

GALVESTON DISTRICT NAVIGATION – OPERATIONS AND MAINTENANCE

Fiscal Years 2018 – 2019 Budget Review & FY19 Scheduled Contracts

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U.S. Army Corps of Engineers
15 NOV 2018

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**US Army Corps
of Engineers**



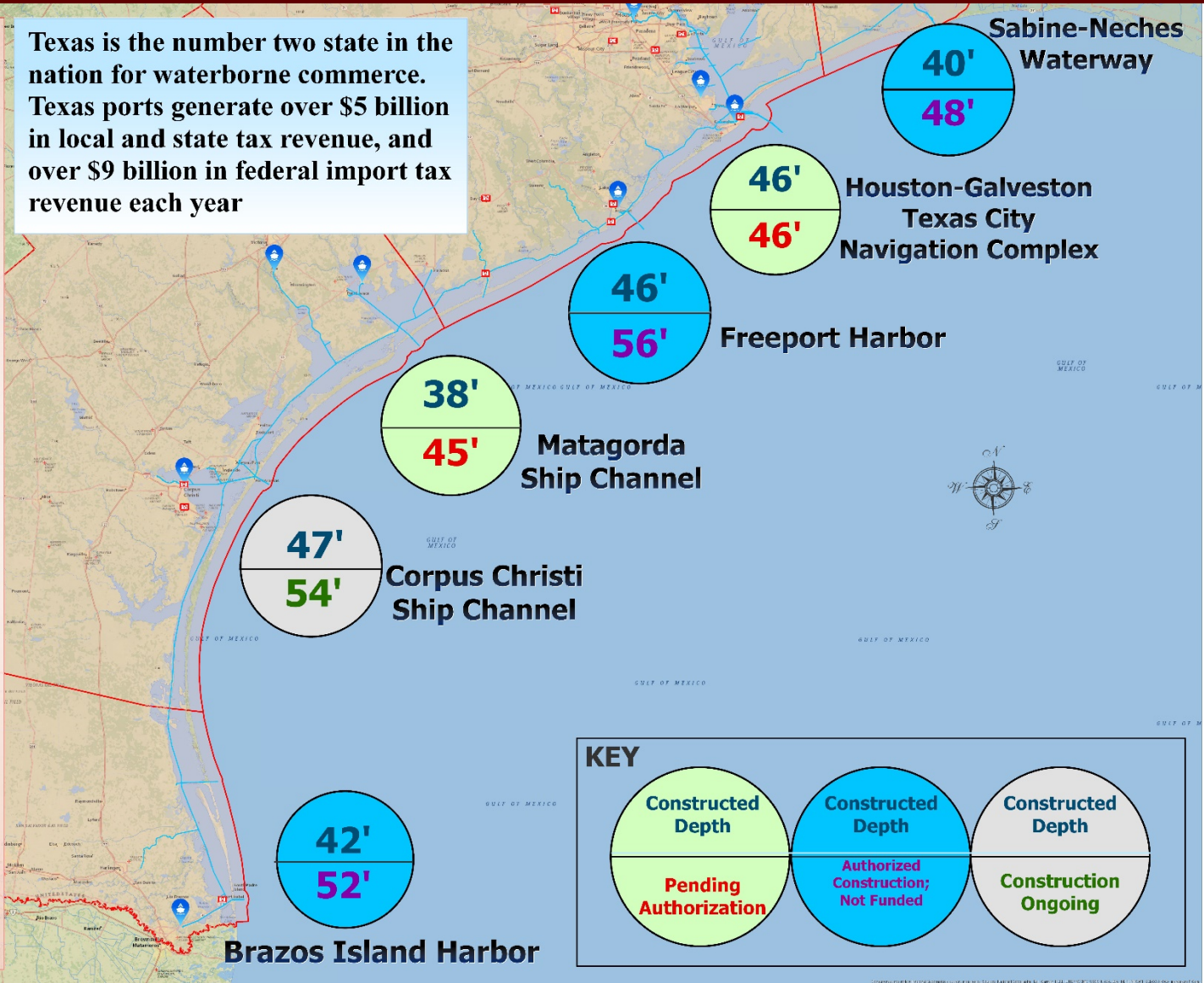
GALVESTON DISTRICT NAVIGATION CHANNELS



GALVESTON DISTRICT NAVIGATION CHANNELS

Texas is the number two state in the nation for waterborne commerce. Texas ports generate over \$5 billion in local and state tax revenue, and over \$9 billion in federal import tax revenue each year

- LEADING U.S. PORTS**
(2016 Tonnage)
- Houston #2 – 248.0 million tons**
#1 Foreign Tonnage & #2 Total Tonnage
 - Beaumont #5 – 84.5 m.tons**
#1 Military Port in World
 - Gulf Intracoastal Waterway**
(79 million tons – Texas portion)
#3 Inland Waterway
 - Corpus Christi #6 – 82.0 m.tons**
America's Energy Gateway
 - Texas City #15 – 41.3 m.tons**
Services Largest Petrochemical Complex
 - Port Arthur #20 – 35.2 m.tons**
Vital Break-Bulk Port
 - Freeport #33 – 19.6 m.tons**
Connecting Global Services
Via Caribbean Relay Port
 - Galveston #52 – 9.9 m.tons**
#4 Cruise Ship Port
 - Brownsville #66 – 7.3 m.tons**
#1 Ship Recycling Port
 - Victoria #74 – 5.1 m.tons**
#2 Shallow-Draft Port for Domestic
Crude Petroleum
 - Calhoun County Port #76 - 4.9 m.tons**
(Matagorda Ship Channel)
- 07 November 2018



KEY

Constructed Depth	Constructed Depth	Constructed Depth
Pending Authorization	Authorized Construction; Not Funded	Construction Ongoing



NAVIGATION O&M FUNDING

FISCAL YEAR 2018

President's Budget	\$114,598,000
Carry-in	\$ 18,472,000
Additional Workplan	<u>\$ 32,660,000</u>
Total Regular	\$159,480,000
FY17 Supplemental	\$ 23,712,000
FY18 Supplemental	\$ 66,762,000
Emergency 1%	<u>\$ 15,789,000</u>
Total Available in FY18	\$265,743,000
Total Obligated	\$233,412,000

Energy Transfer Port Funding

Corpus Christi Port Authority	\$ 1,553,000
Port of Houston Authority	\$ 990,000
Port of Beaumont	\$ 990,000
City of Texas City	\$ 990,000
Total Energy Transfer Port Funding (2018)	\$ 4,553,000



NAVIGATION O&M FUNDING

FISCAL YEAR 2019

President's Budget	\$ 84,150,000
Carry-in	\$ 25,268,000
Additional Workplan	\$ <u> TBD</u>
Minimum Regular	\$109,418,000
FY19 Supplemental	\$ 86,000,000
Carry-in	\$ <u> 7,063,000</u>
Total Supplemental	\$ 93,063,000
Minimum Available in FY19	\$202,481,000
<hr/>	
Additional Workplan Capability	\$ 90,035,000
Maximum Available in FY19	\$292,516,000
<hr/>	
Energy Transfer Port Funding	
Corpus Christi Port Authority	\$ 1,553,000 + TBD
Port of Houston Authority	\$ 990,000 + TBD
Port of Beaumont	\$ TBD
City of Texas City	\$ TBD
Total Energy Transfer Port Funding (2019)	\$ TBD

