including at least one four-day off period each four weeks.



DREDGE MACKENZIE

DREDGE MCFARLAND

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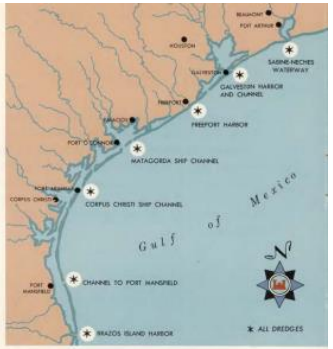

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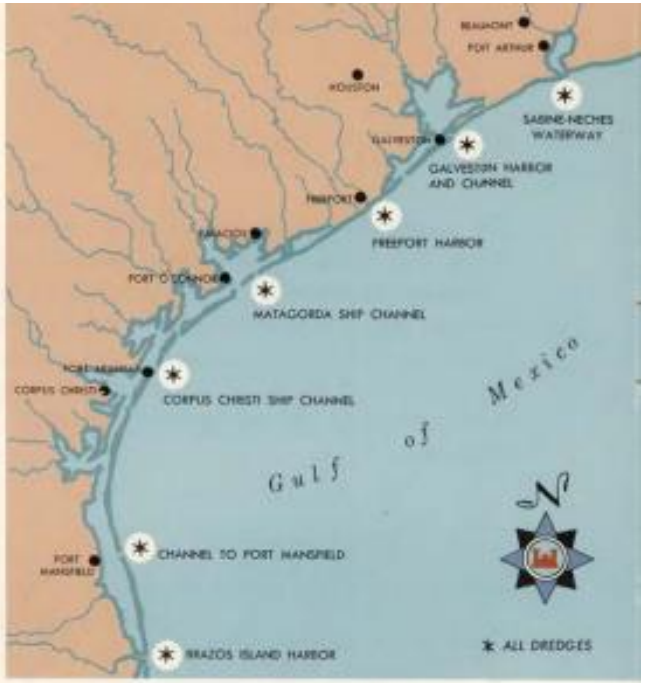
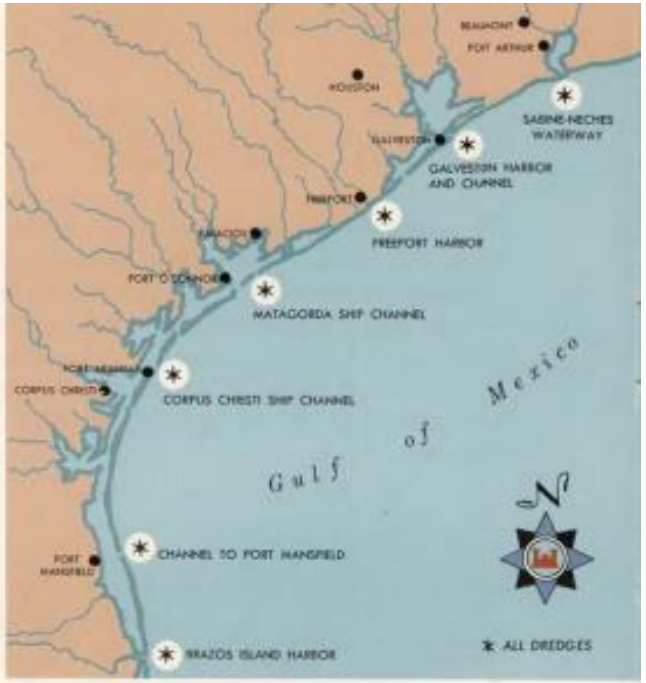


DREDGE MACKENZIE

DREDGE MCFARLAND


A.MacKE
1924


SABINE-NECHES WATERWAY
GALVESTON HARBOR AND CHANNEL
FREEPORT HARBOR
MATAGORDA SHIP CHANNEL
CORPUS CHRISTI SHIP CHANNEL
Mexico
of
Gulf
CHANNEL TO PORT MANSFIELD
BRAZOS ISLAND HARBOR
★ ALL DREDGES

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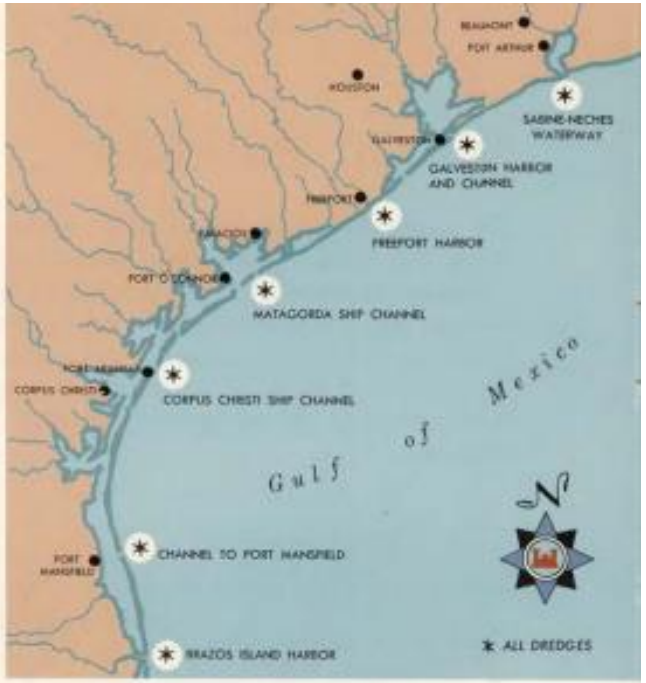

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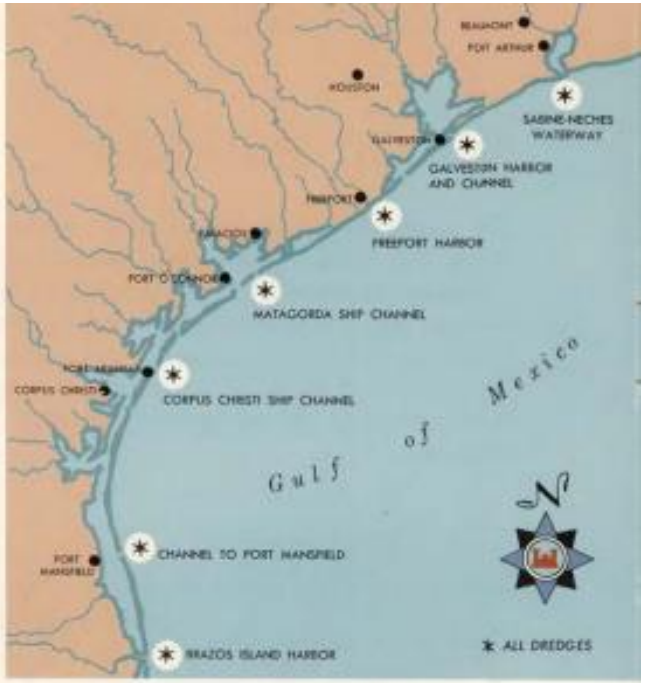

DREDGE MACKENZIE

DREDGE MCFARLAND


BEAUMONT
PORT ARTHUR
HOUSTON
SABINE-NECHES WATERWAY
GALVESTON
GALVESTON HARBOR AND CHANNEL
FREEPORT
FREEPORT HARBOR
PORT O'CONNOR
MATAGORDA SHIP CHANNEL
CORPUS CHRISTI
CORPUS CHRISTI SHIP CHANNEL
Gulf of Mexico
CHANNEL TO PORT MANSFIELD
PORT MANSFIELD
BRAZOS ISLAND HARBOR
ALL DREDGES


