



## Welcome

Thank you for joining us for tonight's open house for the Mobile Harbor General Reevaluation Report and Supplemental Environmental Impact Statement.

The U.S. Army Corps of Engineers, Mobile District, is conducting a study to determine the feasibility of deepening and widening of the Mobile Harbor Channel. We are hosting this open house to update the community on the status of the study and to provide you with an opportunity to ask questions to our subject matter experts.

## Open House

Feel free to walk through the open house and stop by each station to learn more about the estimated timeline for the study, potential benefits to the community and the comprehensive analysis Mobile District is conducting as part of the GRR process.

### At today's meeting, please:

- 1 Sign in
- 2 Pick up handouts
- 3 Explore the stations
- 4 Talk to our representatives
- 5 Provide your comments



**THANK YOU for attending this evening!**



US Army Corps of Engineers®

# MOBILE HARBOR GENERAL REEVALUATION REPORT



U.S. ARMY



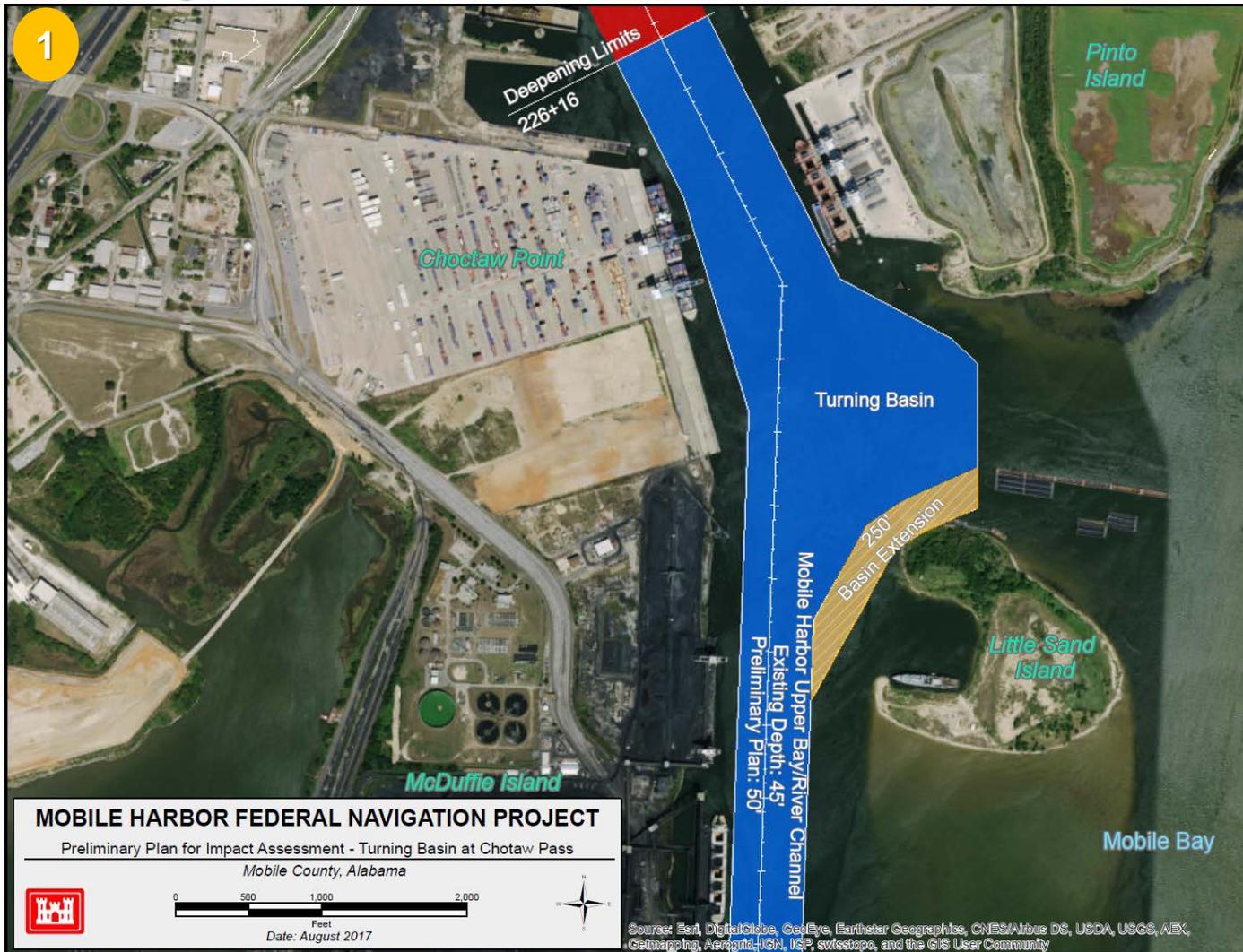


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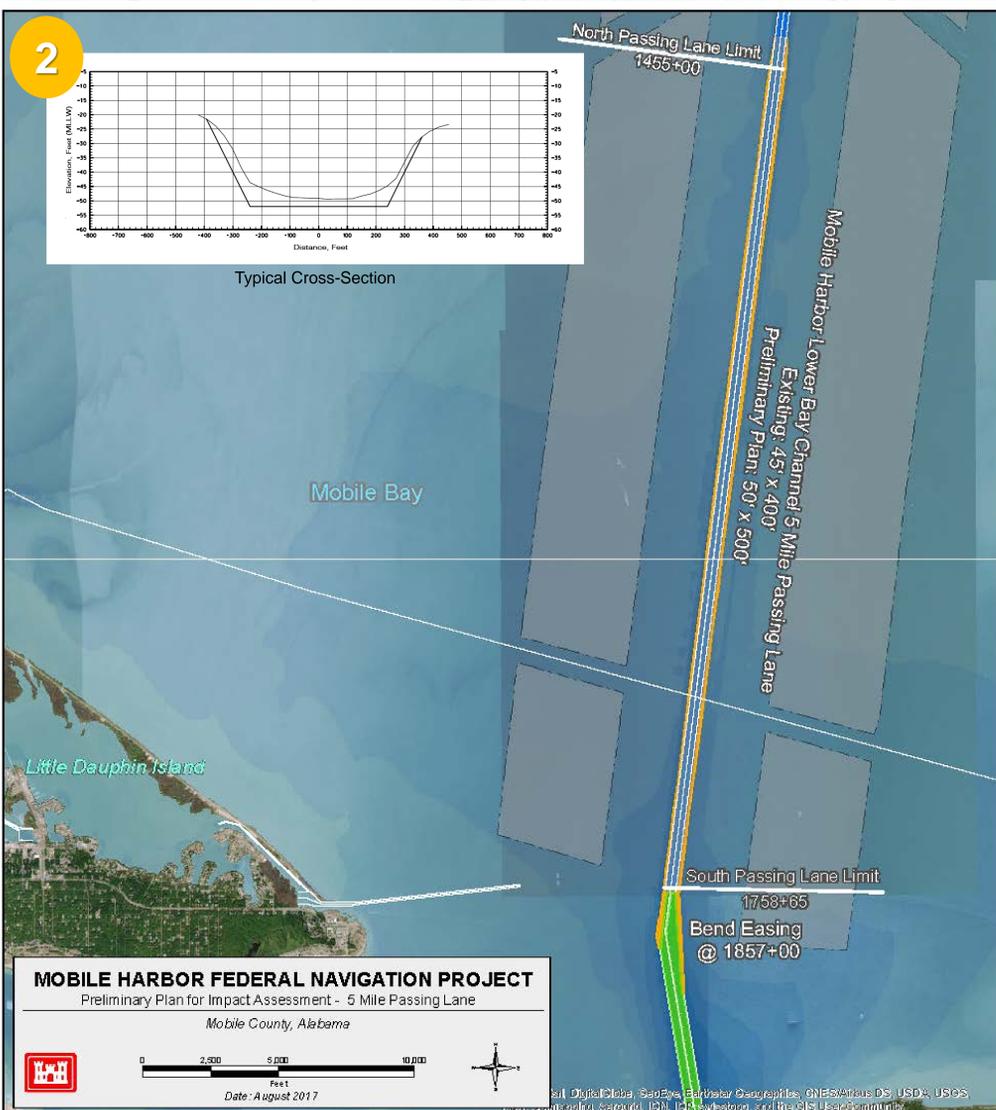
# MOBILE HARBOR GENERAL REEVALUATION REPORT