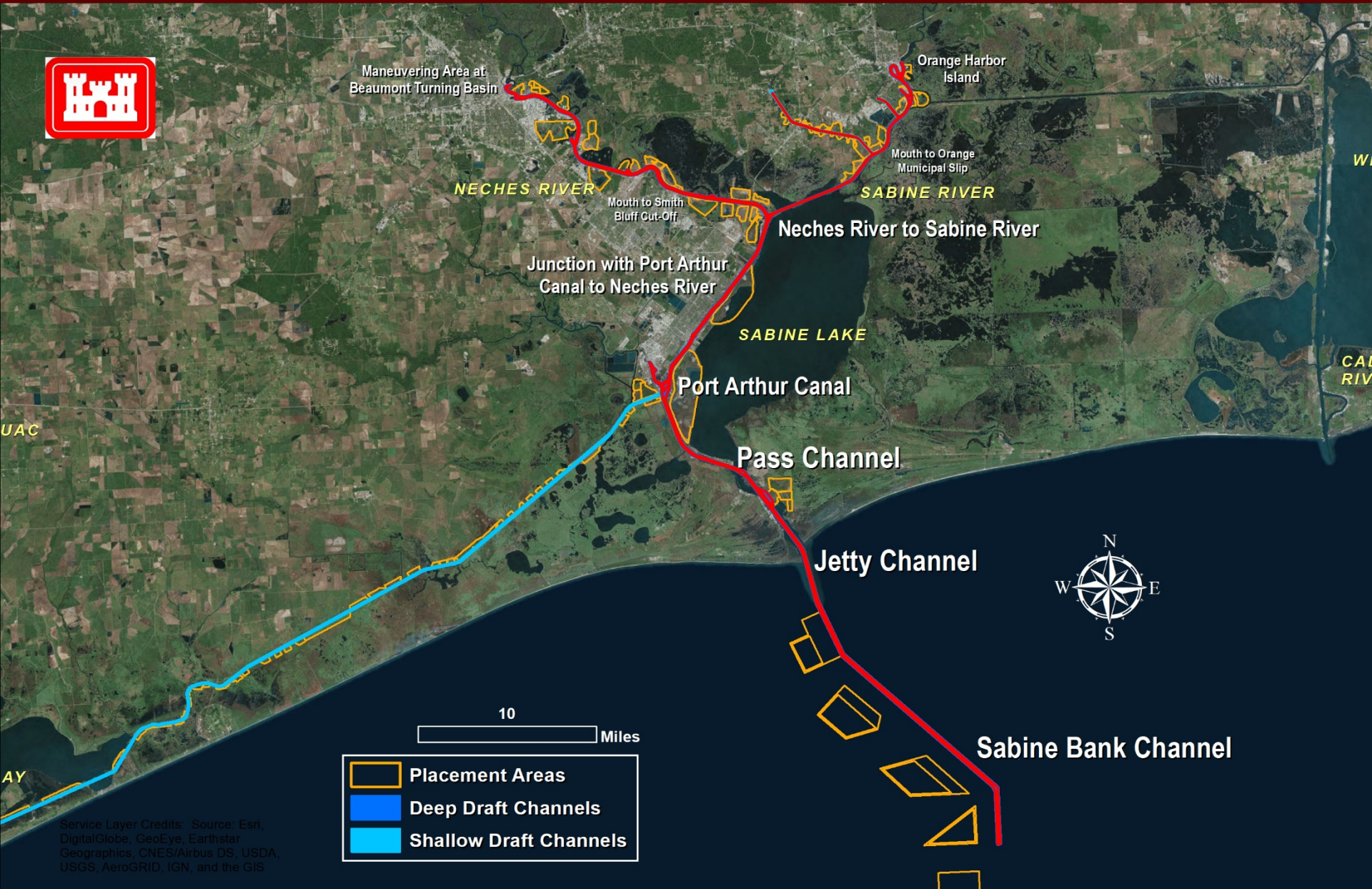


FY-19 INITIATIVES

- **Continue Hydrographic Survey Webpage**
 - All six (6) Deep Draft Navigation Complexes & Gulf Intracoastal Waterway online
 - <http://www.swg.usace.army.mil/Missions/Navigation.aspx>
- **Texas Coastal Ocean Observation Network (TCOON)**
 - Matagorda Ship Channel current meter installed in FY18
 - <https://tidesandcurrents.noaa.gov/map/index.shtml?region=Texas>
- **Gulf Intracoastal Waterway**
 - Mooring Buoy Re-Spacing & New Buoy Deployment
 - Mile Marker Installation
- **New Contracting Acquisition Methods**



Sabine-Neches Waterway



	Placement Areas
	Deep Draft Channels
	Shallow Draft Channels

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS



SABINE-NECHES WATERWAY – MAINTENANCE DREDGING



Type of Work: Maintenance Dredging

Dredging Depth: 42 ft. Required Depth

Dredging Width: N/A

Dredging Length: Varies

Dredging Quantity: 2,000,000 cy

Material Type: Silt/Clay

Placement Area: PA 8

Distance to PA: 1 - 5 Miles Avg.

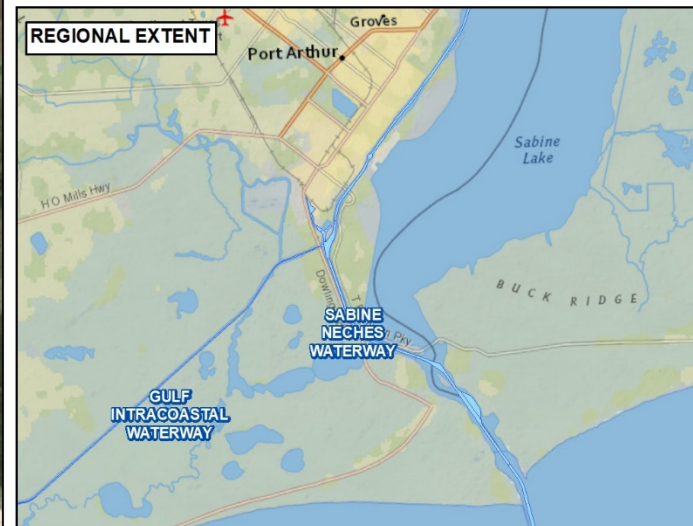
Type of Equipment: Pipeline

Env.Window: N/A

Reason for Window: N/A

Start Date: 8/24/2019

Est. Completion Date: 2/26/2019



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas



Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 0.25 0.5 1 Miles



SABINE-NECHES WATERWAY OUTER BAR AND BANK CHANNEL



Type of Work: Maintenance Dredging

Dredging Depth: 44 ft. Required Depth

Dredging Width: 800 ft.

Dredging Length: Varies

Dredging Quantity: 1,500,000 cy

Material Type: Silt

Placement Area: ODMDS 1-4

Distance to PA: 1.5 - 3 Miles Avg.

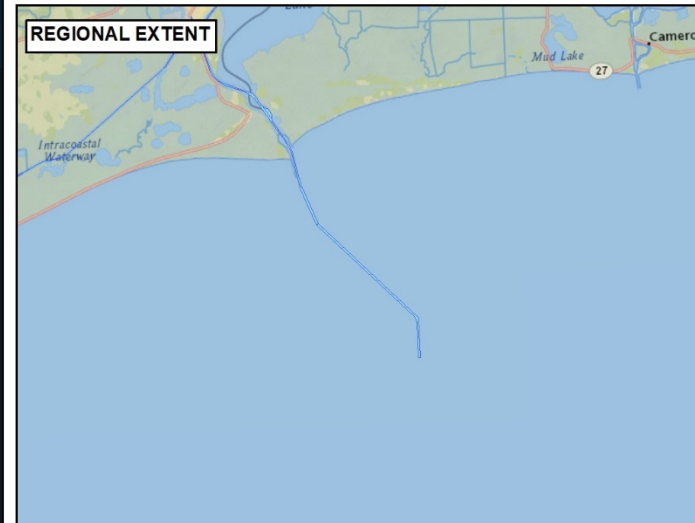
Type of Equipment: Hopper

Env.Window: N/A

Reason for Window: N/A

Start Date: 11/20/2019

Est. Completion Date: 1/30/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

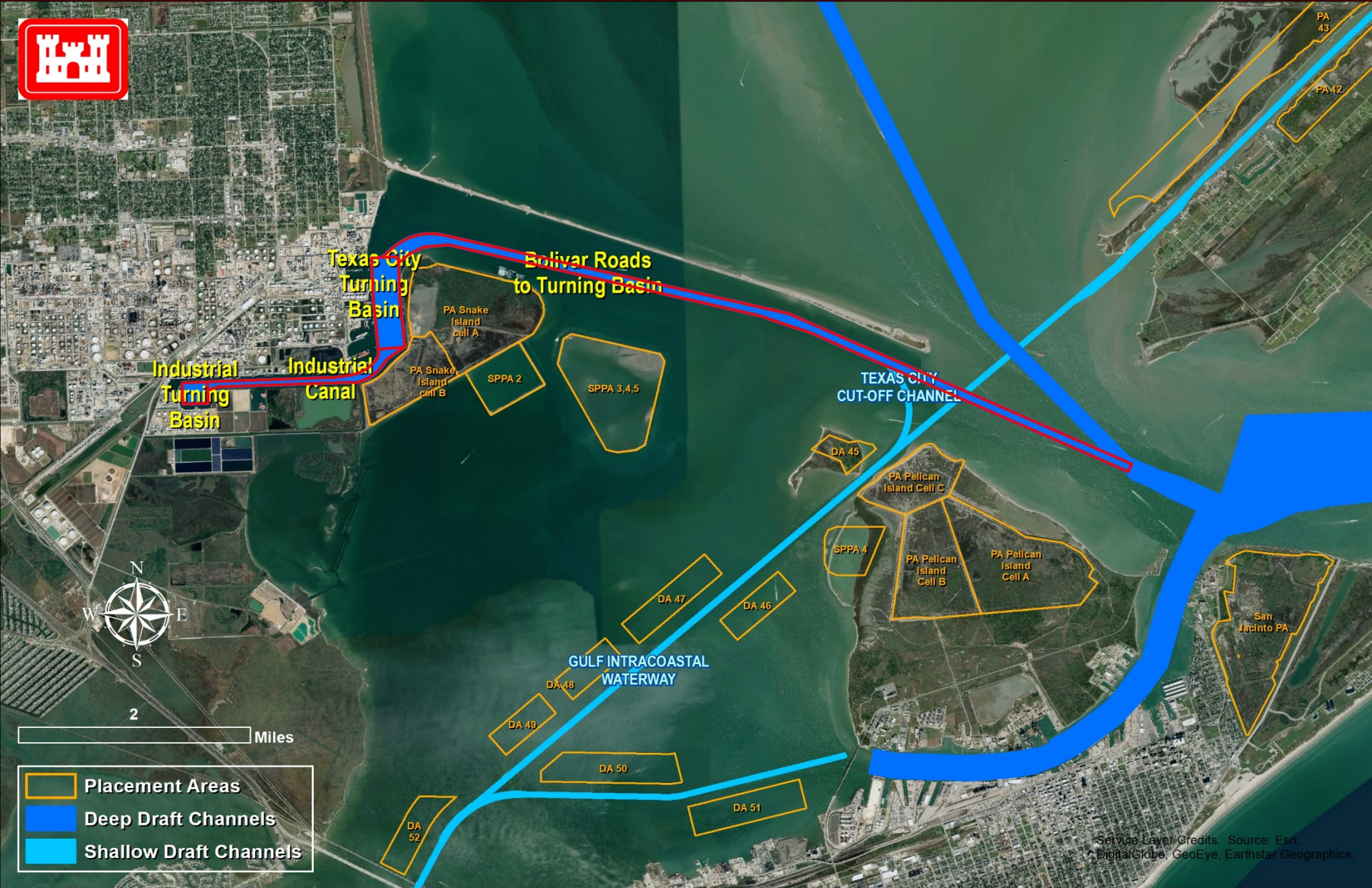




Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 0.5 1 2 Miles



TEXAS CITY SHIP CHANNEL



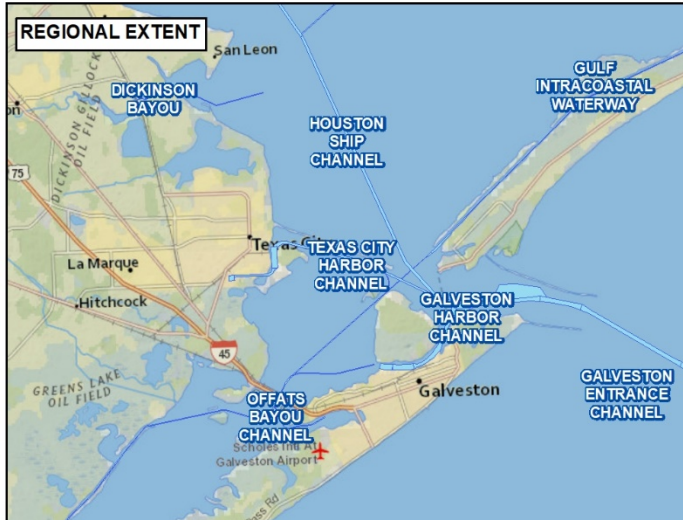
-  Placement Areas
-  Deep Draft Channels
-  Shallow Draft Channels