BEAUMONT
PORT ARTHUR
HOUSTON
SABINE-NECHES WATERWAY
GALVESTON
GALVESTON HARBOR AND CHANNEL
FREEPORT
FREEPORT HARBOR
MATAGORDA SHIP CHANNEL
CORPUS CHRISTI
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Mexico
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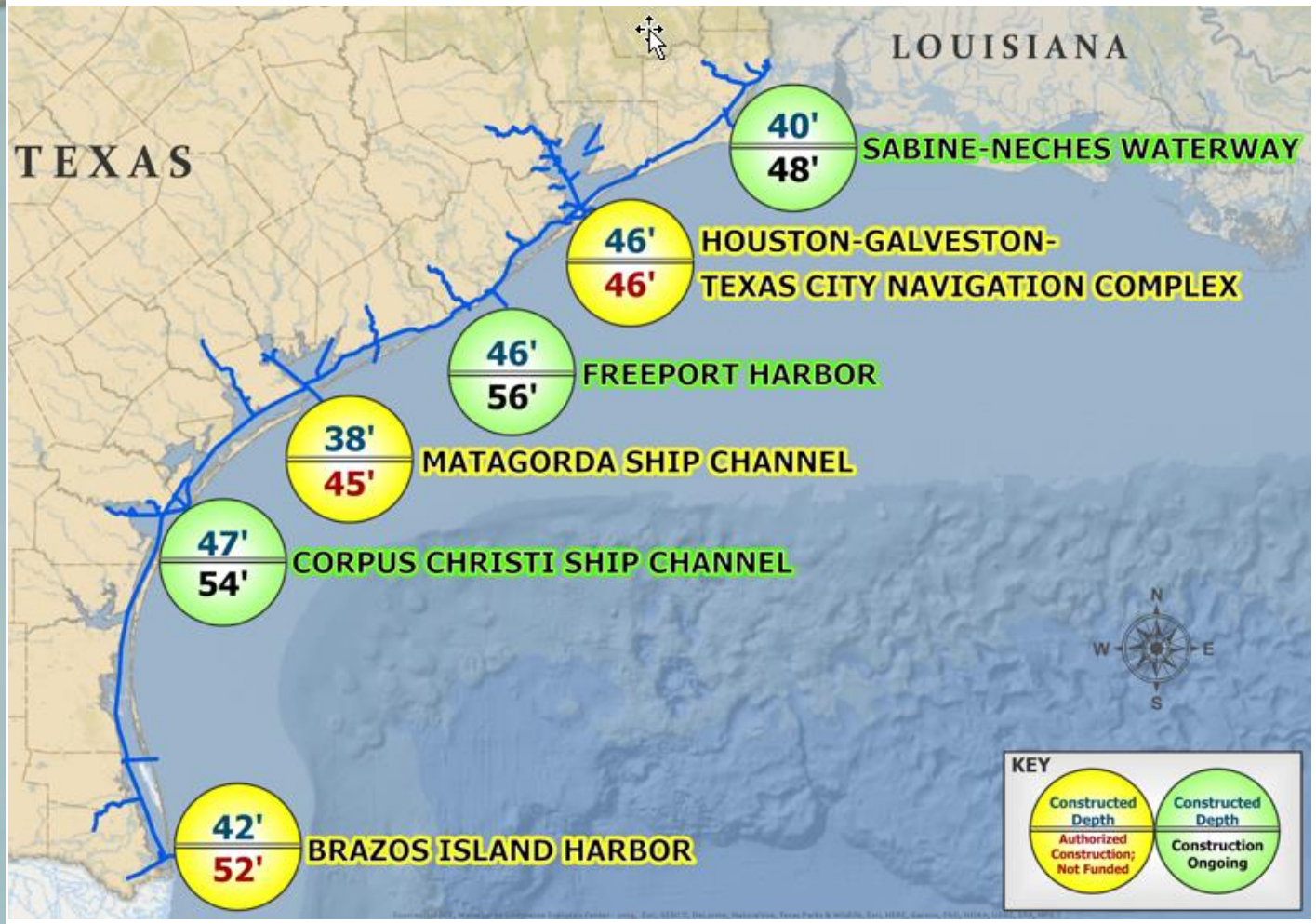
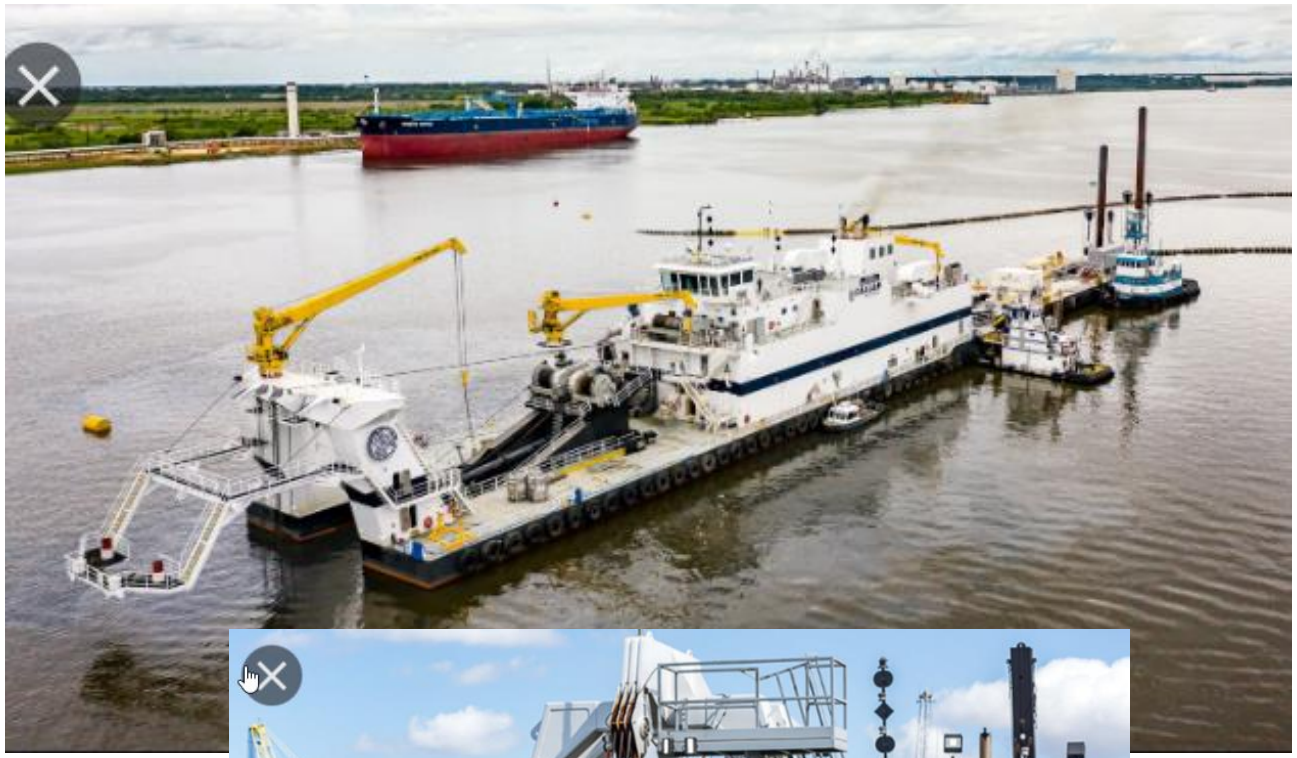
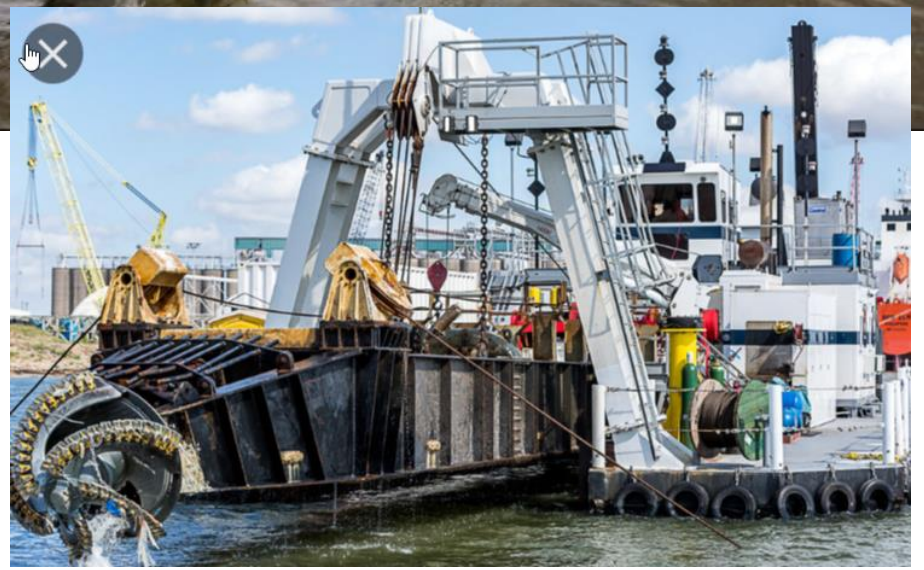
ALL DREDGES