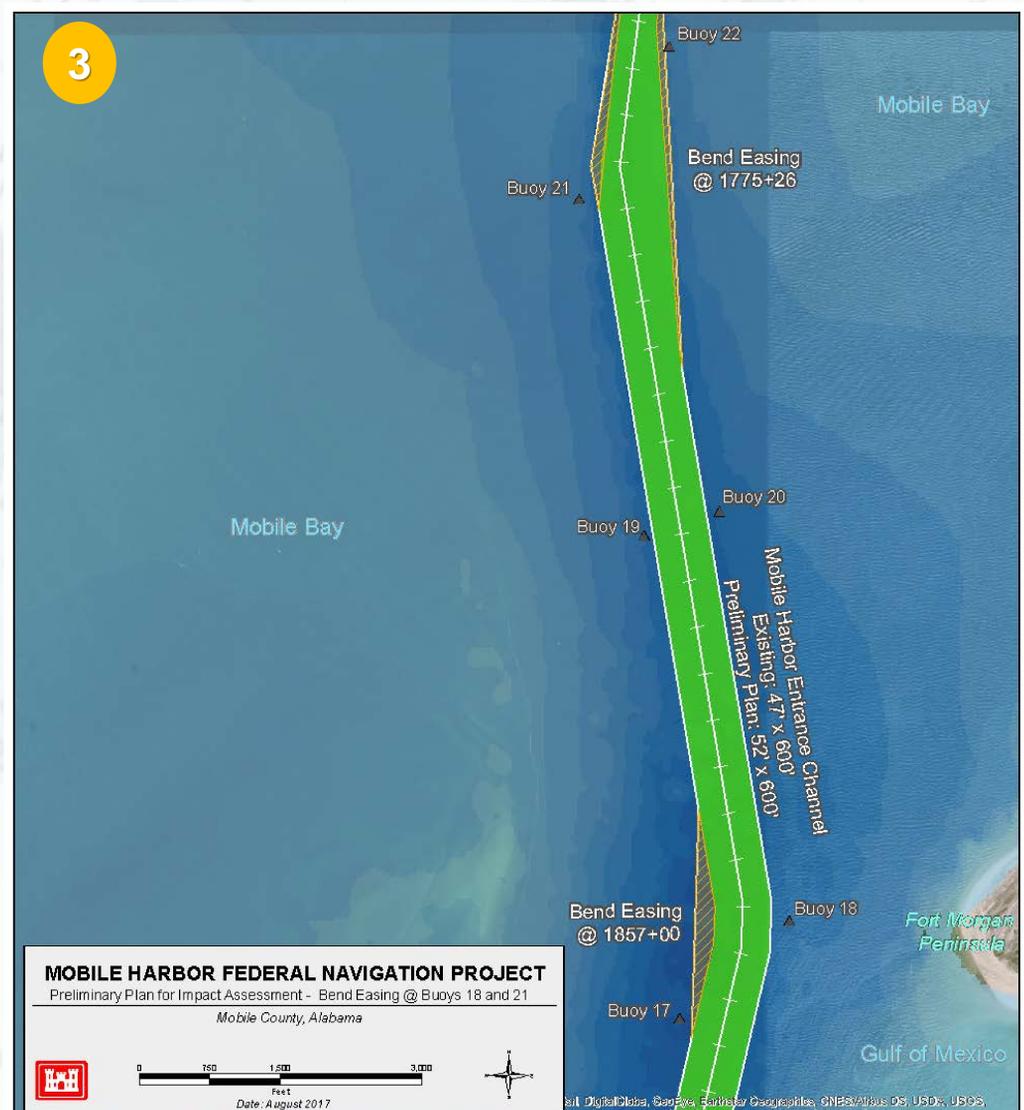
## Turning Basin



## Widener



## Bend Easing





# MOBILE HARBOR GENERAL REEVALUATION REPORT

## SCHEDULE (48 MONTHS)



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- Identify study objectives
- Define problems & opportunities
- NEPA scoping
- Inventory & forecast
- Formulate alternative plans
- Evaluate alternatives & identify reasonable array

- Develop the "Future without Project Condition"
- Analyze, evaluate and compare alternatives to identify TSP
- Prepare the Draft Integrated GRR and SEIS
- Vertical team concurrence on tentatively selected plan
- Release Draft Integrated GRR/SEIS report review (Public, Agency, HQ)

- Respond to comments in the SEIS
- Agency consultation activities
- Agency endorsement of recommended plan
- Prepare the Final Integrated GRR and SEIS
- Final integrated report package transmitted to Corps Headquarters

- Headquarters' review of final report
- Final SEIS; Alabama state and Federal agency review
- GRR approval
- Record of Decision signed



## PLANNING PROCESS

### Background

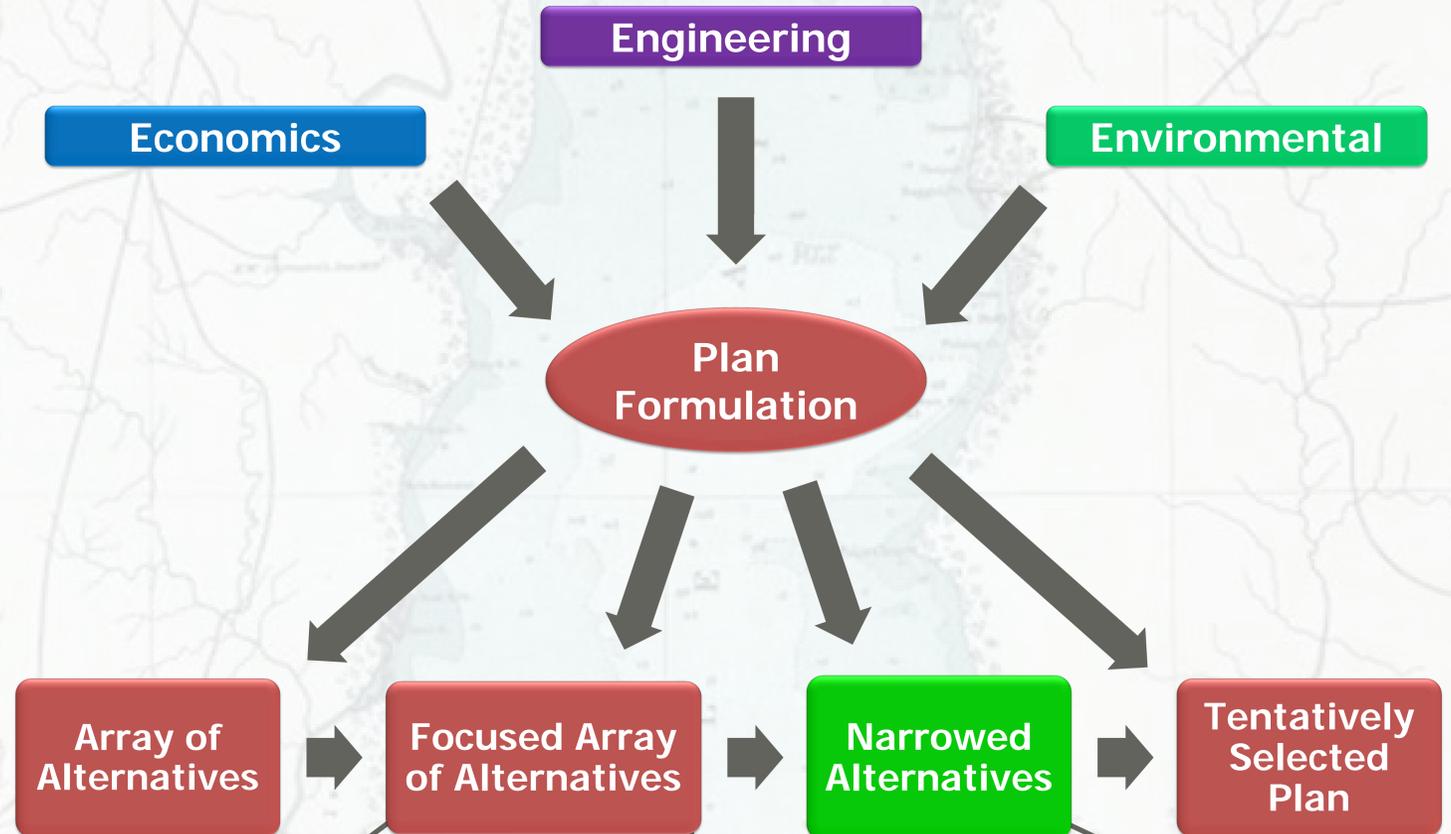
In 2014, the Alabama State Port Authority requested that the U.S. Army Corps of Engineers, Mobile District, consider increasing the depth and width of the Mobile Harbor Channel to its fully authorized dimensions. In response, the U.S. Army Corps of Engineers is preparing a General Reevaluation Report (GRR).

### General Reevaluation Report (GRR)

A GRR is the reanalysis of a previously completed study that is required due to changed conditions, using current planning criteria and policies. Mobile District will document the study results in a GRR incorporating engineering, economic, real estate and environmental analyses.

The GRR is a four-year, \$7.8 million effort.

Concurrently with the GRR, the U.S. Army Corps of Engineers is also preparing a Supplemental Environmental Impact Statement (SEIS) defining current environmental conditions and the effects of proposed actions and alternatives. The SEIS will identify mitigation as appropriate.