TEXAS CITY CHANNEL MAIN CHANNEL



Type of Work: Maintenance Dredging
Dredging Depth: 48 ft. Required Depth
Dredging Width: 400ft.
Dredging Length: Varies
Dredging Quantity: 600,000 cy
Material Type: Sand/Silt
Placement Area: SPPA 3, 4, 5
Distance to PA: 1-3 Mile Avg.
Type of Equipment: Pipeline
Env.Window: N/A
Reason for Window: N/A
Start Date: 1/18/2019
Est. Completion Date: 3/5/2019



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 0.25 0.5 1 Miles



HOUSTON SHIP CHANNEL – GALVESTON HARBOR & CHANNEL



HOUSTON SHIP CHANNEL

JACINTO POINT

BARBOURS TERMINAL CHANNEL

BAYPORT CHANNEL




TEXAS CITY HARBOR CHANNEL

GALVESTON HARBOR CHANNEL

GALVESTON ENTRANCE CHANNEL



10 Miles

-  Placement Areas
-  Deep Draft Channels
-  Shallow Draft Channels

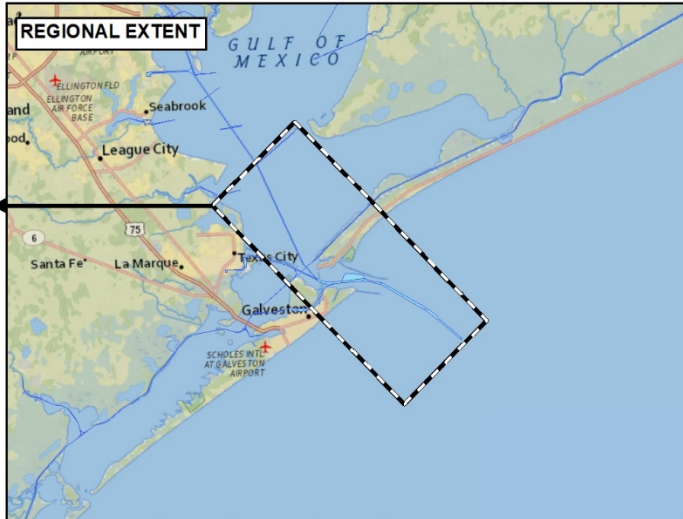
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,



GALVESTON HARBOR - GALVESTON ENTRANCE CHANNEL AND HSC - BOLIVAR ROADS TO REDFISH



Type of Work: Maintenance Dredging
Dredging Depth: 48-50 ft. Required Depth
Dredging Width: 530 – 1,000 ft.
Dredging Length: 17 miles
Dredging Quantity: 2,000,000 cy
Material Type: Sand/Silt
Placement Area: Offshore
Distance to PA: 1 - 15 Mile
Type of Equipment: Hopper
Env.Window: N/A
Reason for Window: N/A
Start Date: 5/26/2019
Est. Completion Date: 9/23/2019



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 0.5 1 2 Miles



HOUSTON SHIP CHANNEL – REDFISH TO BEACON 78 WITH BAYPORT FLARE



Type of Work: Maintenance Dredging
Dredging Depth: 48 ft. Required Depth
Dredging Width: 530 ft.
Dredging Length: Varies
Dredging Quantity: 2,000,000 cy
Material Type: Sand
Placement Area: Offshore
Distance to PA: Varies
Type of Equipment: Hopper
Env.Window: N/A
Reason for Window: N/A
Start Date: 7/19/2019
Est. Completion Date: 11/16/2019



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

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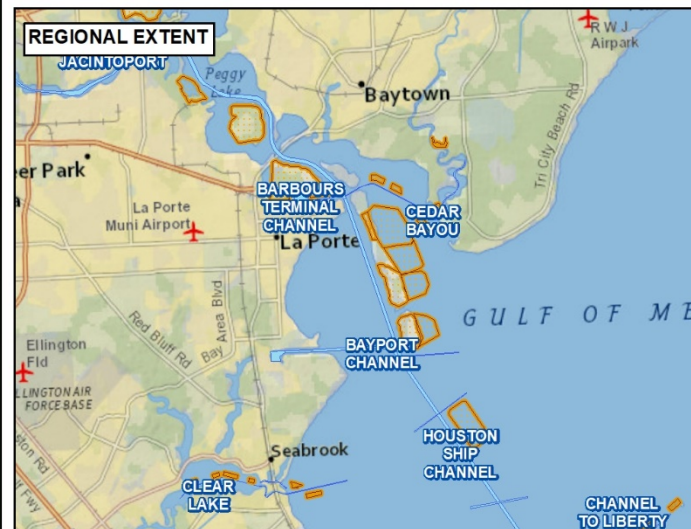
0 0.25 0.5 1 Miles



HOUSTON SHIP CHANNEL – BAYPORT TO MORGANS POINT



Type of Work: Maintenance Dredging
Dredging Depth: 48 ft. Required Depth
Dredging Width: 300 - 530 ft.
Dredging Length: Varies
Dredging Quantity: 800,000 cy
Material Type: Silt
Placement Area: Marsh Cells
Distance to PA: 4 Mile Avg.
Type of Equipment: Pipeline
Env.Window: N/A
Reason for Window: N/A
Start Date: 9/12/2019
Est. Completion Date: 1/10/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas



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0 0.25 0.5 1 Miles

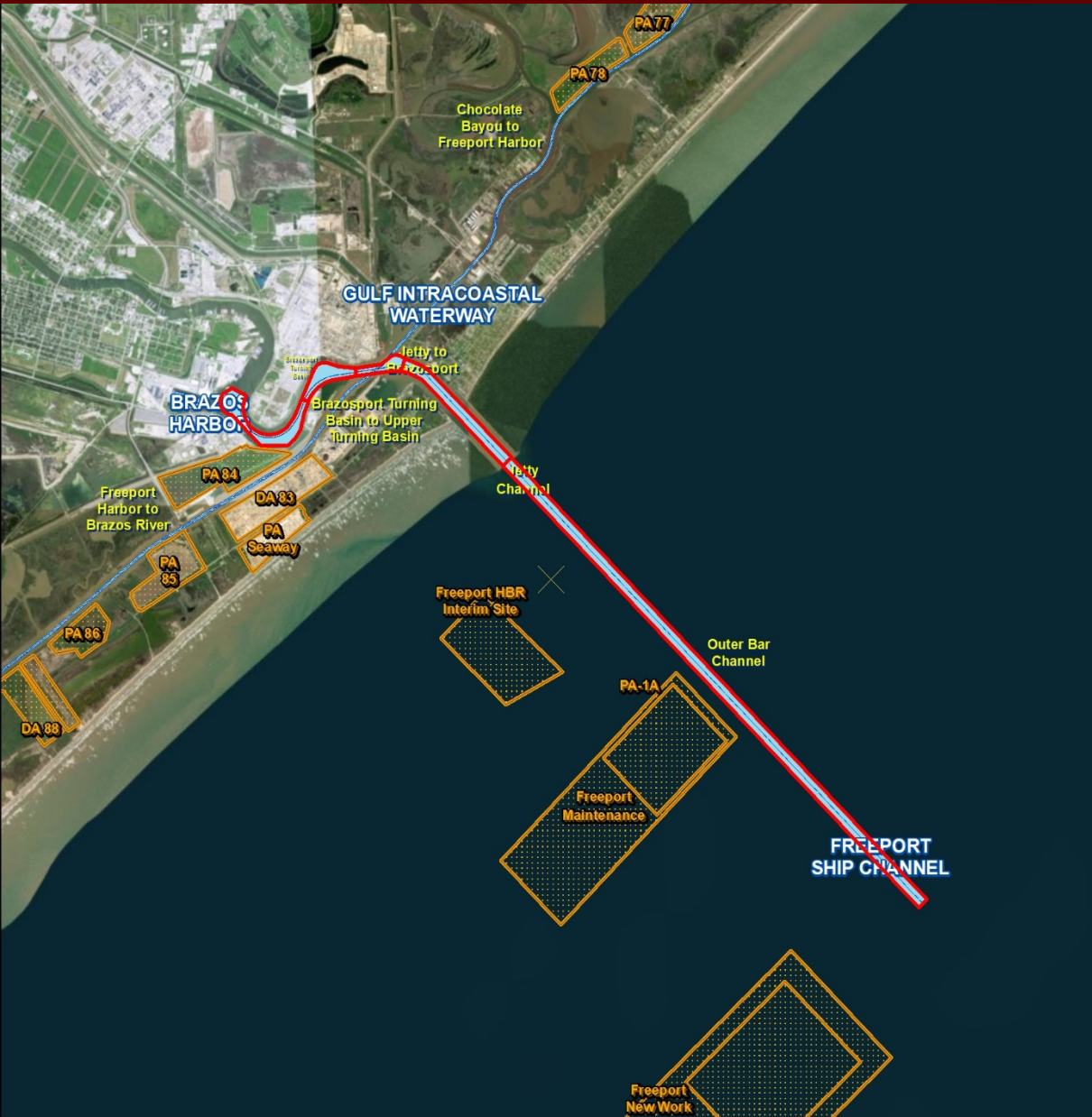


Freeport Harbor

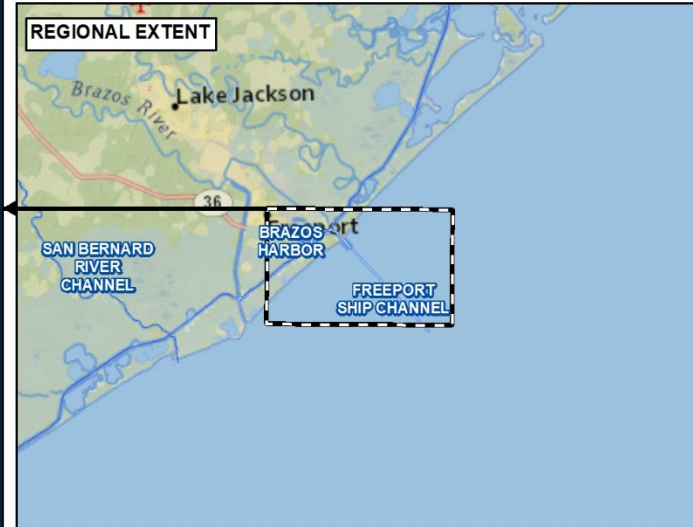




FREEPORT HARBOR ENTRANCE, JETTY AND INSIDE CHANNEL



Type of Work: Maintenance Dredging
Dredging Depth: 46 ft. Required Depth
Dredging Width: 280 - 1190 ft.
Dredging Length: Varies
Dredging Quantity: 2,600,000 cy
Material Type: Clay/Silt
Placement Area: Offshore
Distance to PA: 2.5 Mile Avg.
Type of Equipment: Hopper
Env.Window: N/A
Reason for Window: N/A
Start Date: 6/28/2019
Est. Completion Date: 11/11/2019



Channel Framework

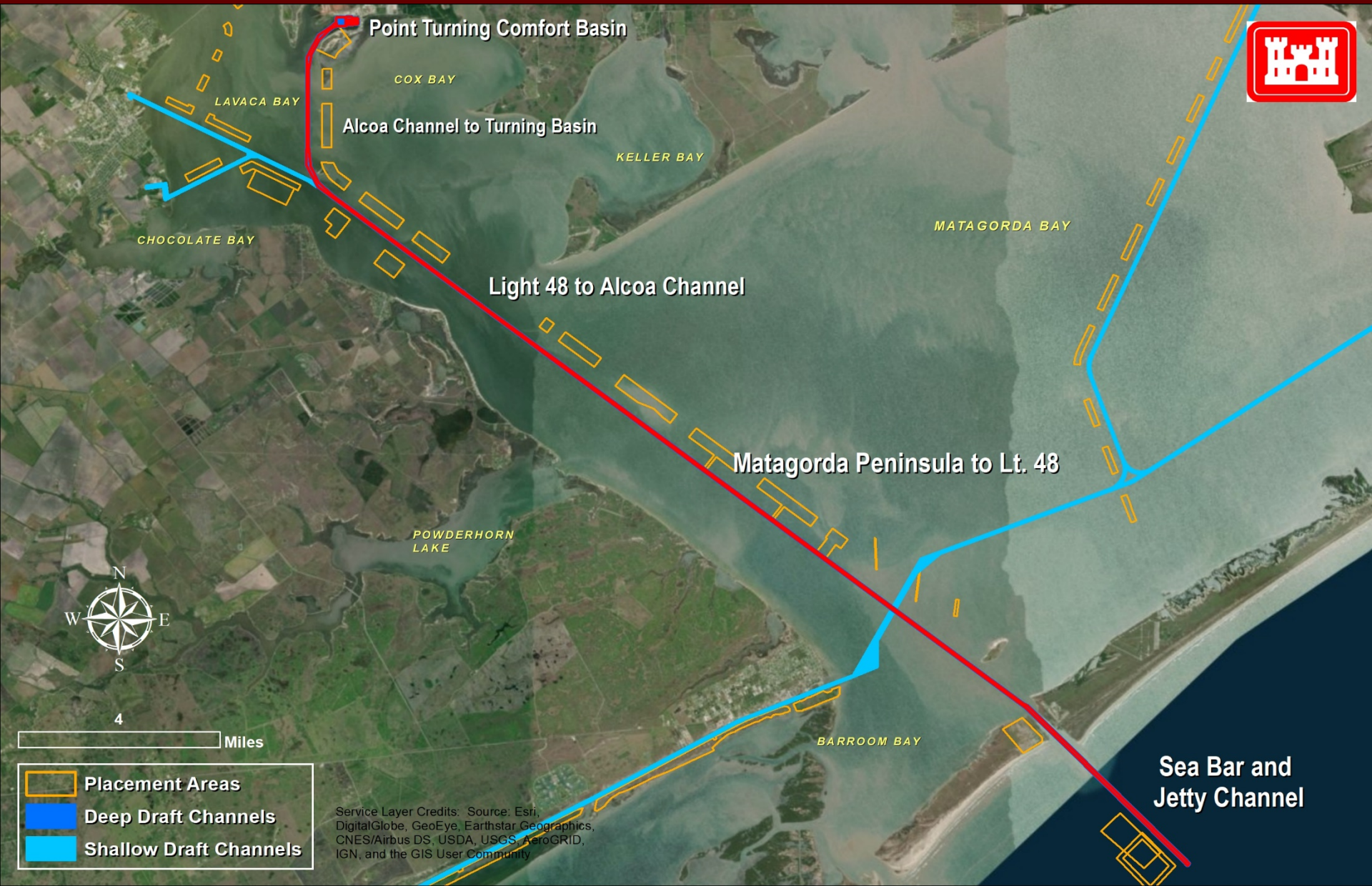
- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 0.3 0.6 1.2 Miles