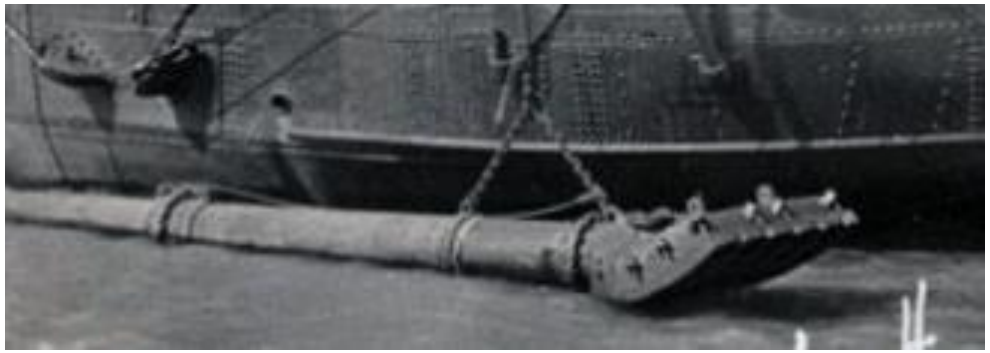

LOUISIANA
TEXAS
40'
48'
SABINE-NECHES WATERWAY
46'
46'
HOUSTON-GALVESTON-
TEXAS CITY NAVIGATION COMPLEX
46'
56'
FREEPORT HARBOR
38'
45'
MATAGORDA SHIP CHANNEL
47'
54'
CORPUS CHRISTI SHIP CHANNEL
42'
52'
BRAZOS ISLAND HARBOR
N
W
E
S
KEY
Constructed Depth
Authorized Construction; Not Funded
Constructed Depth
Construction Ongoing

HYDRAULIC PIPELINE DREDGES





TRAILING SUCTION HOPPER DREDGES



SPLIT-HULL HOPPER DREDGE

MECHANICAL DREDGING EQUIPMENT

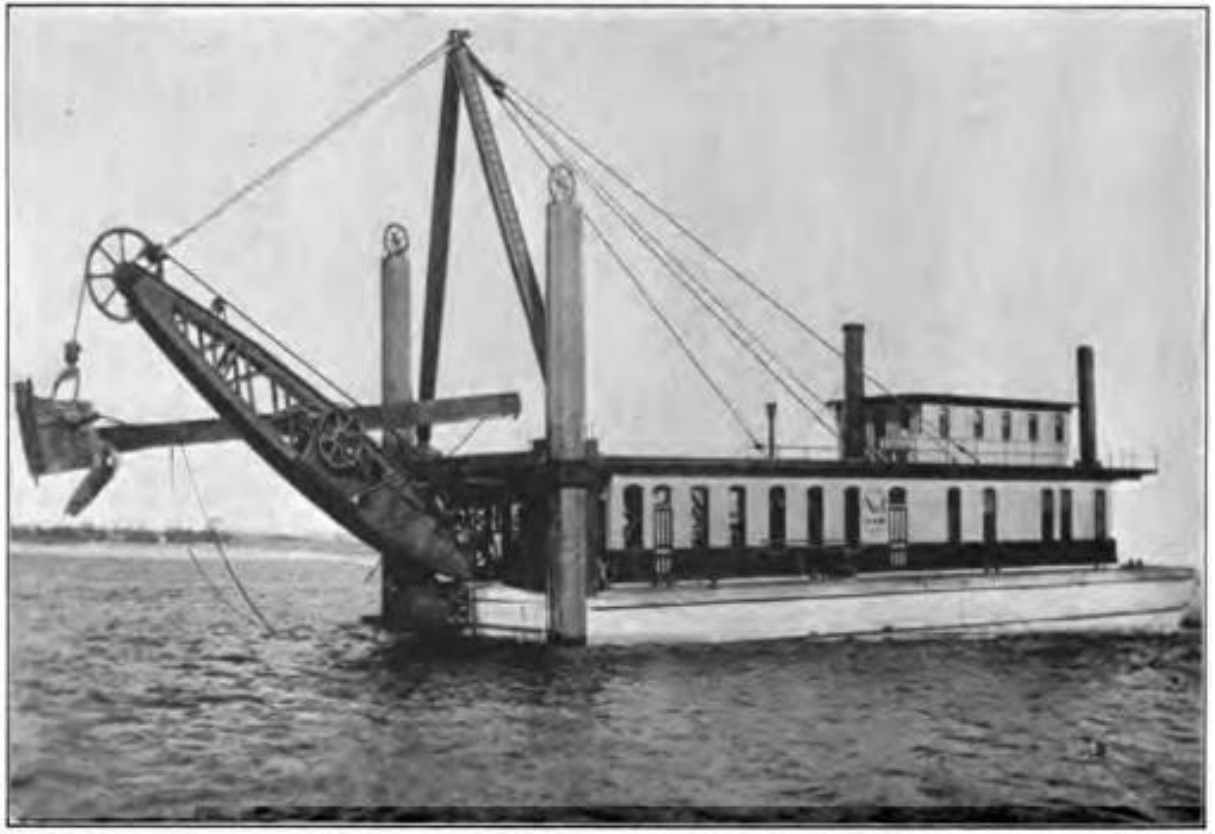


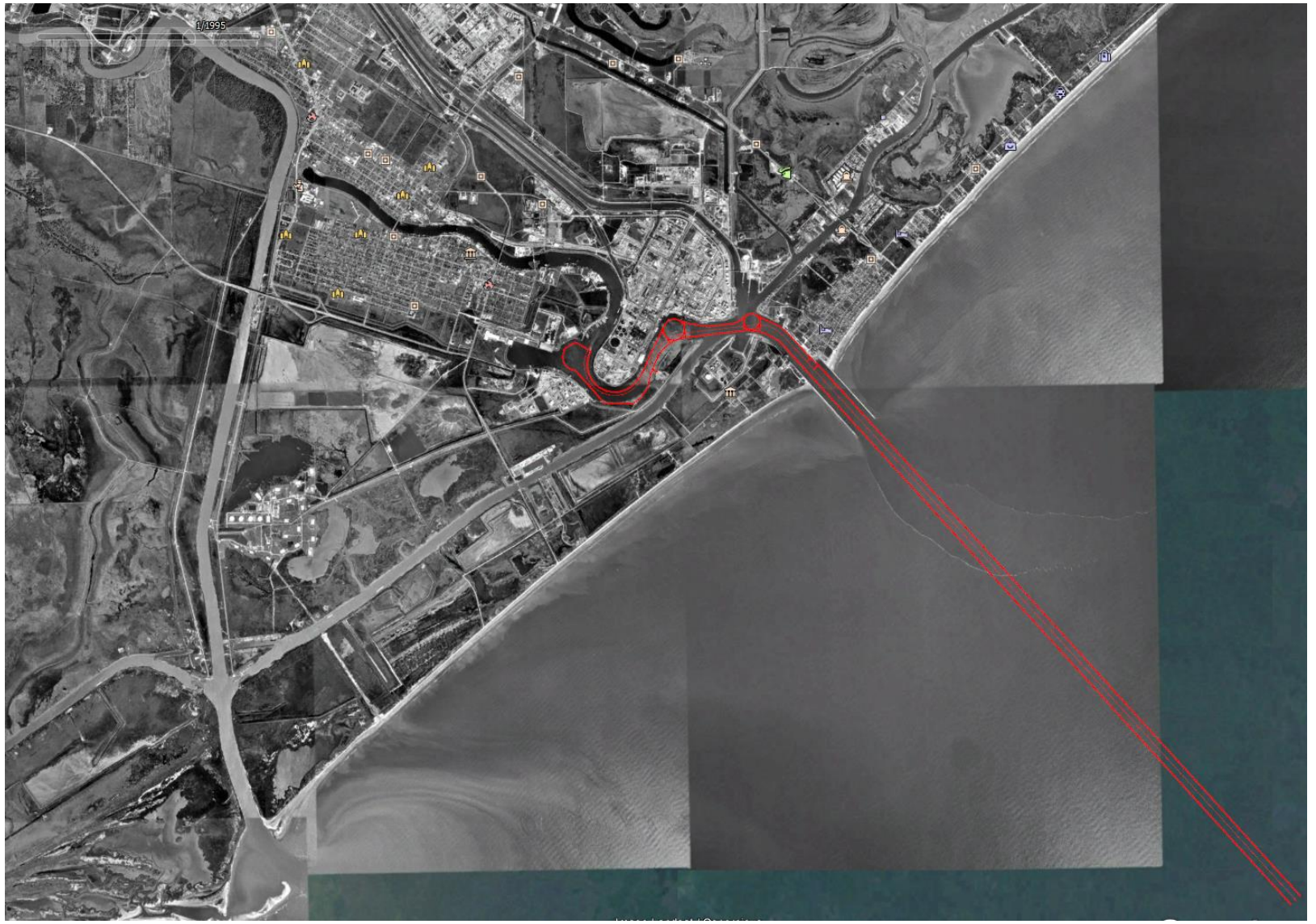
FIG. 9.—Six yard Bucyrus dipper dredge owned by Daly & Hannan—equipped with 16" × 18" main engines. (*Courtesy of the Bucyrus Co.*)