**Focused Array of Alternatives (Considering beneficial use)**

- Depths from 47 to 53 feet (49 to 55 feet in Entrance Channel)
- Widths of 500 and 550 feet (Bay Channel)
- Bend easing (Upper Bar Channel)
- Lengths of widening of 5, 10 and 15 miles

**Narrowed Alternatives (Considering beneficial use)**

- Deepening: Depth of 50 feet including Turning Basin
- Bend easing
- Widener: 100 feet to a total of 500 feet; five miles long



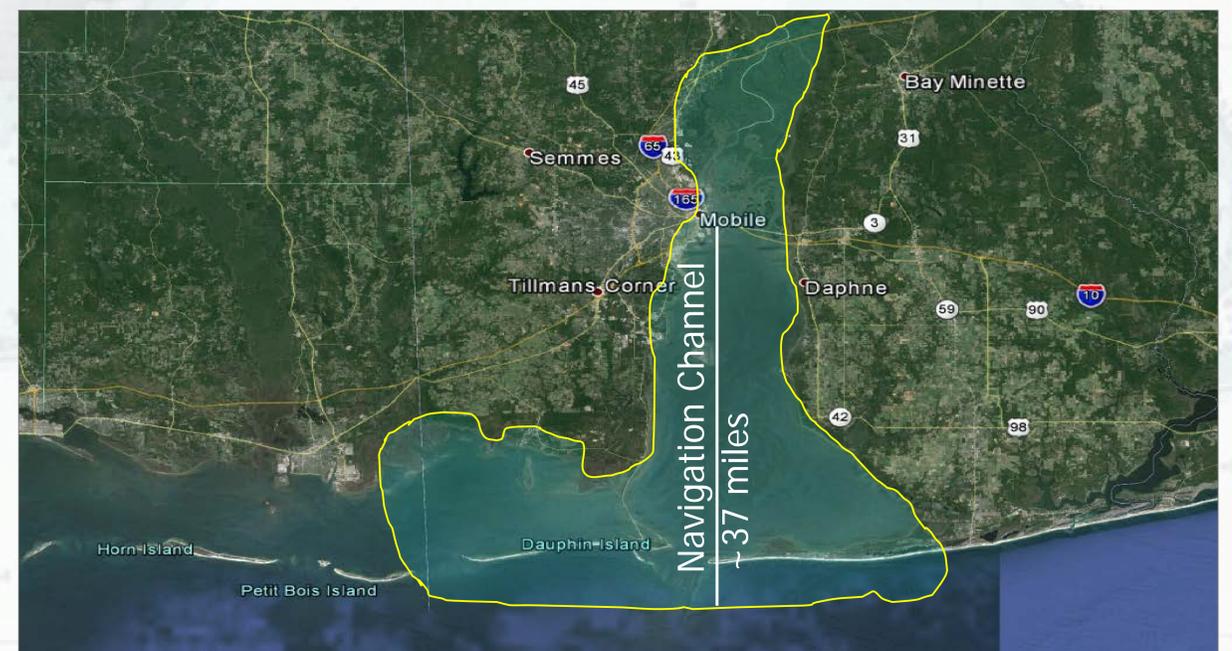


# MOBILE HARBOR GENERAL REEVALUATION REPORT



## Study Area – Mobile Bay

- Mobile Bay is a complex system.
- Five rivers (Mobile, Tensaw, Blakeley, Spanish and Apalachee) form the second largest delta in the continental United States and the fourth largest watershed based on drainage area.
- 415 square-mile bay area with average depth of 10 feet and over 135 miles of shoreline. Designated as one of 28 National Estuary Programs in 1995.
- One of the most diverse ecosystems in the United States with three types of wetland habitats, extensive seagrasses, more than 200 species of fish, major shellfish communities, and 300+ species of birds and reptiles.
- Mobile-Tombigbee river basin is recognized by the U.S. Fish and Wildlife Service as a Strategic Habitat in Alabama for managing, recovering and restoring populations of rare fishes, mussels, snails and crayfishes.
- One of two places on Earth where the phenomenon of “Jubilees” occur.
- Alabama Seafood Industry contributes approximately \$461 million in revenue annually and 10,000 jobs.





# ALABAMA STATE PORT AUTHORITY

## WHY ASPA RECOMMENDS DEEPENING AND WIDENING MOBILE HARBOR

**Two-thirds of the Port of Mobile's vessel traffic today is restricted or delayed directly impacting shipper costs and competitiveness.**

- **Full-service seaport -- 10th largest in the United States - Balanced trade (Strong export market)**
  - ✓ 58 million tons handled port-wide. ASPA terminals represent 25 – 29 million tons annually
- **The Port has sustained growth in steel, petroleum and containerized cargoes**
  - ✓ Record 2016 19% growth in containerized cargo – automotive, aviation, forest products, chemicals, poultry
  - ✓ Now ranked No. 2 steel port in the United States
  - ✓ 10 New ocean carriers added service into Mobile in 2016-2017
- **The Port drives the regional economy**
  - ✓ Alabama State Port Authority terminals alone generate 124,328 jobs and \$19.4 billion in total economic value
  - ✓ AUSTAL USA generates 14,855 direct/indirect jobs providing \$383.4 million in wages and \$31 million in tax revenue
  - ✓ Private petroleum / petroleum products terminals alone generate 5,220 jobs and \$687 million in economic value
- **Modernizing the Port is necessary because**
  - ✓ Larger ships now transit North American trade lanes – including the Port of Mobile
  - ✓ Channel deficiencies and vessel transit inefficiencies directly impact shipper costs and competitiveness
  - ✓ Mobile's port-side infrastructure investments have met shipper needs (\$500+ million invested) - Channel investment necessary to leverage non-federal sponsor investment and regional growth





# ALABAMA STATE PORT AUTHORITY

## MOBILE HARBOR DEEPENING AND WIDENING CONSIDERATIONS

### MEGATRENDS IN GLOBAL TRADE

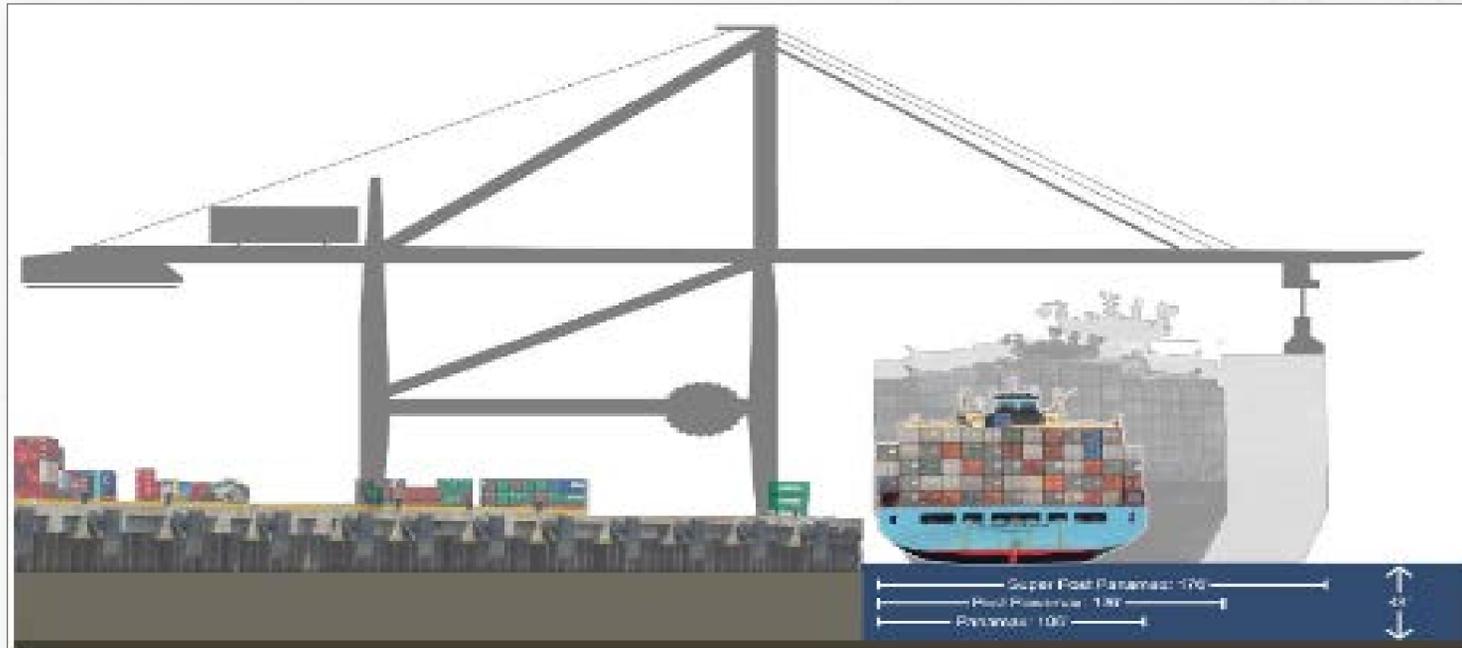
- ✓ Since 2000, the population in the South went from 35.6% to 37.9% - the largest jump in the U.S. (U.S. Census, 2016).
- ✓ Total U.S. e-commerce sales for 2016 estimated at \$394.9 billion, an increase of 15% from 2015. (U.S. Census, Jan. 2017). Projected value will top \$485 billion by 2021, generating demand for logistics and supply-chain management investments in port-centric areas (Statista, 2015).
- ✓ Long-range global demand for steel (Statista, 2016) will climb 9.5% by 2020 and metallurgical coal (EIA, May 2014) will moderately increase. **Port of Mobile is one of the largest exporters of metallurgical coal used in steel production and is the second largest steel port in the Nation.**
- ✓ U.S. manufacturing growth is up (Manufacturers Alliance for Productivity and Innovation, Sept. 2014). Driving forces are aviation/aerospace, automotive, medical equipment, electronics. Most ship via containers – **Port of Mobile serves these markets.**
- ✓ Long-range demand for U.S. agricultural products will steadily increase year after year through 2024. (USDA, Feb. 2015). **Port of Mobile serves U.S. poultry and forest products exports.**
- ✓ Ocean carriers' long-range focus is on larger ships, terminal technology and berth productivity. This produces economies of scale and increased efficiency (Journal of Commerce/PIERS: Port Productivity, July 2014).