Matagorda Ship Channel



Point Turning Comfort Basin

COX BAY

Alcoa Channel to Turning Basin

KELLER BAY

LAVACA BAY

MATAGORDA BAY

CHOCOLATE BAY

Light 48 to Alcoa Channel

Matagorda Peninsula to Lt. 48




POWDERHORN LAKE

BARROOM BAY

Sea Bar and Jetty Channel



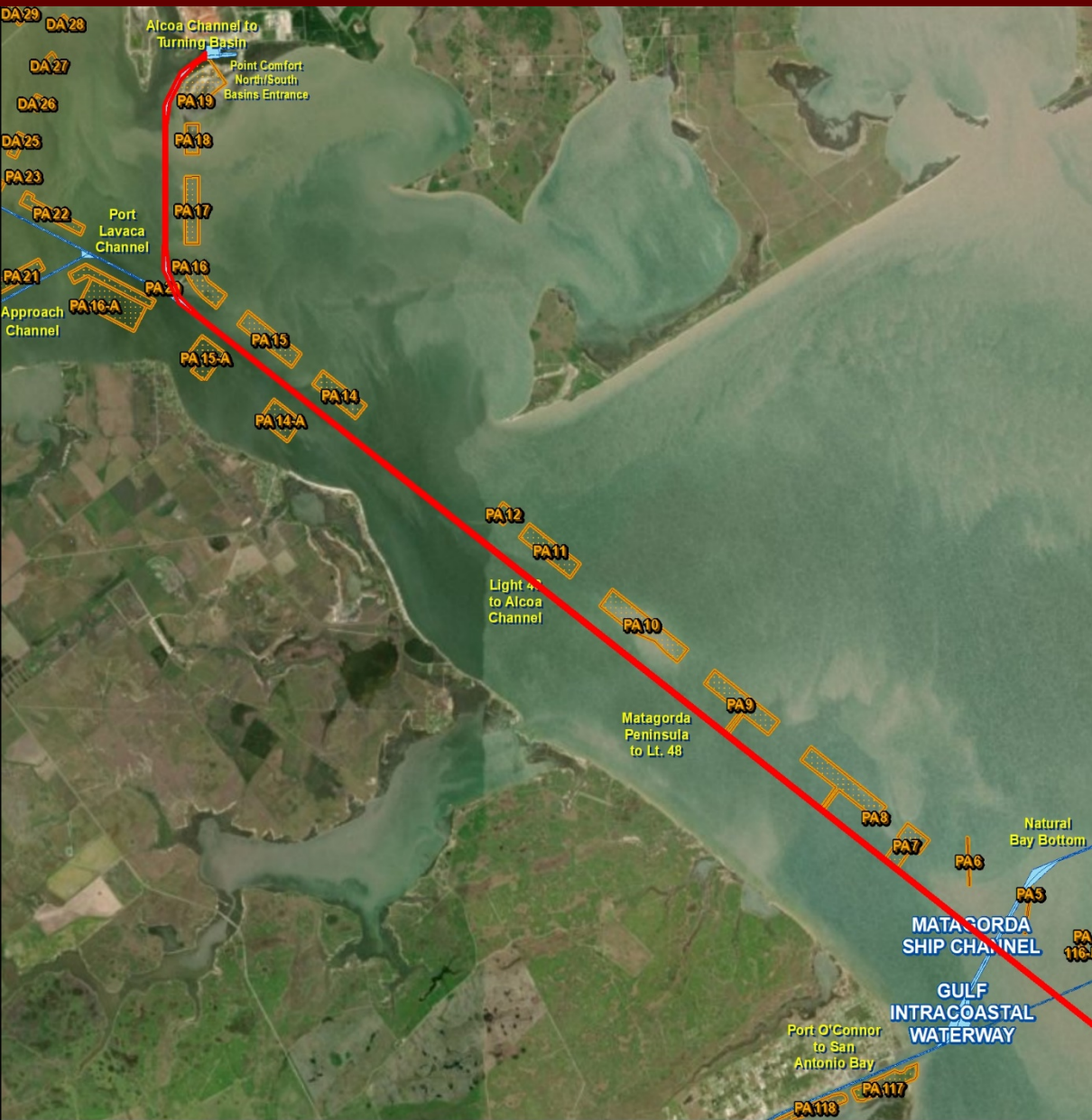
4 Miles

-  Placement Areas
-  Deep Draft Channels
-  Shallow Draft Channels

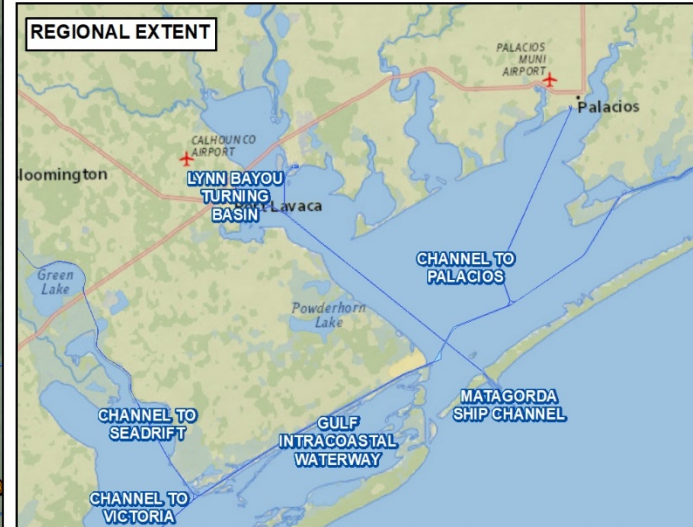
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



MATAGORDA SHIP CHANNEL MATAGORDA PENINSULA TO POINT COMFORT



Type of Work: Maintenance Dredging
Dredging Depth: 40 ft. Required Depth
Dredging Width: 200 ft.
Dredging Length: Varies
Dredging Quantity: 3,000,000 cy
Material Type: Sand/Silt
Placement Area: Open Water/Semi Confined
Distance to PA: Varies
Type of Equipment: Pipeline
Env.Window: N/A
Reason for Window: Nesting Birds Sundown Island
Start Date: 9/30/2019
Est. Completion Date: 5/13/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas



Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.





Corpus Christi Ship Channel



5 Miles

- Placement Areas
- Deep Draft Channels
- Shallow Draft Channels

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LA QUINTA SHIP CHANNEL

La Quinta Extension (San Patricio Basin)

JEWEL FULTON CANAL

ARANSAS PASS

Humble Basin to Junction at La Quinta Channel

CORPUS CHRISTI SHIP CHANNELS

Channel to La Quinta

Jetty Channel

Sea Bar Channel

Viola Channel

NUECES BAY

RINCON CANAL

Tule Lake Turning Basin

Tule Lake Channel

Main Turning Basin

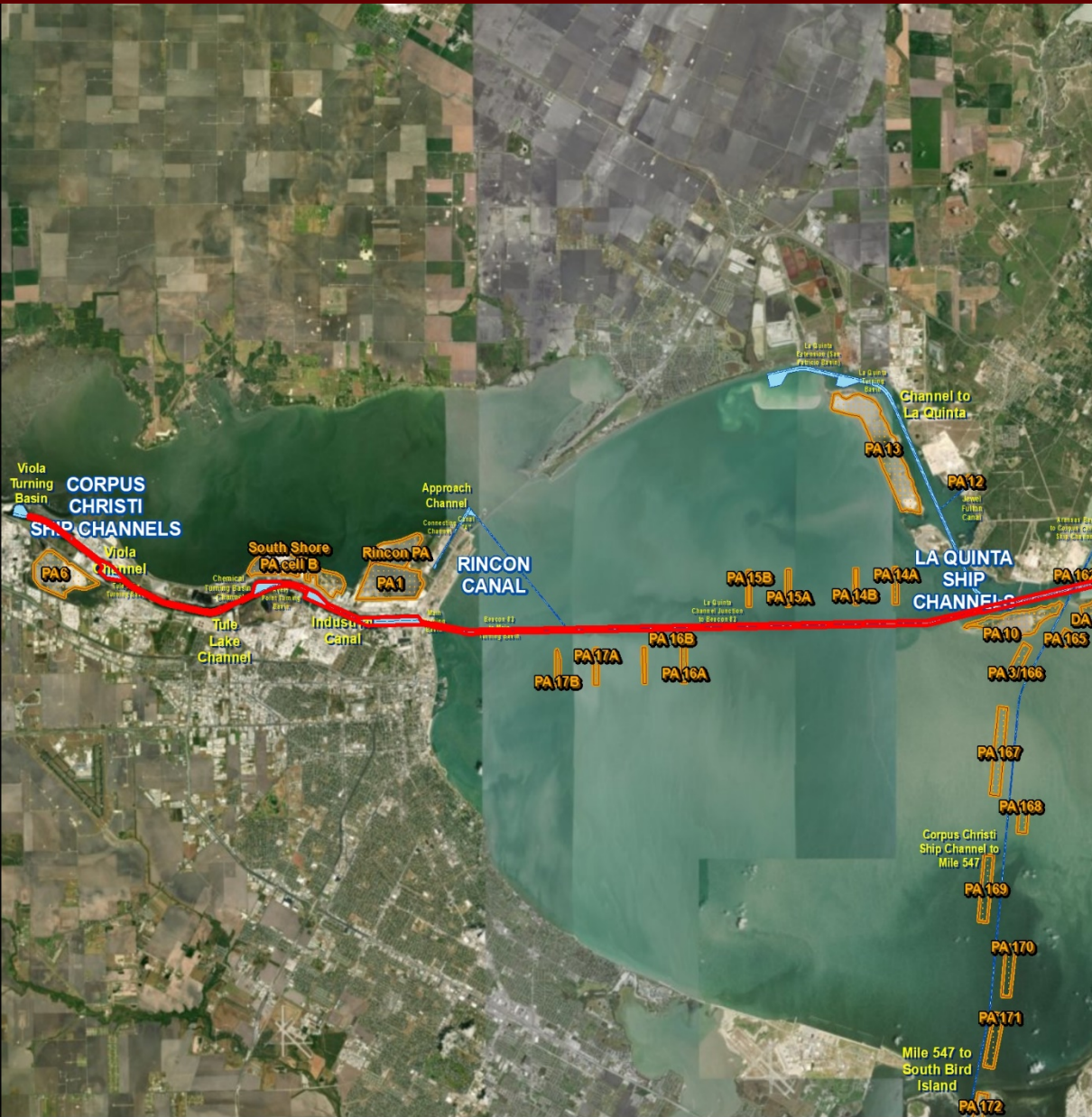
Beacon 82 to Main Turning Basin

La Quinta Channel Junction to Beacon 82

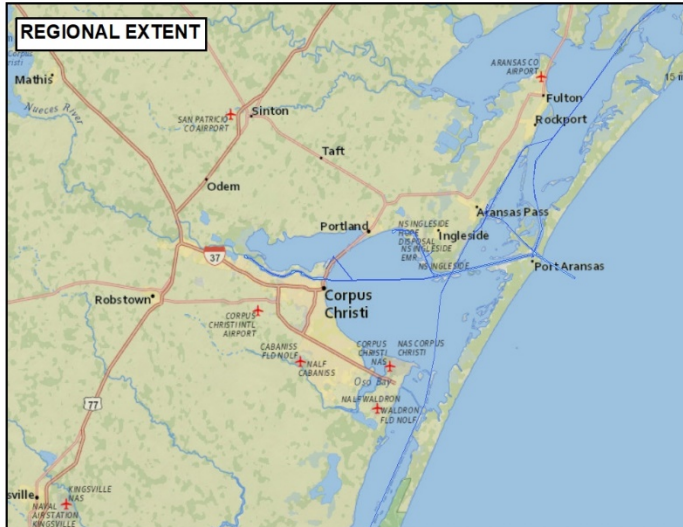
GIWW



CORPUS CHRISTI SHIP CHANNEL INNER BASIN TO VIOLA



Type of Work: Maintenance Dredging
Dredging Depth: 49-ft. Required Depth
Dredging Width: 300-400ft.
Dredging Length: Varies
Dredging Quantity: 2,500,000 cy
Material Type: Sand/Silt
Placement Area: Open Water and Upland
Distance to PA: 1-4 Miles
Type of Equipment: Pipeline
Env.Window: N/A
Reason for Window: N/A
Start Date: 8/20/2019
Est. Completion Date: 4/15/2020