RESILIENT NAVIGATION

RESILIENT NAVIGATION

RESILIENT NAVIGATION

RESILIENT NAVIGATION



RESILIENT NAVIGATION

BUILDING STRONG®

RESILIENT NAVIGATION

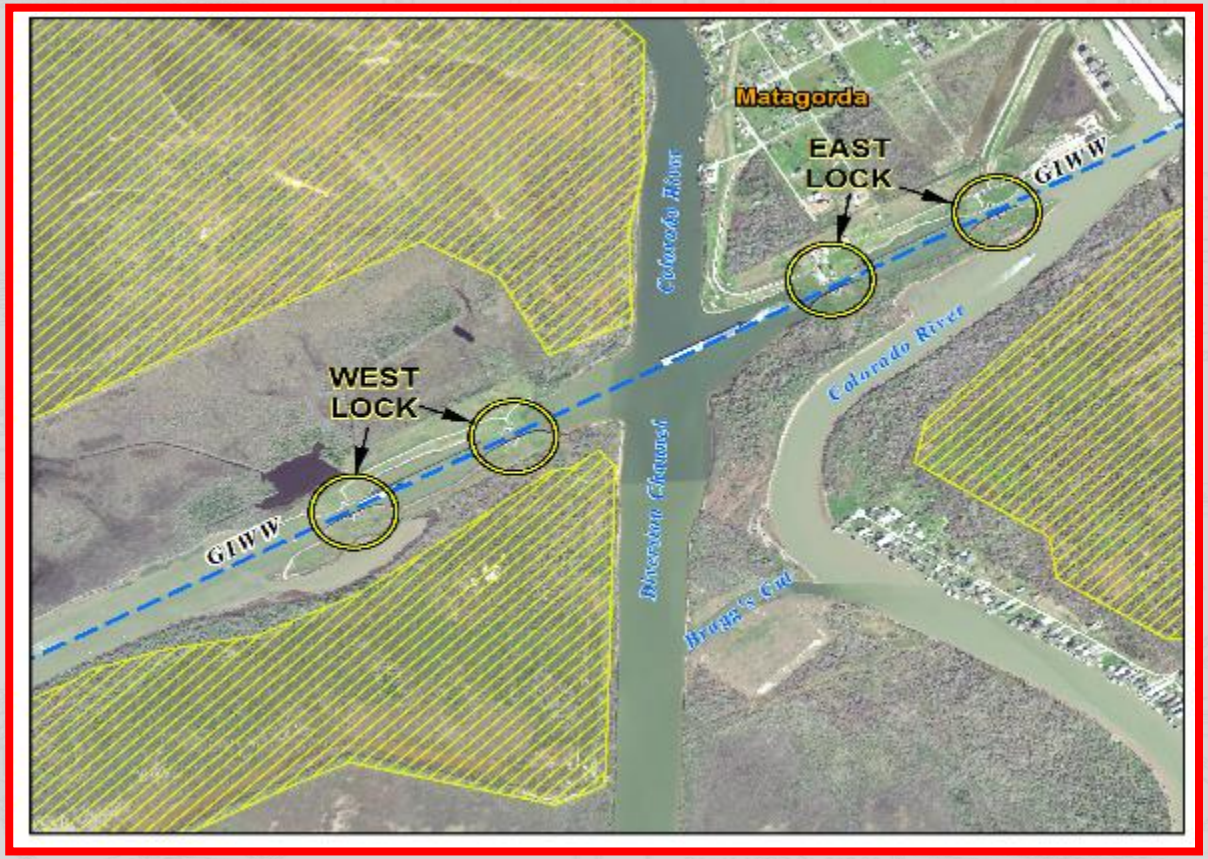
Brazos River Floodgates

- **Minimize shoaling at river crossings**
- **Safety**

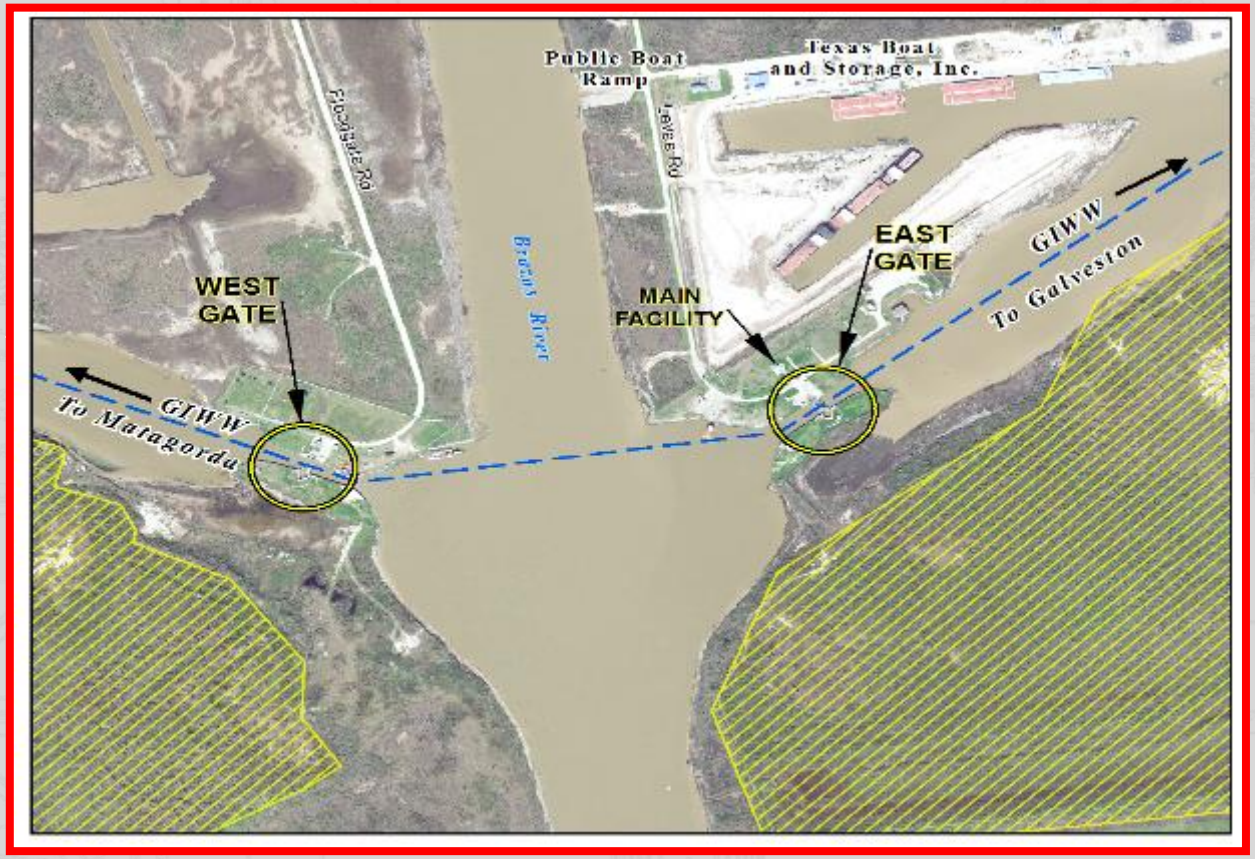
Colorado River Locks

RESILIENT NAVIGATION