# ALABAMA STATE PORT AUTHORITY

## MOBILE HARBOR DEEPENING AND WIDENING EXPECTED BENEFITS



### Navigation & Safety

- ✓ Cape / Post-Panamax / wide-body tanker traffic on the rise
- ✓ Daylight / one-way channel restrictions delay Panamax ships calling today
- ✓ Channel delays increase vessel and shipper costs
- ✓ Higher costs impact U.S. competitiveness and consumer prices

### Vessel Size & Utilization

- ✓ A deeper and wider channel at Mobile improves shipper efficiency and lowers costs
- ✓ At current depths, carriers and shippers cannot fully utilize available vessel capacity
- ✓ **Two-thirds of the vessels are restricted by depth**
- ✓ **Two-thirds of the vessels are restricted to one-way or daylight transit**
- ✓ Three container carriers now use 8,000 TEU ships at Mobile. Additional 8,000 TEU ships will begin calling on Mobile in 2018. Mobile's 45-foot draft limits utilization of vessel capacity and reduces the port's slot allocation.
- ✓ For its three largest carriers, Mobile is the last port of call prior to Miami (soon to be at 50 feet) and Freeport (currently at 52 feet). Mobile's 45-foot draft contributes to inefficient vessel utilization.

### Potential Environmental Benefits

Project construction, if approved, could generate material for environmental restoration.



## ECONOMICS

### TASK: IDENTIFY THE PLAN THAT MAXIMIZES NET BENEFITS <sup>1</sup>

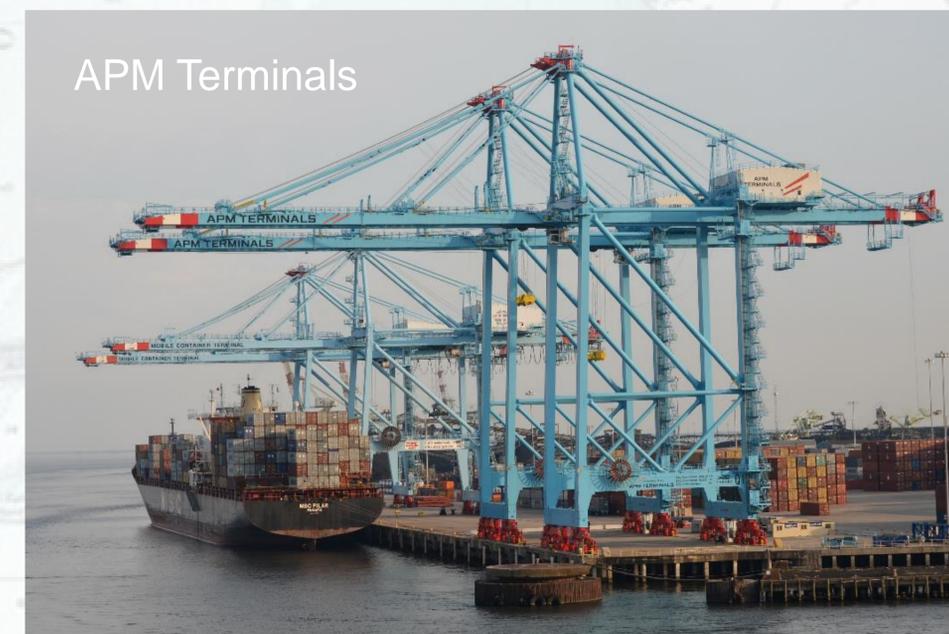
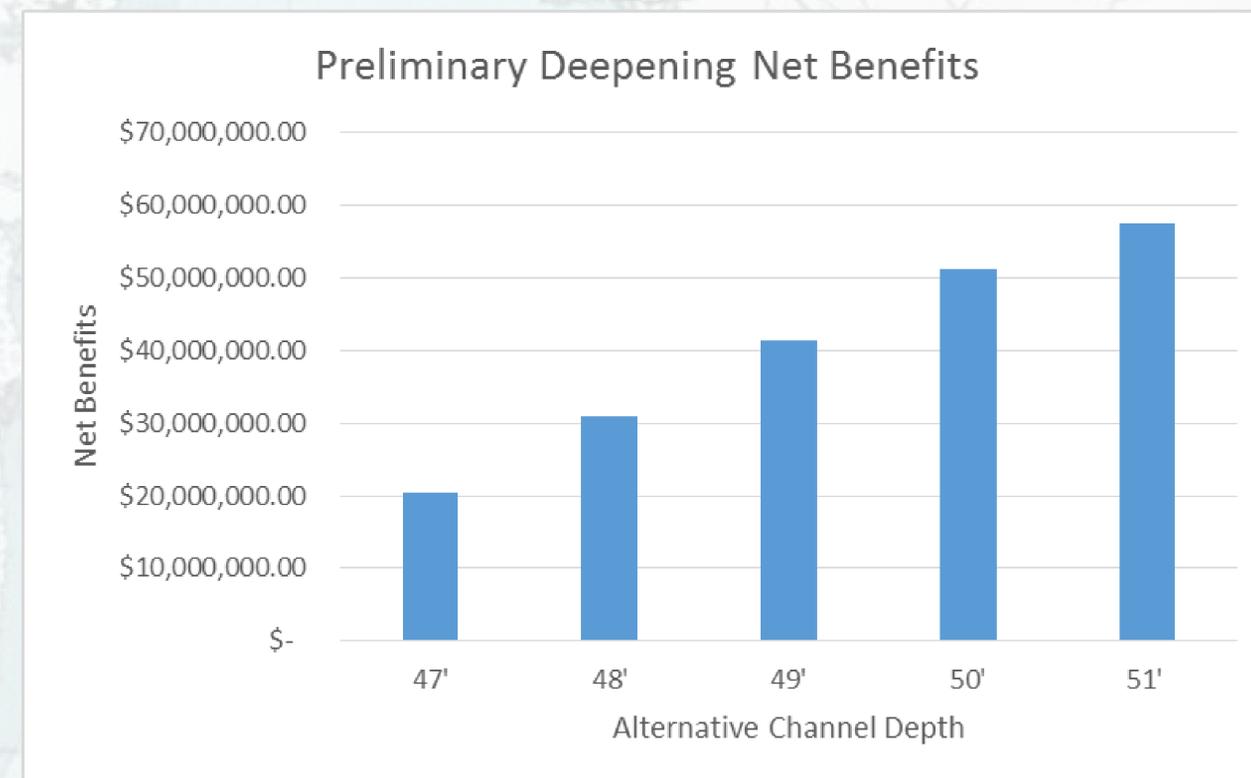
**Description:** Determine the transportation cost savings for each alternative and compare to the cost of the alternative.

**Purpose:** To identify optimal channel depth and width based on economic efficiencies.

**Status:** 90% complete. Preliminary cost and benefit analysis determined the optimized channel depth of 51 feet. In its analysis, the team considered origin-to-destination transportation cost savings using a commodity and fleet forecast expected for Mobile Harbor that includes the impacts of the Walmart distribution center.

**Next Steps:** Analyze cost and benefits for channel widening.

<sup>1</sup> Net benefits are the alternative plans benefits, minus the alternative plans costs.





## ENGINEERING CONSIDERATIONS

### TASK: CLASSIFY SUBSURFACE CONDITIONS

**Description:** Compile and evaluate all existing subsurface data for the navigation channel. Collect additional subsurface samples/borings, as needed, to fill data gaps.