Channel Framework




- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



CHANNEL TO VICTORIA



-  Placement Areas
-  Deep Draft Channels
-  Shallow Draft Channels

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,



GULF INTRACOASTAL WATERWAY - MOUTH OF COLORADO RIVER CHANNEL



- Placement Areas
- Deep Draft Channels
- Shallow Draft Channels

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,



GULF INTRACOASTAL WATERWAY MOUTH OF COLORADO RIVER ENTRANCE AND JETTY CHANNEL



Type of Work: Maintenance Dredging
Dredging Depth: 12-15ft
Dredging Width: 100 - 150ft.
Dredging Length: Varies
Dredging Quantity: 750,000 cy
Material Type: Sand/Silt
Placement Area: Upland PA/BU Beach Placement
Distance to PA: 1 - 2.5 miles
Type of Equipment: Pipeline
Env.Window: 15 MAR to 01 SEP & 01 AUG to 01 MAY
Reason for Window: Nesting Sea Tortugas and Piping
Start Date: 7/19/2019
Est. Completion Date: 1/30/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



GULF INTRACOASTAL WATERWAY - CHANNEL TO PORT MANSFIELD



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,

- Placement Areas
- Deep Draft Channels
- Shallow Draft Channels

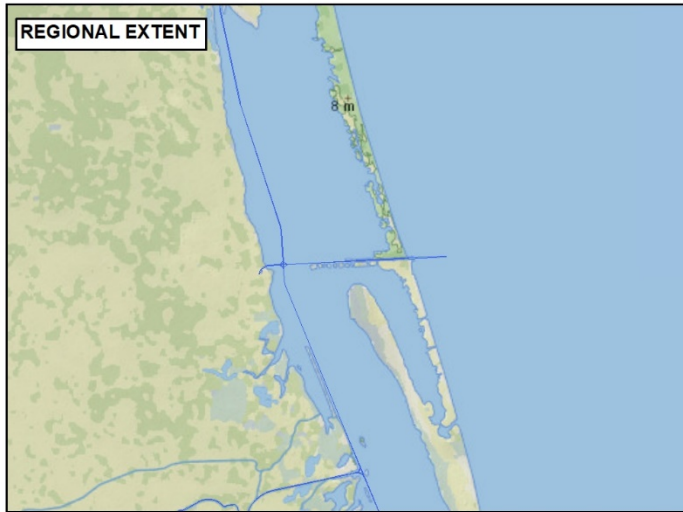


GULF INTRACOASTAL WATERWAY - CHANNEL TO PORT MANSFIELD

PORT MANSFIELD CHANNEL: Maintenance Dredging



Type of Work: Maintenance Dredging
Dredging Depth: 15ft (Main) 17ft (Entrance) LWD
Dredging Width: 125 ft.
Dredging Length: 12 miles
Dredging Quantity: 800,000
Material Type: varies sand/silt
Placement Area: Beach Placement, BU Bird, Semi Confined
Distance to PA: 1-2 miles Avg.
Type of Equipment: Pipeline
Env.Window: March - August
Reason for Window: Bird / Turtle / Seagrass
Start Date: 10/29/2019
Est. Completion Date: 4/21/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placemet Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-IWMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

0 0.5 1 2 Miles



Brazos Island Harbor (Brownsville Harbor)

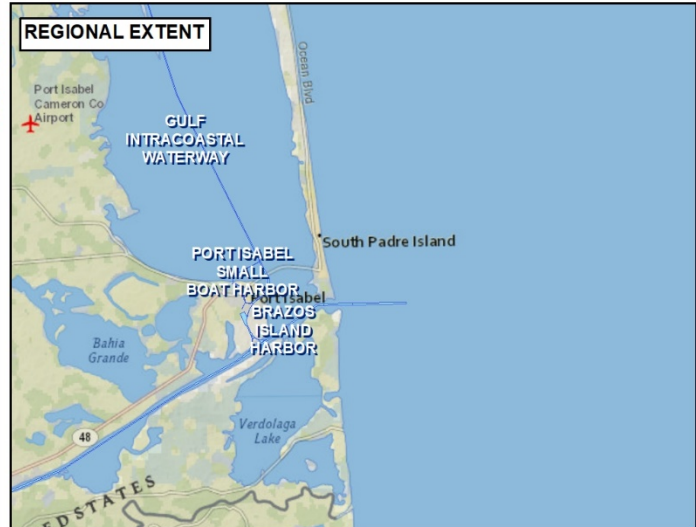




BRAZOS ISLAND HARBOR JETTY CHANNEL WITH BEACH PLACEMENT



Type of Work: Maintenance Dredging
Dredging Depth: 46 ft. Required Depth
Dredging Width: 300 - 400 ft.
Dredging Length: Varies
Dredging Quantity: 400,000 cy
Material Type: Sand
Placement Area: Beach/BU
Distance to PA: 1-5 Miles Avg.
Type of Equipment: Hopper/Pipeline
Env.Window: 1 APR to 30 NOV & 15 MAR to 30 SEP
Reason for Window: Swimming / Nesting Sea Turtles
Start Date: 9/17/2019
Est. Completion Date: 2/14/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

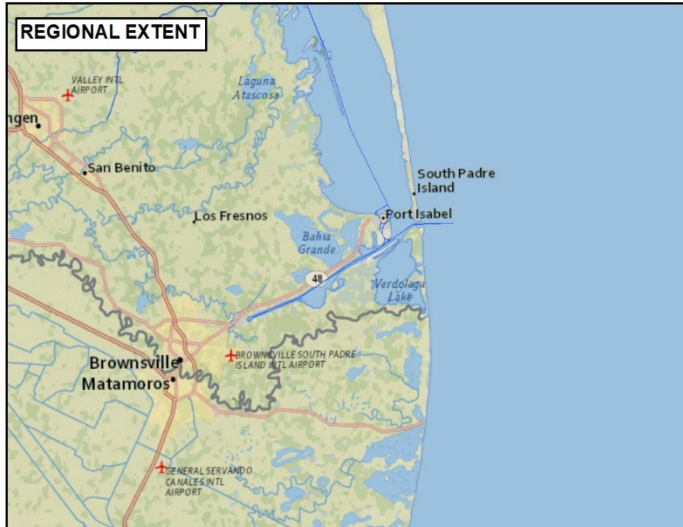
0 0.25 0.5 1 Miles



BRAZOS ISLAND HARBOR MAIN CHANNEL



Type of Work: Maintenance Dredging
Dredging Depth: 44 ft. Required Depth
Dredging Width: 250 - 1200 ft.
Dredging Length: Varies
Dredging Quantity: 1,500,000 cy
Material Type: Silt
Placement Area: Upland
Distance to PA: 1 Mile Avg.
Type of Equipment: Pipeline
Env.Window: N/A
Reason for Window: N/A
Start Date: 8/12/2019
Est. Completion Date: 1/9/2020



Channel Framework

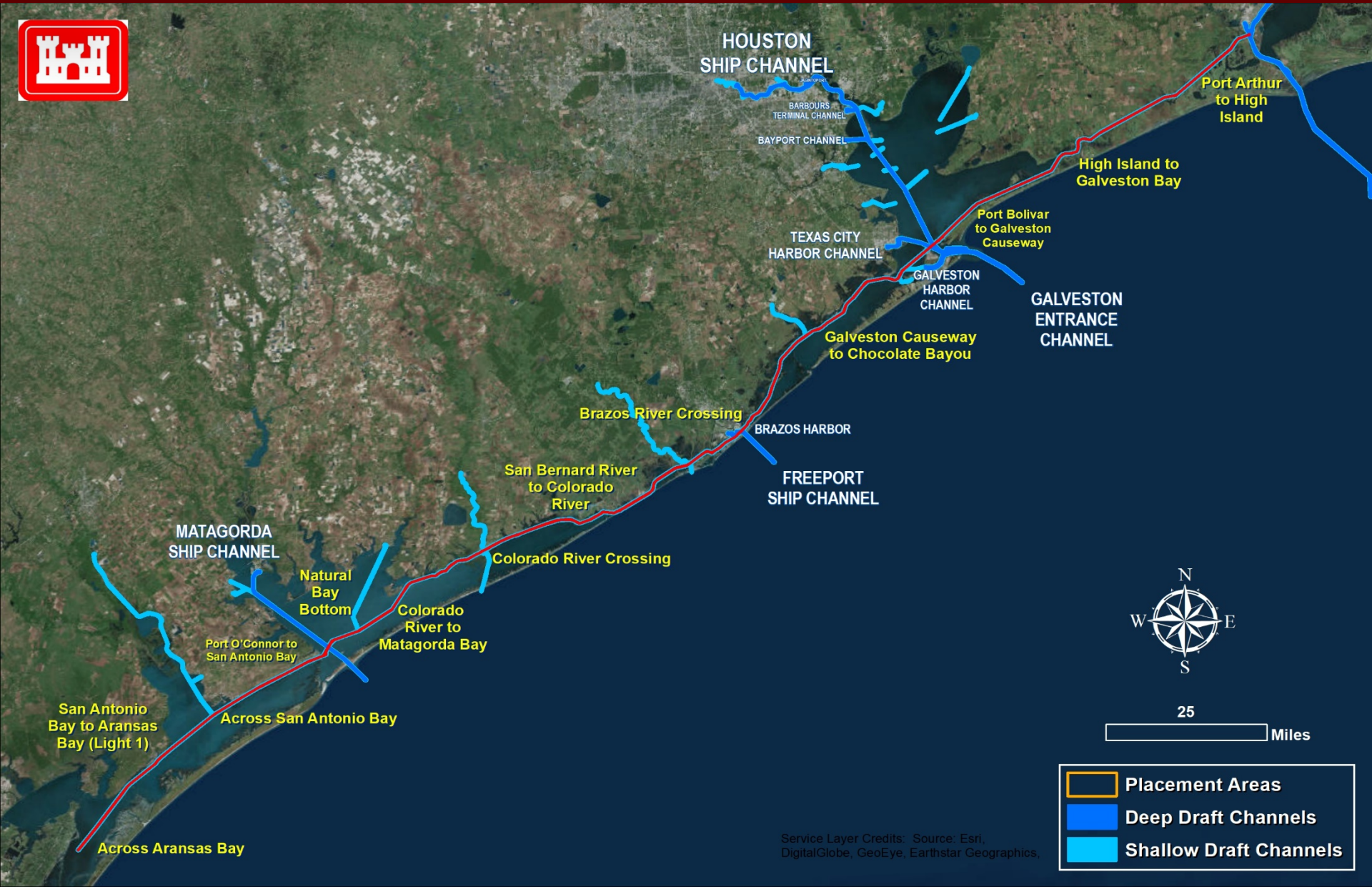
- Channel Centerline
- Navigation Channel
- Placement Areas