Colorado River Locks



Brazos River Floodgates



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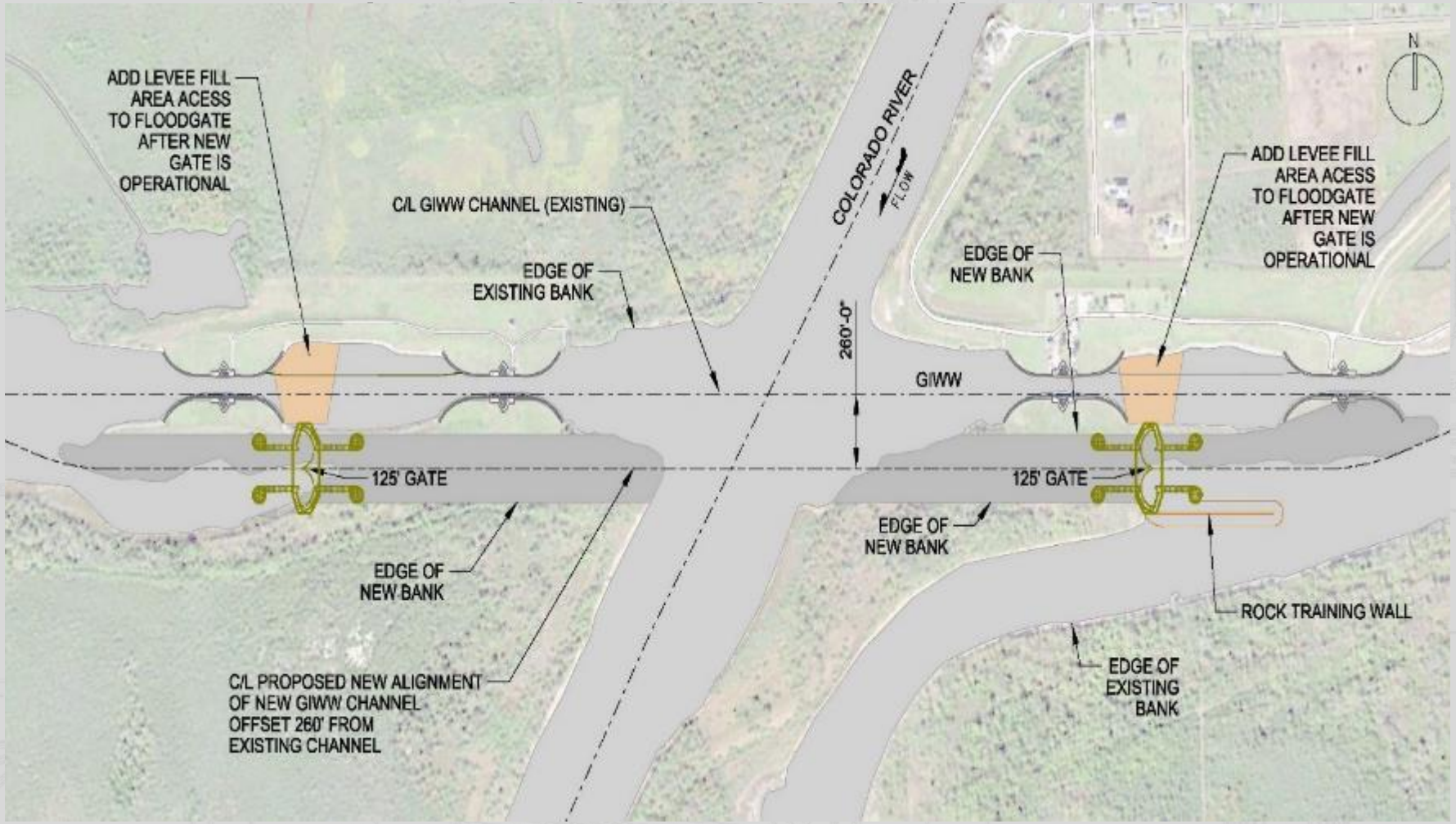
RECOMMENDED PLAN (CRL COMPONENT)

Convert both locks to 125’ flood Riverside floodgates on both sides of



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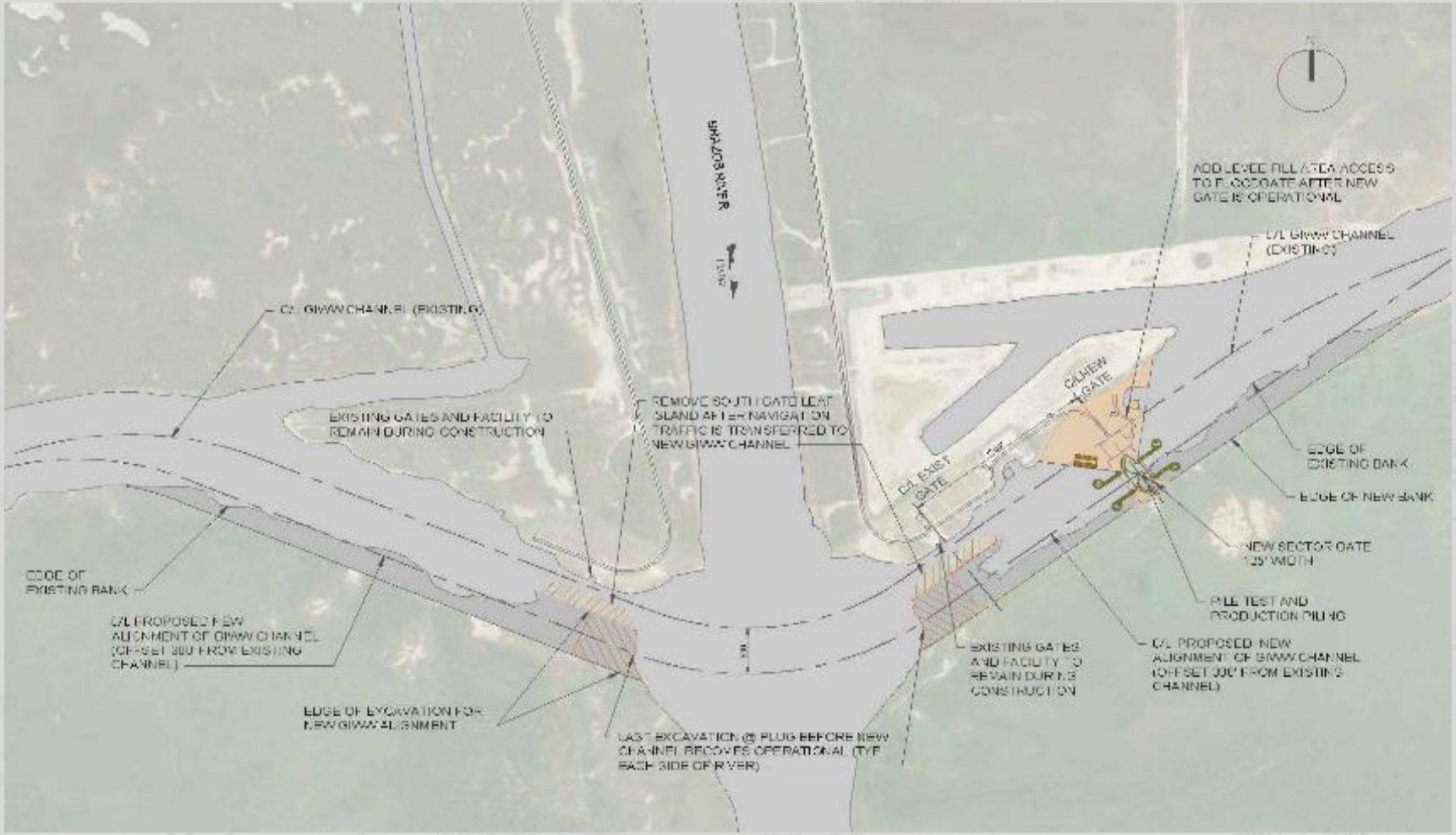
U.S.ARMY