**Purpose:** Characterize the subsurface material to aid in design of the channel and evaluate various dredged-material placement options.

**Status:** 80% complete. The Mobile District team has evaluated all existing subsurface data for the channel deepening and/or widening options under consideration. The material is primarily fine-grained silts and clays suitable for placement within the bay or offshore. Only minimal quantities of sand have been identified for possible placement in the littoral zone near Dauphin Island.

**Next Steps:** Conduct additional subsurface sampling to fill data gaps and better characterize conditions for possibly widening a section of the channel.

### TASK: CHANNEL ANALYSES AND DESIGN

**Description:** The District team employed a Ship Simulator to evaluate the maneuverability of vessels for various channel alignments and dimensions.

**Purpose:** Confirm if channel designs can be safely and efficiently navigated by ships that will call at the port in the future.

**Status:** 75% complete. The District team conducted initial ship simulations. The results led to the following recommendations: 1) a five-mile long channel widener in the southern bay would improve the safety and efficiency of future vessel passages; 2) the turning basin should be expanded to handle ships that will call at the port in the future; and 3) channel re-alignment (i.e., bend easing) will improve the safety and efficiency of vessel transit through the entrance to the bay.

**Next Steps:** Conduct additional ship simulations to refine the turning-basin design to accommodate vessels expected to call at the port in the future.





## ENGINEERING CONSIDERATIONS

### TASK: NUMERICAL MODELING

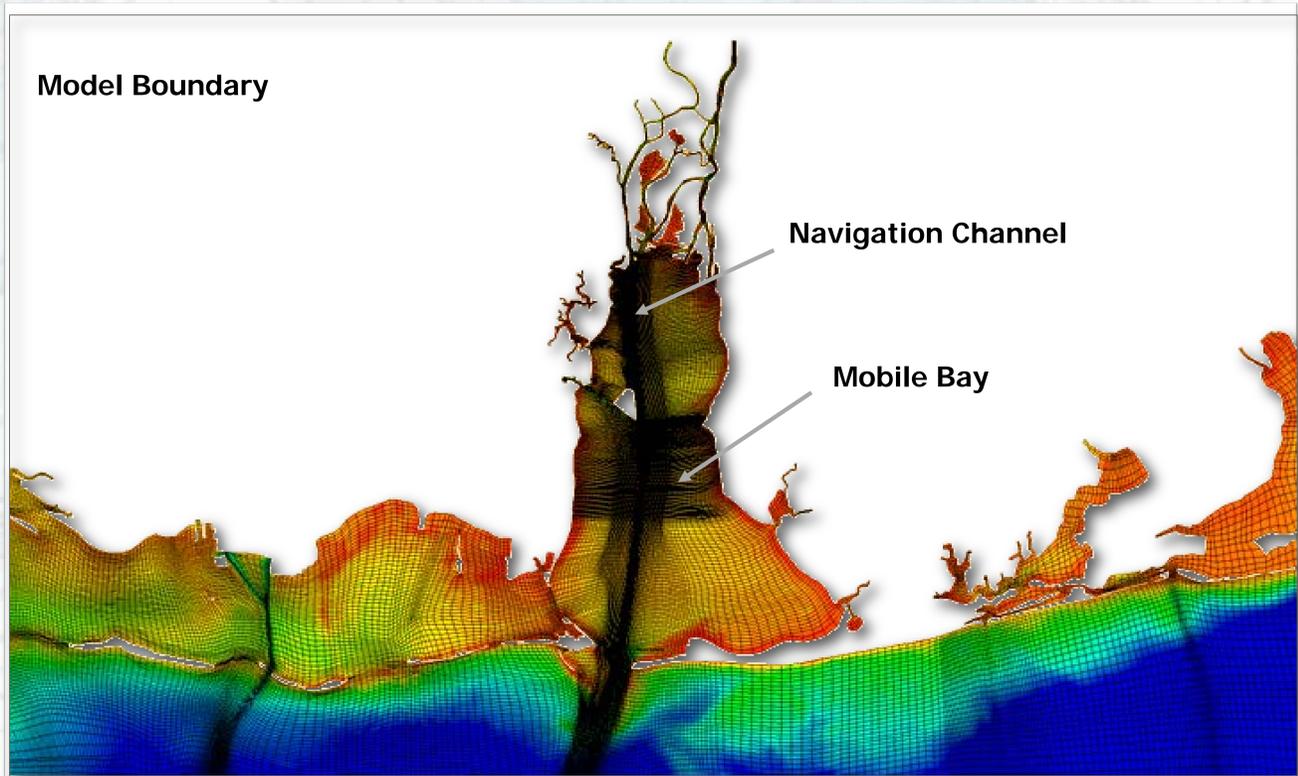
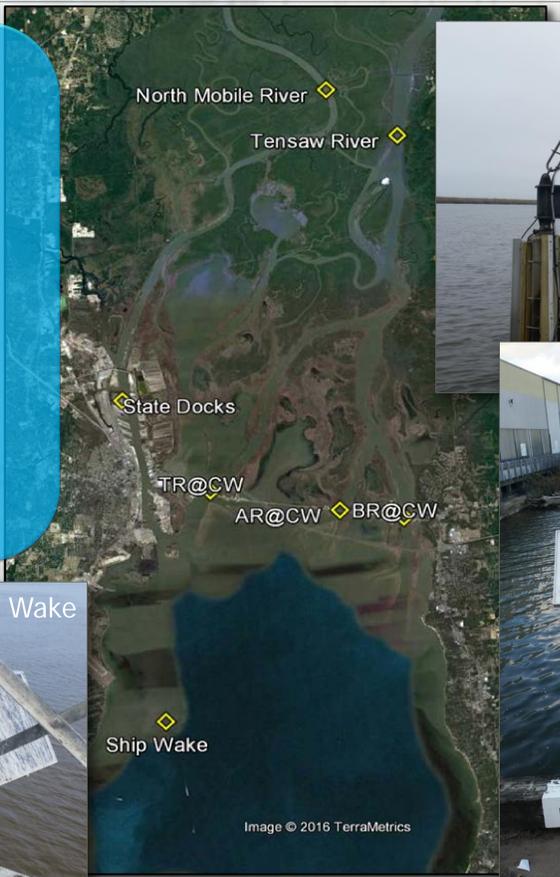
**Description:** Collect baseline data and develop hydrodynamic, water-quality and sediment-transport models to characterize the physical conditions and processes of the study area.

**Purpose:** Determine relative changes in the navigation channel physical conditions and processes due to potential widening and/or deepening.

**Status:** 50% complete. Modeling of existing conditions and characterization of the existing physical conditions (i.e., baseline conditions) is finished.

**Next Steps:** Run the future-condition models to predict relative changes caused by deepening the channel to 50 feet and widening a five-mile expanse by 100 feet in the southern bay. The environmental team will evaluate the effects of those changes on sensitive habitats. (e.g., wetlands, oysters, fisheries, seagrasses, benthic communities, etc.)

- Data Collection Parameters**
- Average along stream velocity
  - Water level (NAVD88)
  - Turbidity
  - Salinity
  - Temperature
  - Automatic sampling for Total Suspended Solids
  - Wave height (ship wake)



### TASK: COST ENGINEERING

**Description:** Develop design, construction, and maintenance costs and identify potential cost contingencies for the project alternatives.

**Purpose:** Determine the most economical plan and identify potential financial obligations.

**Status:** 50% complete. The team has generated preliminary cost estimates for all channel-widening and/or deepening options being considered.

**Next Steps:** Refine the cost estimate of the final selected plan (once identified) and continue to support the study team with alternative cost estimates, as needed.