Scale: 0 0.5 1 2 Miles

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



GULF INTRACOASTAL WATERWAY NORTH



	Placement Areas
	Deep Draft Channels
	Shallow Draft Channels

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,



GULF INTRACOASTAL WATERWAY SOUTH



25 Miles

	Placement Areas
	Deep Draft Channels
	Shallow Draft Channels

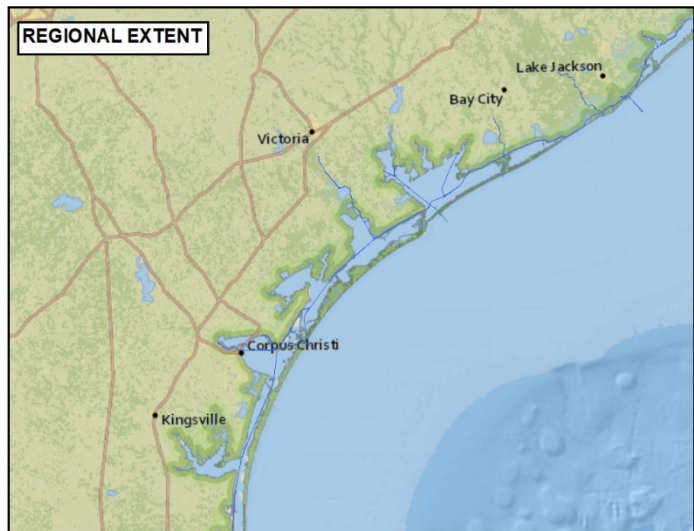
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,



GULF INTRACOASTAL WATERWAY – ACROSS SAN ANTONIO BAY/ MATAGORDA BAY TO CORPUS CHRISTI; GIWW/MSC INTERSECTION



Type of Work: Maintenance Dredging
Dredging Depth: 14-16 ft. Required Depth
Dredging Width: 125 ft.
Dredging Length: Varies
Dredging Quantity: 1,200,000 cy
Material Type: Fine Silt/Sand
Placement Area: Open/Upland Confined/BU
Distance to PA: 1 Miles Avg.
Type of Equipment: Pipeline
Env.Window: GIWW/MSC Intersection 15APR-15OCT;
Reason for Window: Whooping Cranes/Nesting Birds
Start Date: 8/6/2019
Est. Completion Date: 1/3/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

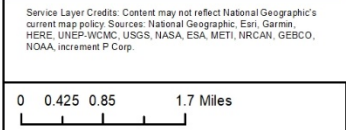
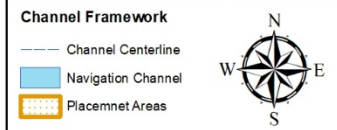
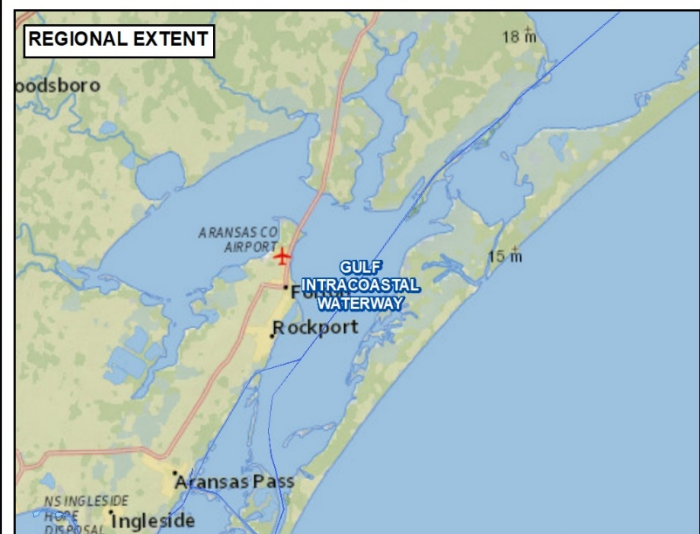
0 2.25 4.5 9 Miles



GULF INTRACOASTAL WATERWAY CHANNEL ACROSS ARANSAS BAY



Type of Work: Maintenance Dredging
Dredging Depth: 14-16 ft. Required Depth
Dredging Width: 125 ft.
Dredging Length: Varies
Dredging Quantity: 1,800,000 cy
Material Type: Sand/Silt
Placement Area: Open / BU
Distance to PA: 1 Mile Avg.
Type of Equipment: Pipeline
Env.Window: 15 OCT - 15 APR / 01 MAR - 31 AUG
Reason for Window: Whooping Crane / Nesting Birds
Start Date: 3/12/2019
Est. Completion Date: 9/11/2019

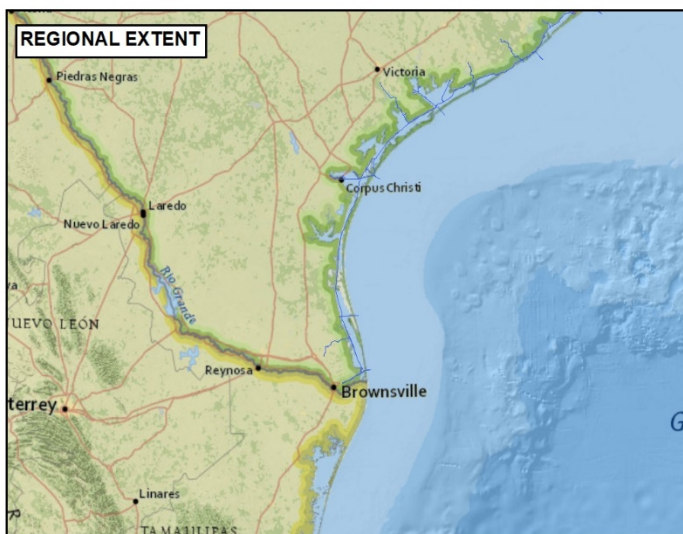




GULF INTRACOASTAL WATERWAY CORPUS CHRISTI TO PORT ISABEL/ CHANNEL TO HARLINGEN



Type of Work: Maintenance Dredging
Dredging Depth: 14 ft. Required Depth
Dredging Width: 125 ft.
Dredging Length: Varies
Dredging Quantity: 1,300,000 cy
Material Type: Fine Silt/Sand
Placement Area: Open/Semi Confined/BU
Distance to PA: 3 Miles Avg.
Type of Equipment: Pipeline
Env.Window: Mar 01 - Oct 31
Reason for Window: SAV
Start Date: 8/29/2019
Est. Completion Date: 3/26/2020



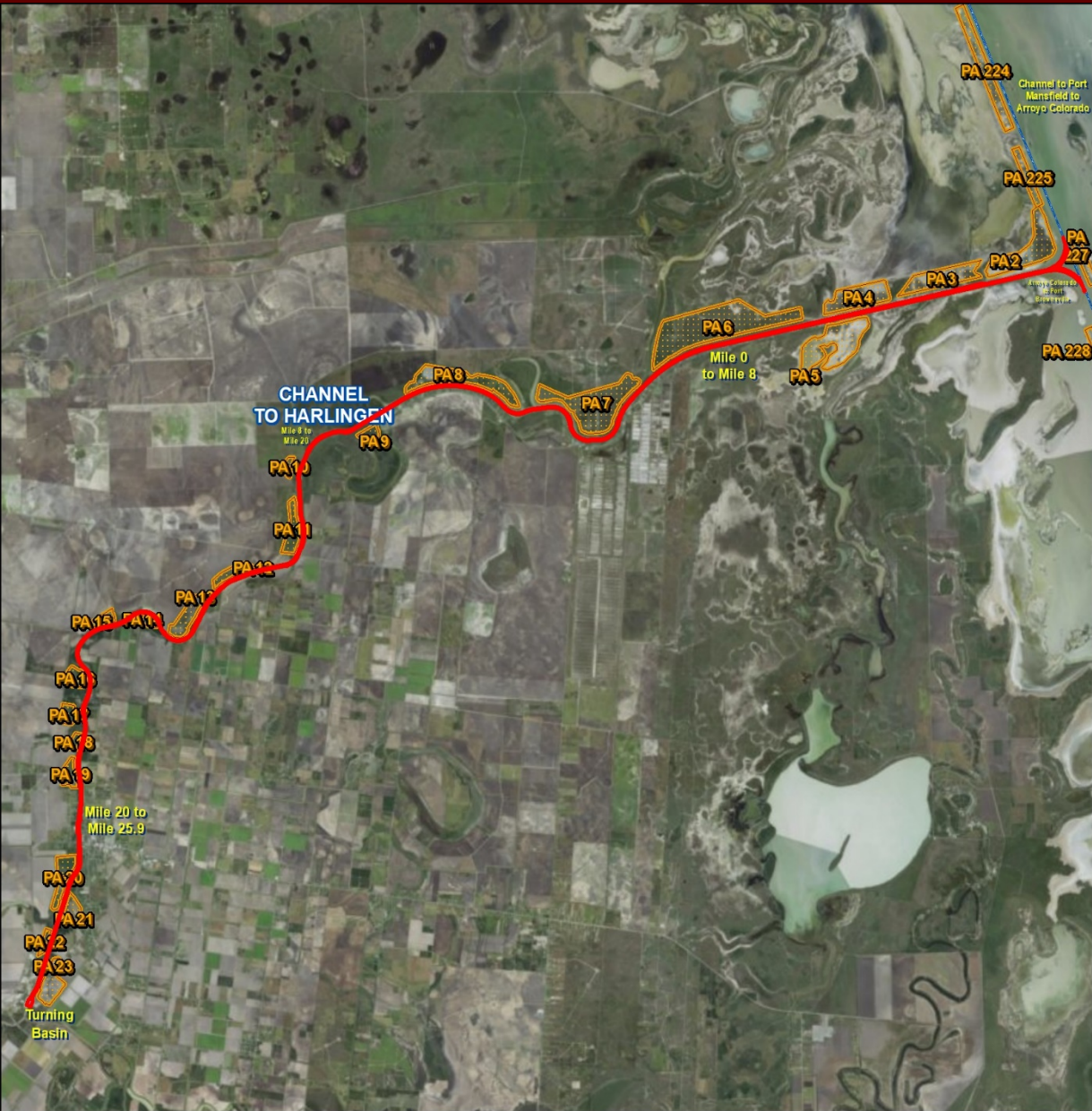
Channel Framework

- Channel Centerline
- Navigation Channel
- Placemet Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