RECOMMENDED PLAN (BRFG COMPONENT)

125’ Gates/Open West, New 125’ Sector Gate on East setback ~1,200’ from Existing



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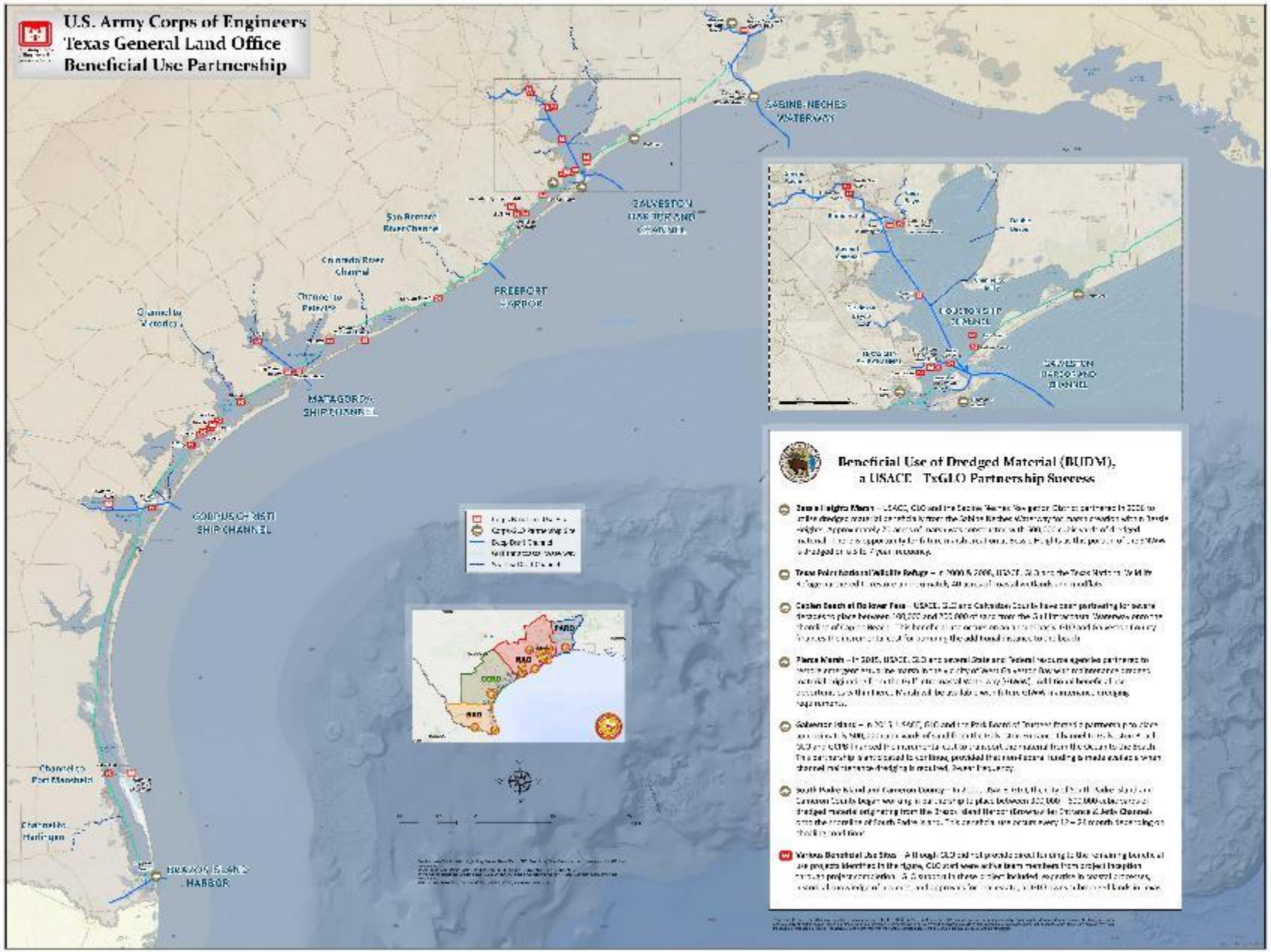
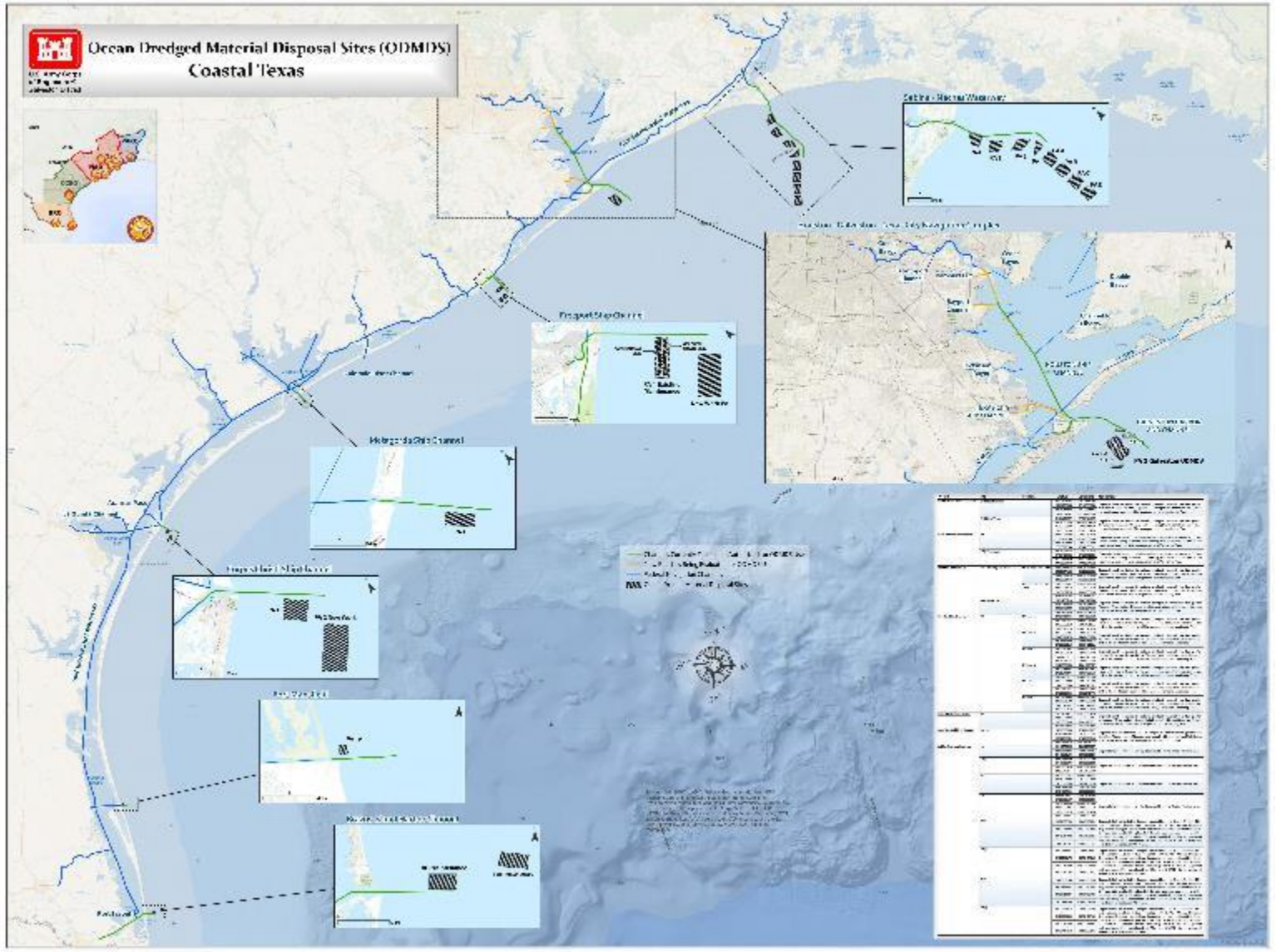
US Army Corps of Engineers.