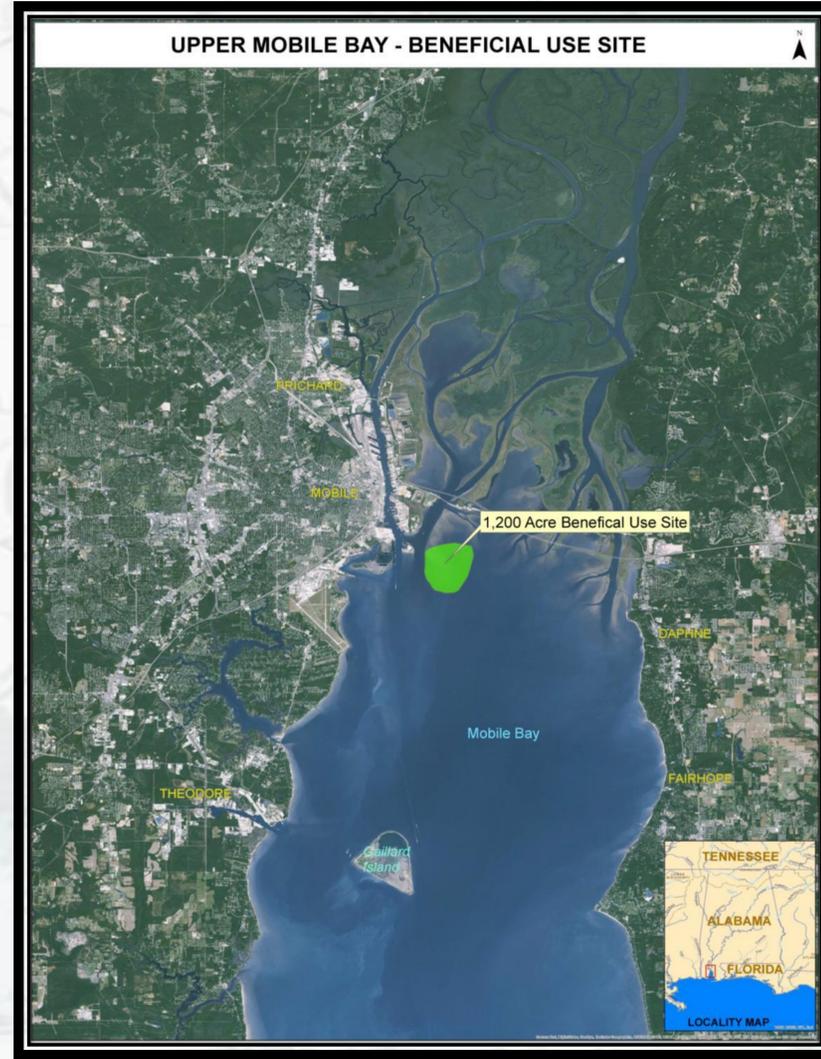
**US Army Corps  
of Engineers®**  
MOBILE DISTRICT



- Federal and State cost-shared study that utilizes economic, engineering, and environmental analyses to identify an environmentally acceptable and engineering sound channel deepening and/or widening alternative (up to 10' deeper and 150' wider) that maximizes net economic benefits.
- Scheduled Completion Date: November 2019



- Collaborative effort between the State of Alabama, U.S. Geological Survey (USGS), and the U.S. Army Corps of Engineers (USACE), funded by the National Fish & Wildlife Foundation (NFWF) Gulf Environmental Benefit Fund, to investigate viable and sustainable options to protect, enhance, and/or restore the natural resources of Dauphin Island and the surrounding coastal areas.
- Scheduled Completion Date: March 2019



- Phase 1 – Restore funded effort to complete the design and environmental coordination for an approximately 1,200 acre semi-contained, open water dredged material disposal area (tidal marsh) in upper Mobile Bay. Scheduled Completion Date : Phase 1 – TBD. Approved by Restore but pending receipt of funds.
- Phase 2 – Potential Restore funded effort to complete the construction of the containment structure for the site . The site will belong to the Alabama State Port Authority and will be used for the future placement of maintenance dredged material from the federal navigation channel and other sources. Scheduled Completion Date: Phase 2 – TBD. Has not been approved for funding.



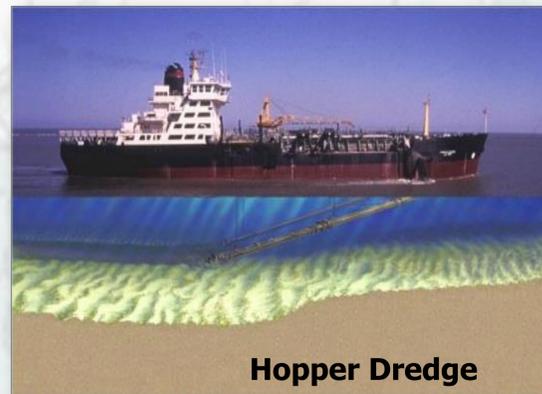
- State of Alabama funded study to develop a high-level planning tool (a “roadmap”) that (1) identifies the visions (environmental, economic, social, etc.) of the constituents of Mobile and Baldwin Counties, (2) determines if a plan already exists to address those visions, (3) identifies future vulnerabilities to achieving those visions, and (4) highlights potential future planning considerations to increase the resiliency of the environment, society, and economy.
- Scheduled Completion Date: January 2018