GULF INTRACOASTAL WATERWAY CORPUS CHRISTI TO PORT ISABEL/ CHANNEL TO HARLINGEN



Type of Work: Maintenance Dredging
Dredging Depth: 14 ft. Required Depth
Dredging Width: 125 ft.
Dredging Length: Varies
Dredging Quantity: 400,000 cy
Material Type: Fine Silt/Sand
Placement Area: Upland
Distance to PA: 3 Miles Avg.
Type of Equipment: Pipeline
Env.Window: Mar 01 - Oct 31
Reason for Window: Nesting Birds
Start Date: 8/29/2019
Est. Completion Date: 3/26/2020



Channel Framework

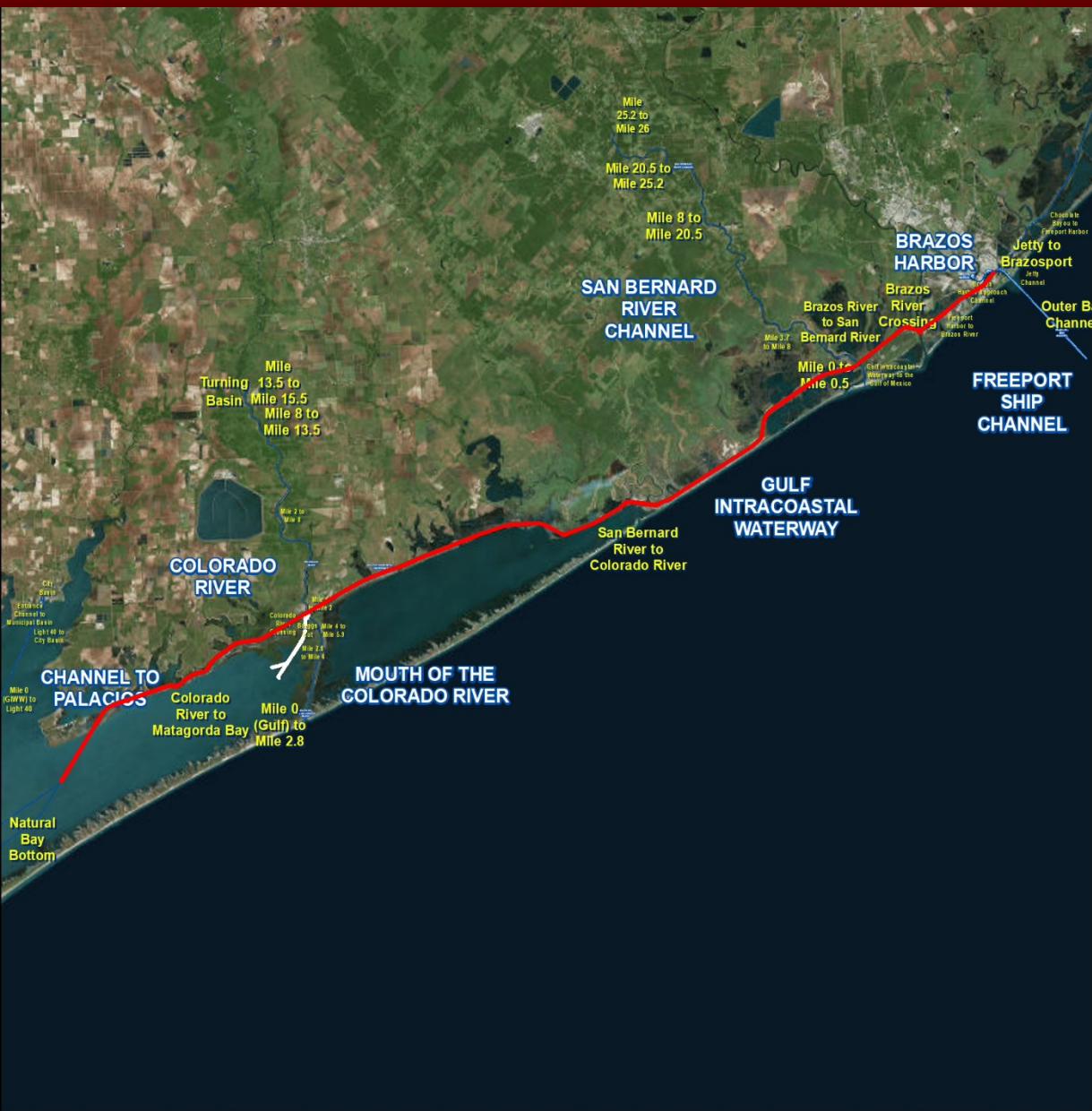
- Channel Centerline
- Navigation Channel
- Placement Areas

Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

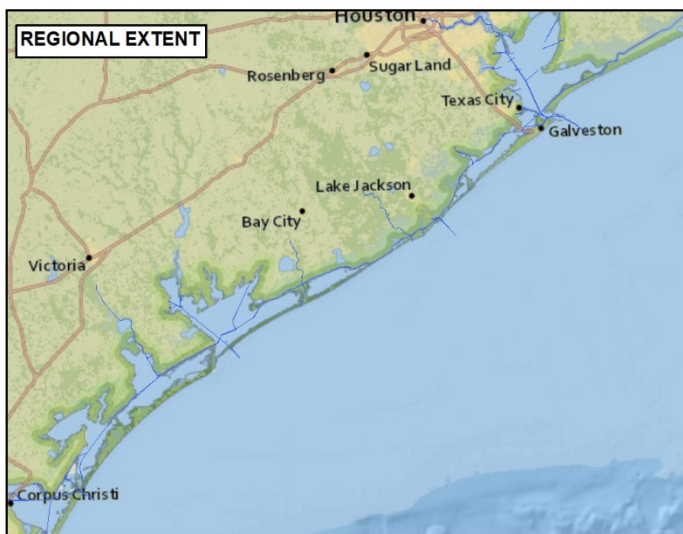
0 0.5 1 2 Miles



GULF INTRACOASTAL WATERWAY – FREEPORT TO UPPER MATAGORDA BAY



Type of Work: Maintenance Dredging
Dredging Depth: 14 -16ft. Required Depth
Dredging Width: 125 ft.
Dredging Length: Varies
Dredging Quantity: 800,000 cy
Material Type: Silt/Sand
Placement Area: Open / BU
Distance to PA: 2-4 Mile Avg.
Type of Equipment: Pipeline
Env.Window: N/A
Reason for Window: N/A
Start Date: 9/9/2019
Est. Completion Date: 3/7/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

0 2.5 5 10 Miles

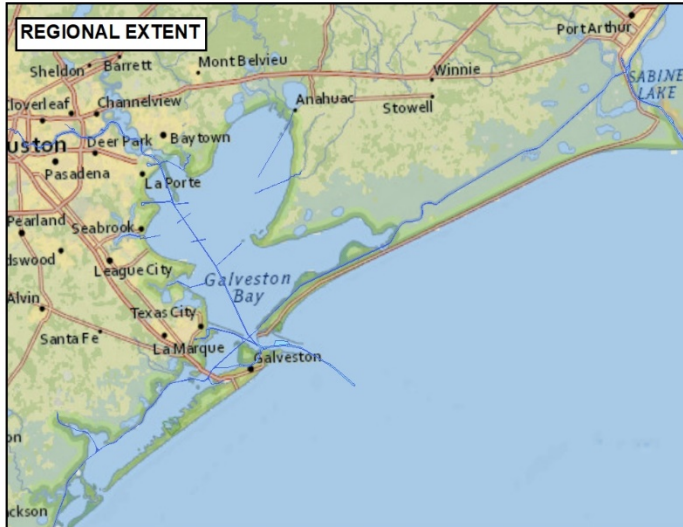
Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



GULF INTRACOASTAL WATERWAY – HIGH ISLAND TO ROLLOVER; BOLIVAR FLARE; CHANNEL TO PORT BOLIVAR



Type of Work: Maintenance Dredging
Dredging Depth: 17 ft. Required Depth
Dredging Width: 125 ft.
Dredging Length: Varies
Dredging Quantity: 800,000 cy
Material Type: Fine Silt/Sand
Placement Area: Open/Upland Confined/BU/Beach
Distance to PA: 1-2 Miles Avg.
Type of Equipment: Pipeline
Env.Window: NA if observers used
Reason for Window: Nesting Sea Turtles
Start Date: 10/1/2019
Est. Completion Date: 2/28/2020



Channel Framework

- Channel Centerline
- Navigation Channel
- Placement Areas

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