U.S.ARMY

RESILIENCY NAVIGATION THROUGH BENEFICIAL USE

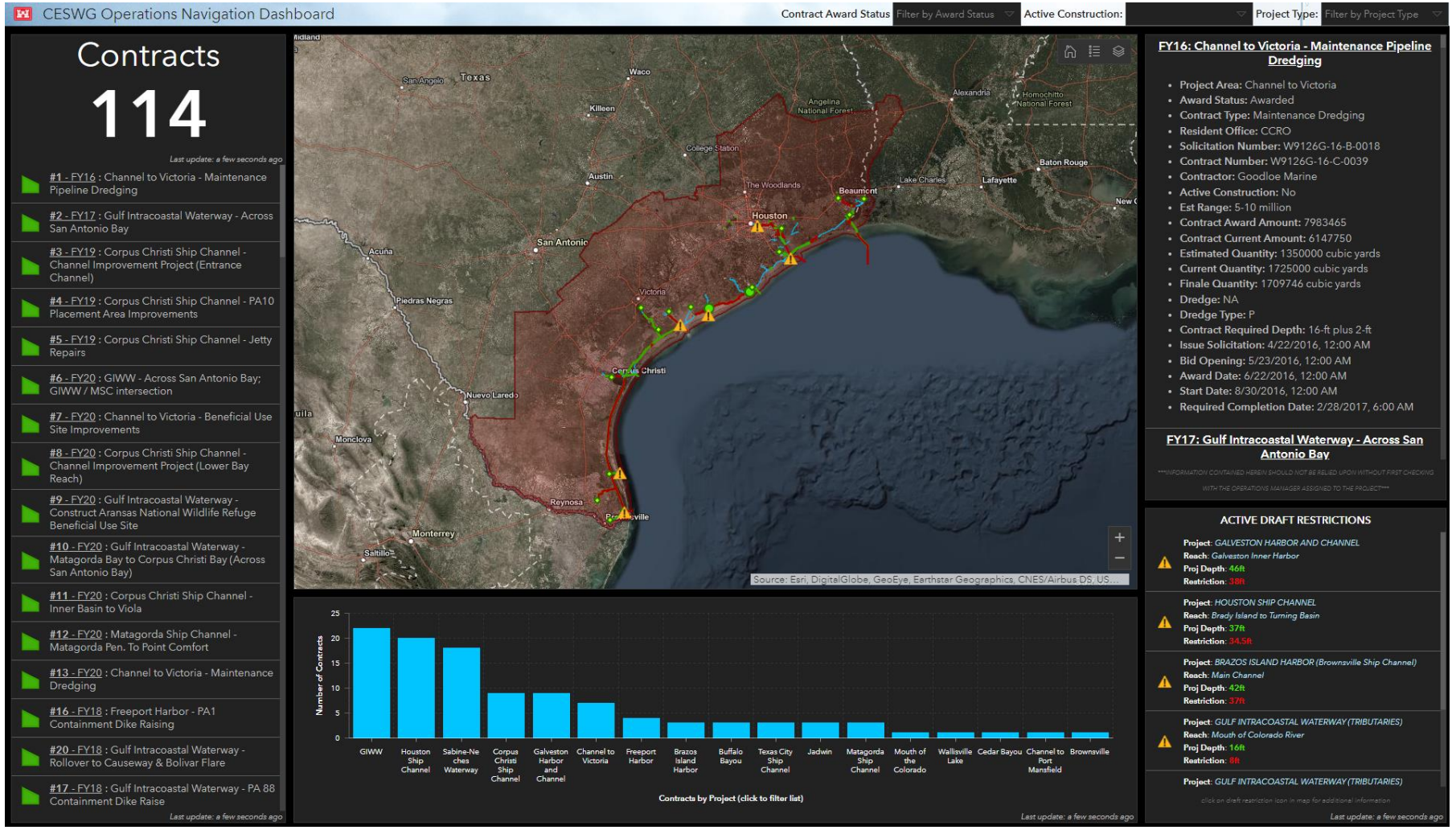


RESILIENT NAVIGATION THROUGH EXPANDED DREDGING/PLACEMENT OPTIONS



TECHNOLOGY & COMMUNICATION

OPERATIONS DASHBOARD

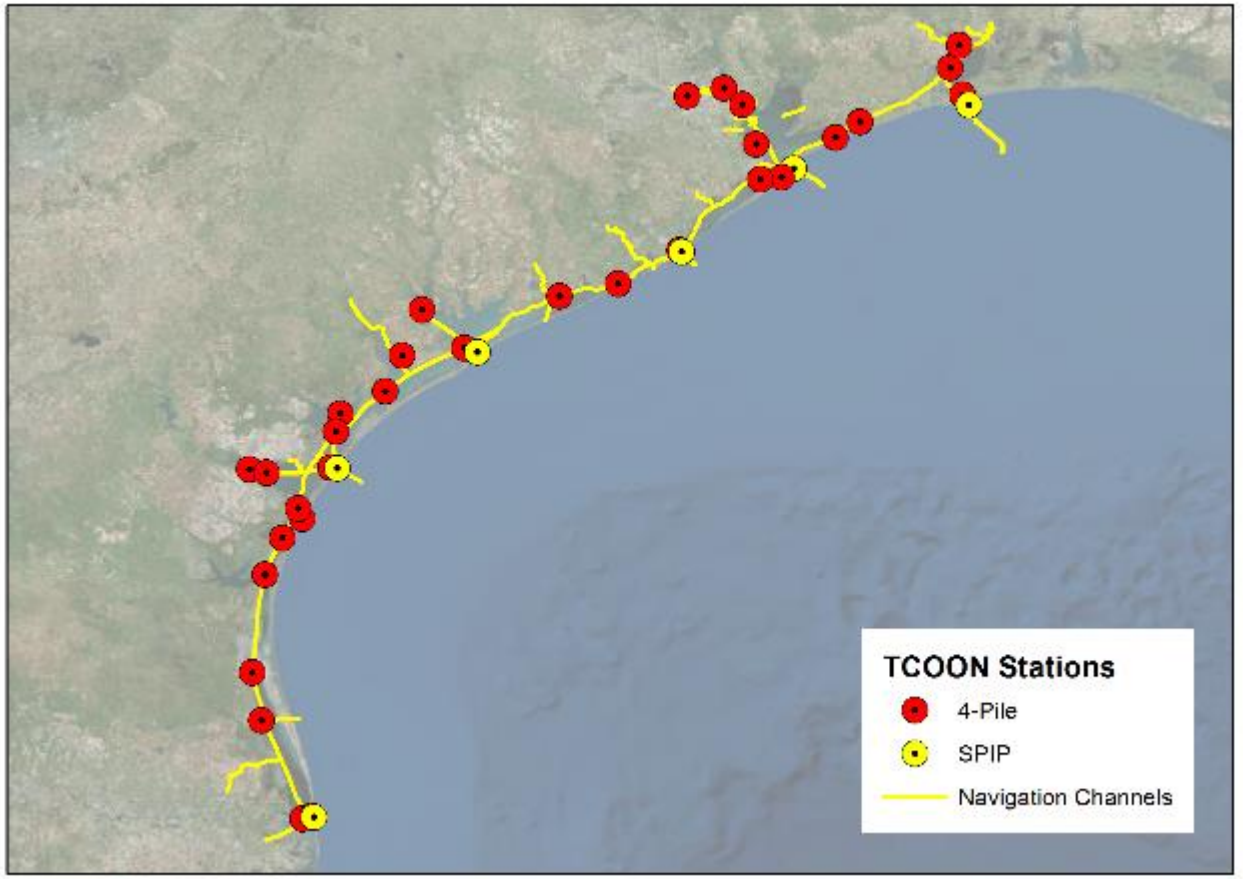


https://www.swg.usace.army.mil/Missions/Navigation/Navigation-Projects-Contracts/