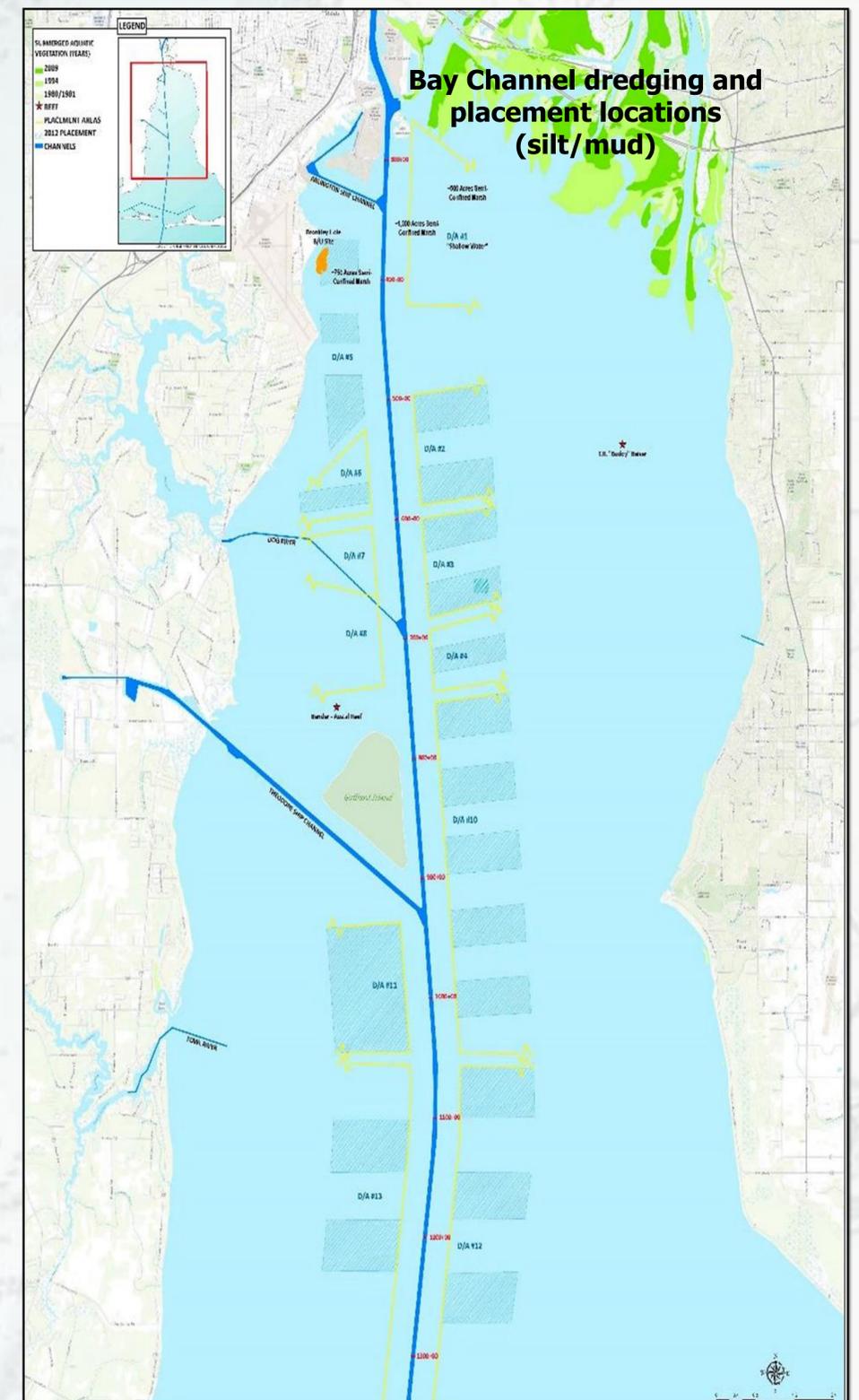
## MAINTENANCE DREDGING AND PLACEMENT

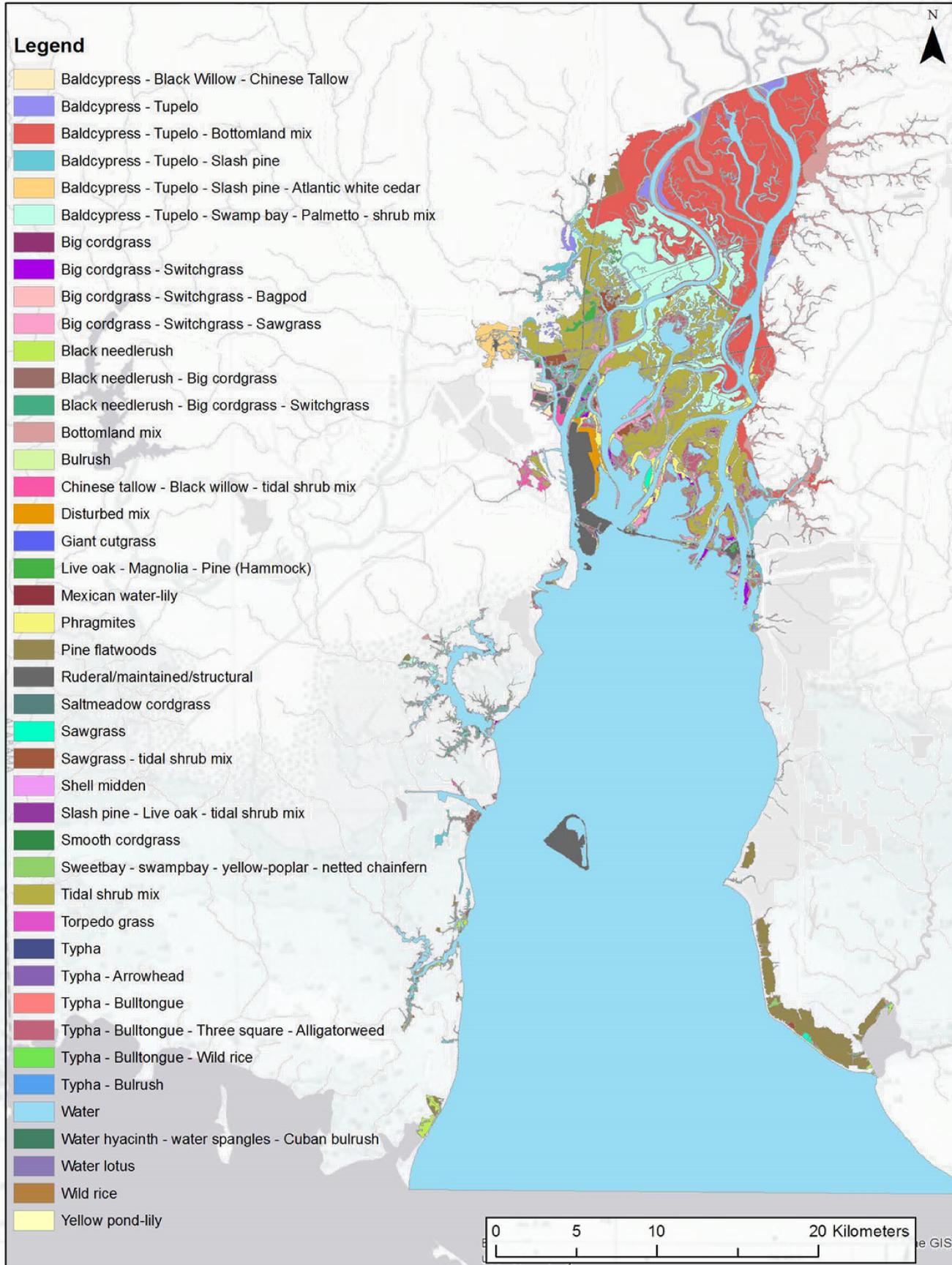


- Short-to-moderate disposal distance
- Best in calm water
- All material types – mud, sand, rock



- Deep-water dredging and disposal area
- Best dredge for rough seas
- Short- or long-haul distance
- Sand or mud





## ENVIRONMENTAL CONSIDERATIONS

### TASK: WETLAND ASSESSMENT AND MAPPING

**Description:** Use historical and field-verified data to identify and map the distribution of existing wetland communities and determine water-quality tolerances for wetland vegetation in areas potentially affected by channel modifications.

**Purpose:** Establish baseline conditions of existing wetlands to determine potential impacts based on water quality model predictions.

**Status:** 60% complete. The District team completed field studies to verify existing data sets. The team prepared maps illustrating existing wetland vegetation distributions. Water-quality tolerance analyses of wetland species are being finalized.

**Next Steps:** Compare information with water-quality model outputs to assess potential impacts.





## ENVIRONMENTAL CONSIDERATIONS

### TASK: SUBMERGED AQUATIC-VEGETATION (SAV) ASSESSMENT AND MAPPING

**Description:** Use historical and field verified data to identify and map the distribution of existing submerged aquatic vegetation (SAV) and determine water-quality tolerances for SAV species in areas of potential effect associated with channel modifications.

**Purpose:** Establish baseline conditions of existing SAV communities to determine potential impacts based on water-quality model predictions.

**Status:** 60% complete. The team has completed field studies verifying existing SAV data sets. They have prepared maps illustrating existing SAV distributions. Water-quality tolerance analyses of SAV species are being finalized.

**Next Steps:** Compare information with water-quality model outputs for potential impact assessments.



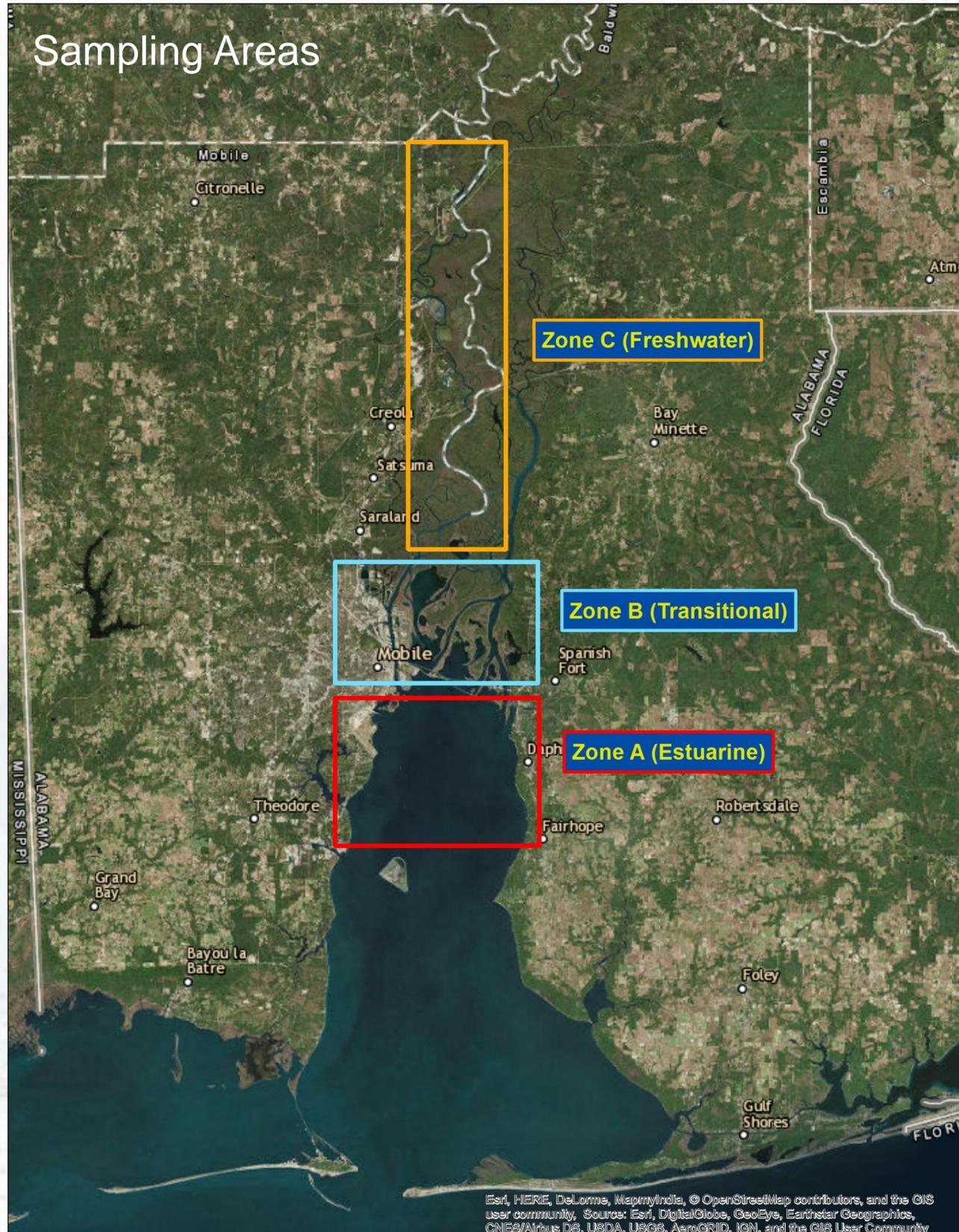
### TASK: OYSTER MODELING

**Description:** Use historical data sets and maps obtained from the State of Alabama to determine distribution of oyster resources in order to evaluate existing adult oyster reefs and determine larvae-distribution patterns throughout the bay.

**Purpose:** Evaluate potential impacts to oysters in the project area of influence based on the predictive water-quality and hydrodynamic models.

**Status:** 60% complete. The team has prepared maps to illustrate existing distribution of oyster resources within the bay. The District is finalizing water-quality tolerance analyses for local oyster communities. They are using numerical-modeling techniques to determine oyster-larvae distribution throughout the bay.

**Next Steps:** Compare information with water-quality and hydrodynamic model outputs to determine potential impact assessments resulting from channel modifications.



## ENVIRONMENTAL CONSIDERATIONS

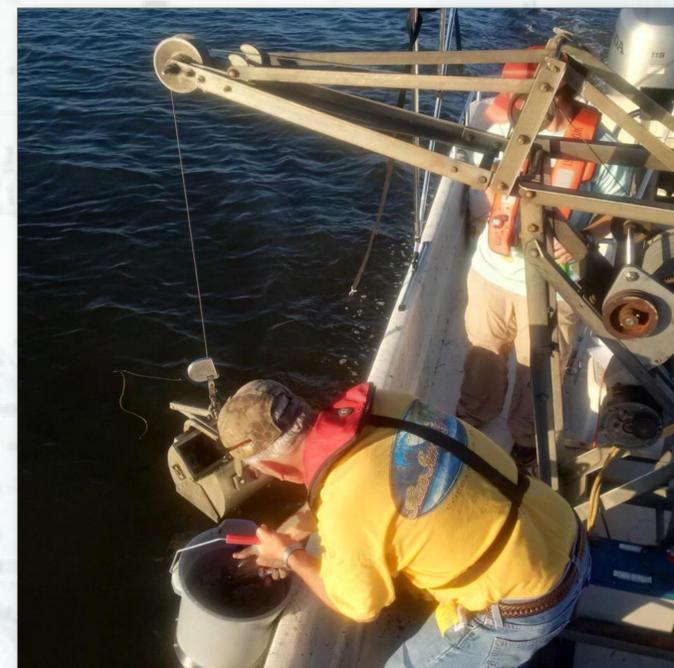
### TASK: BENTHIC COMMUNITY ASSESSMENT

**Description:** Collect sediment-benthic samples in critical ecological zones within the Mobile Bay including sediment and water-quality measurements. Conduct predictive analysis of water-quality changes to benthic invertebrates.

**Purpose:** Establish baseline conditions to analyze impacts to benthos from water-quality and saltwater intrusion based on information obtained through water-quality modeling.

**Status:** 60% complete. Spring/summer benthic sampling is completed. Sediment grain-size and total-carbon content analysis is completed. Statistical analysis and interpretation is in progress.

**Next Steps:** Compare information with water-quality model outputs for potential impact assessments.





## ENVIRONMENTAL CONSIDERATIONS

### TASK: FISHERIES ASSESSMENT

**Description:** Conduct fish-populations assessments to evaluate recruitment, growth and spawning of fish within the upper bay and delta.

**Purpose:** Establish a baseline to evaluate potential impacts to fish populations as a result of the proposed channel modifications.

**Status:** 60% complete. Data collection for spring/summer fish sampling is complete. Data analysis to quantify relationships between salinity and fish populations is ongoing.

**Next Steps:** Compare information with water-quality model outputs for potential impact assessments.



### OTHER ENVIRONMENTAL CONCERNS BEING ADDRESSED

#### Threatened and Endangered Species

- Gulf sturgeon
- Alabama red-bellied turtle
- Sea turtles
- Shore birds
- Manatees

#### Essential Fish Habitat

- Shrimp
- Crabs
- Red drum
- Migratory species

#### Cultural Resources

- Rich maritime history
- Coordination according to Natural Historic Preservation Act
- Dredging and placement areas evaluated
- Known and located resources evaluated for direct and indirect effects

#### Further Considerations

- Air quality
- Noise
- Environmental justice
- Cumulative impacts
- Consider comments received during recent public and focus group meetings regarding the effects of dredged material placement

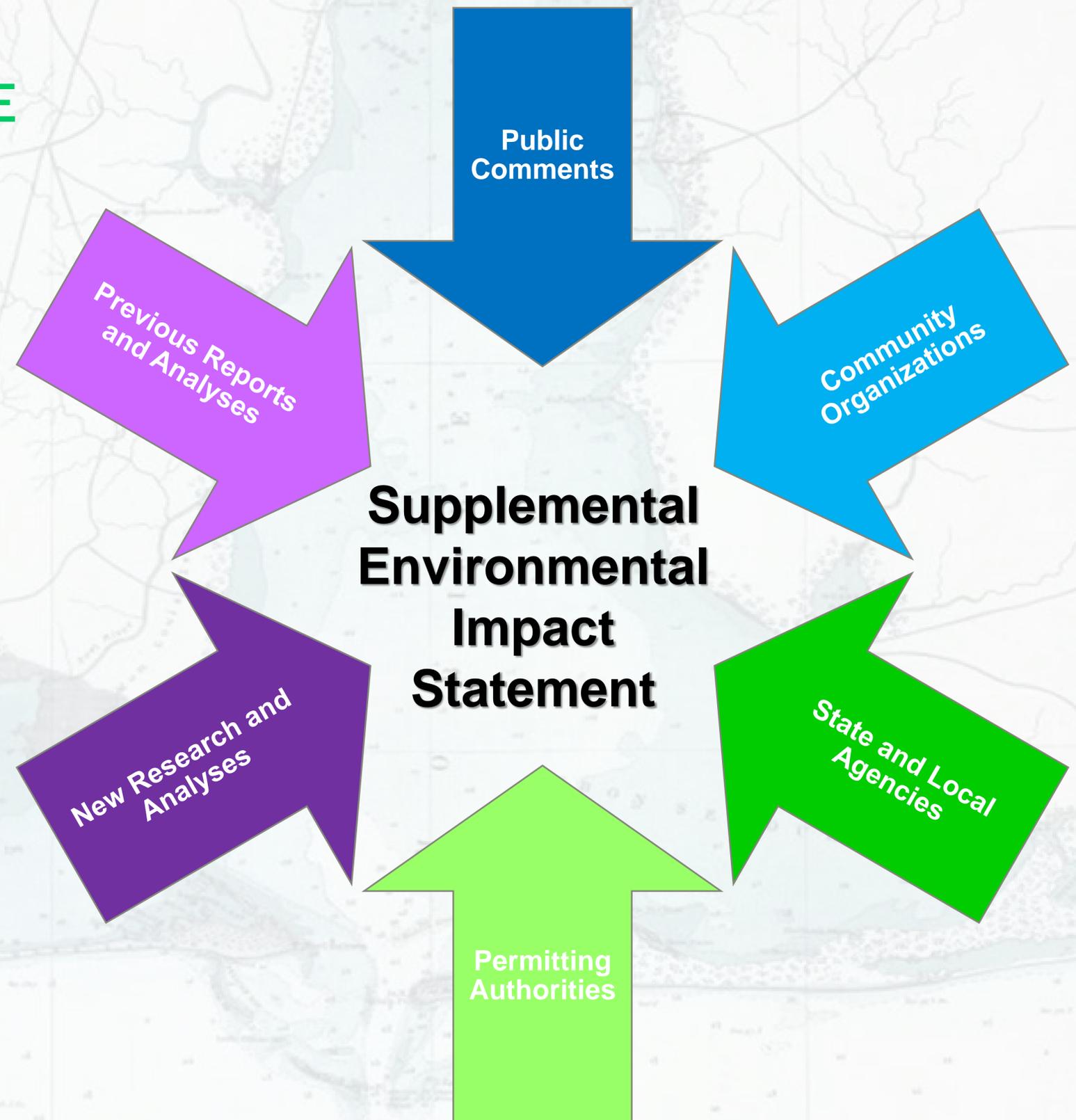


## NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

NEPA requires Federal agencies to use a systematic approach to consider potential impacts on the environment and the community.

### SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS)

- A Supplemental Environmental Impact Statement (SEIS) is a document prepared in accordance with the National Environmental Policy Act that presents the results of the analysis of the effects on the environment of a proposed action and its alternatives.
- An SEIS includes a description of the baseline conditions of the affected environment, evaluated against the effects of alternatives and the proposed action.
- An SEIS also identifies potential consequences and appropriate mitigation to minimize potential adverse impacts.





## Submit Your Comments

Your input will assure that all concerns have been considered during the study. Submit your comments in any of the following ways:



Using comment forms provided at display tables.



Email: [MobileHarborGRR@usace.army.mil](mailto:MobileHarborGRR@usace.army.mil)



Postal Mail:

U.S. Army Corps of Engineers

ATTN: PD-F

P.O. Box 2288

Mobile, AL 36628

## Stay Informed



Biweekly updates and project documents on the project website :

[www.sam.usace.army.mil/Missions/Program-and-Project-Management/Civil-Projects/Mobile-Harbor-GRR/](http://www.sam.usace.army.mil/Missions/Program-and-Project-Management/Civil-Projects/Mobile-Harbor-GRR/)



Sign up for the Listserve on the project website to receive a copy of the quarterly bulletin.

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**THANK YOU** for attending this evening.