TECHNOLOGY & COMMUNICATION

TEXAS COASTAL OCEAN OBSERVATION NETWORK

https://tidesandcurrents.noaa.gov/map/index.shtml?region=Texas



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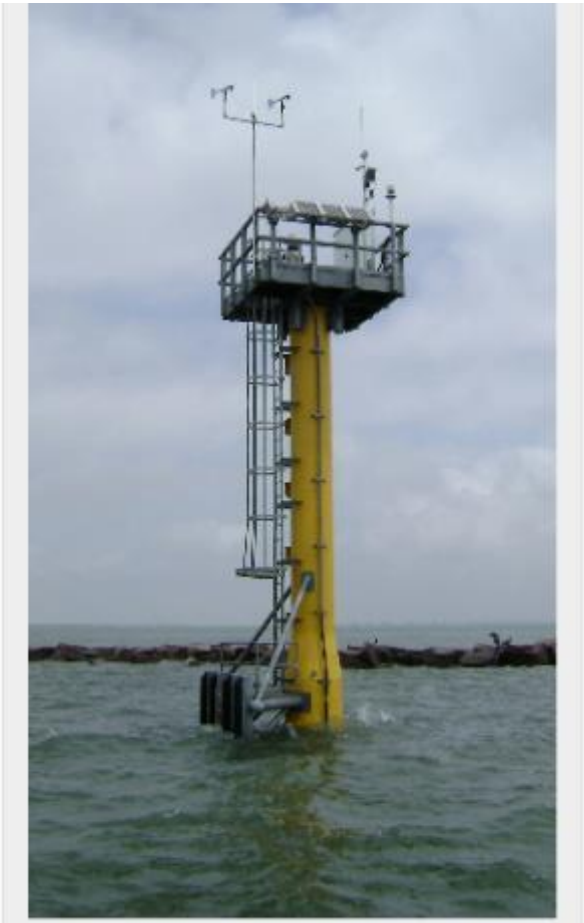


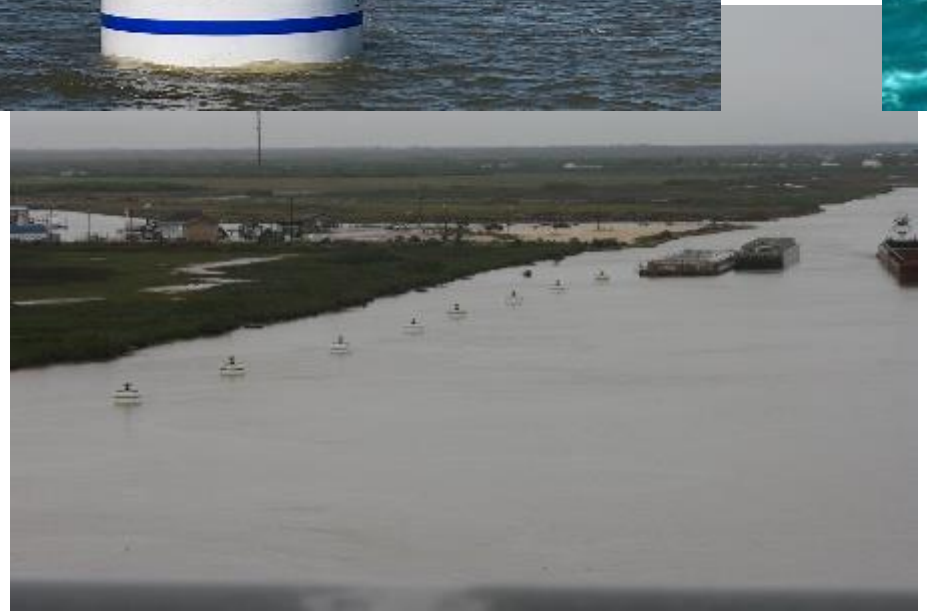
TCOON Sentinel Platform (Galveston, TX)

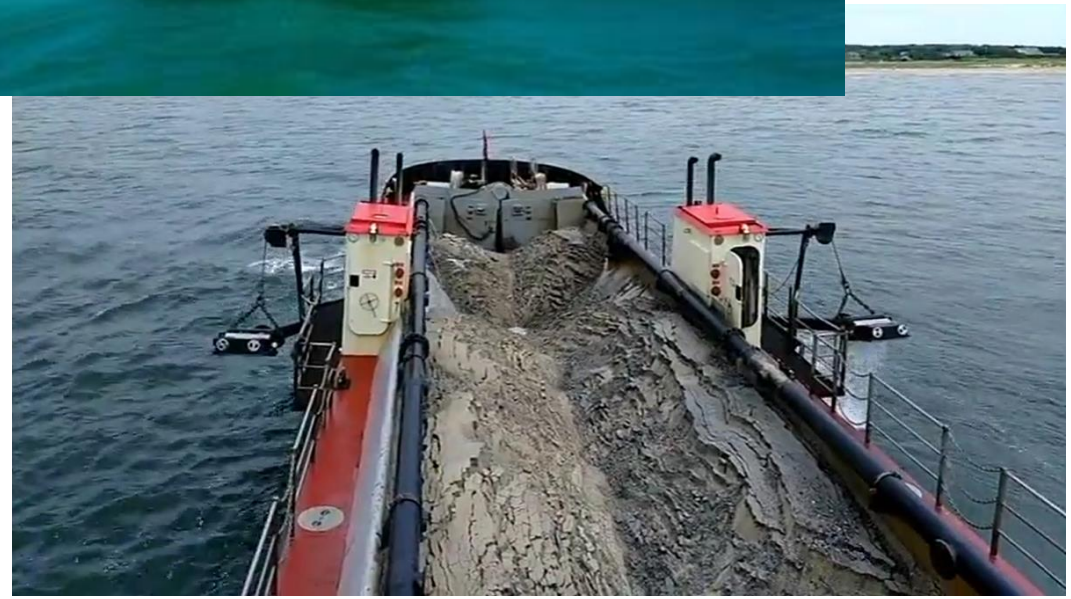
TCOON 4-Pile Platform (Packery Channel, TX)

USE OF USACE EQUIPEMENT/STAFF FOR SMALL-SCALE O&M

- M/V SNELL
  - Mooring Buoy Deployment, Re-spacing, Maintenance
  - Repair of Navigation Structures
  - Debris Removal
  - Geo-Technical Sampling
- Special Purpose Dredges MURDEN / CURRITUCK
  - Small Maintenance Dredging Applications
- Sister-District Work Crews
  - Memphis District
  - Savannah District
  - Rock Island District
  - Wilmington District
  - Vicksburg District

USE OF USACE EQUIPEMENT/STAFF FOR SMALL-SCALE O&M





INNOVATIVE ACQUISITION METHODS

- Indefinite Delivery Indefinite Quantity Contracts (IDIQ)
  - Multi-Award Task Order Contracts (MATOC)
  - Single-award Task Order Contracts (SATOC)

- Base Contract plus Options

- Regional Contracting (combining like-work)

QUESTIONS

US Army Corps of Engineers.

U.S.ARMY