

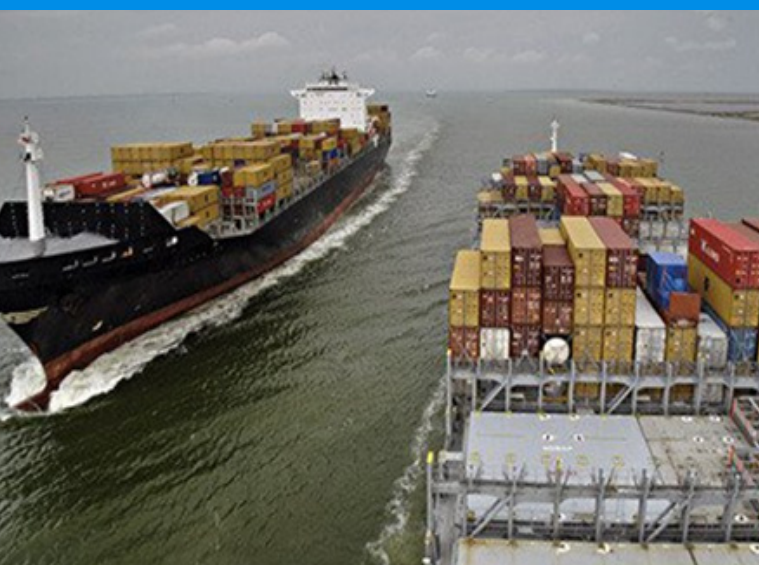


## NOAA PRECISION NAVIGATION Lower Mississippi River

### What is precision navigation?

**Precision navigation is the next generation of marine navigation tools.** Rather than multiple streams of data and models, precision navigation seamlessly integrates relevant port-specific data to provide the mariner with tailored information they need to make navigational decisions based on rapidly changing local conditions.

There is an ever-increasing need to use this approach in the busiest seaports where such tools will have the greatest impact on easing bottlenecks in shipping channels. NOAA identified the **Lower Mississippi River port complex** as the next area to implement new precision navigation projects. While each project will be unique to the specific challenges facing each port, NOAA will retain and build on the successful public-private partnership model of a pilot project in Long Beach, CA. This model integrates private sector innovation and NOAA data streams in an easy-to-use product for safe navigation.



### Lower Mississippi River port complex - *what a future project could look like*

#### Navigation Challenges

Navigating the more than 250 miles of the Lower MS port system presents a number of unique challenges that a precision navigation project would address, including:

- Congestion and crowded anchorages
- Low under-keel clearances
- Strong currents around sharp river bends
- Rapidly changing seafloor due to shoaling
- Fog
- Highly variable water levels strongly influenced by riverine discharge

Bottom line: A single collision or grounding could halt the activity of a significant portion of the multibillion-dollar shipping industry, with additional harm to other industries upstream that depend on it.

#### Precision Navigation Solution

Building precision navigation products in the Lower MS River will require multiple interrelated efforts. NOAA will:

- Enhance the detail and frequency of its bathymetric and shoreline surveys
- Acquire survey data in partnership with the U.S. Army Corps of Engineers
- Integrate river stage forecasts with coastal tide and surge forecasts to support draft restrictions and bridge clearances throughout the waterway
- Use high frequency radar to provide surface current observations at the Head of Passes in the Mississippi River Delta
- Install additional water level and air gap sensors at key locations as part of Physical Oceanographic Real Time Systems (PORTS®)
- Harmonize multiple vertical datums used for foundational water level data in the region



The final step in precision navigation will be to integrate the observations and forecasts above with shipboard navigation systems from third party software providers and distribute this integrated picture over internet and AIS feeds that show all ship movement data in a given area. NOAA is working with application developers and industry partners toward delivering this data in a unified, intuitive fashion so that minimal deliberation is needed from the mariner. All NOAA data streams are **publicly available, creating the opportunity for private sector innovation and product development from foundational NOAA data.**

NOAA is confident that this project will result in significant returns on investment:

- Reduced risk of groundings or collisions with bridges
- Greater confidence in projected courses, leading to more optimal loading and fewer diversions to alternate ports
- Fewer and shorter delays at anchor
- Improved understanding of riverbank stabilization in anchorage locations
- More efficient use of finite physical infrastructure



### Schedule

- This project would take a minimum of five years to complete and is dependent on funding. In the early stages of the project, hydrographic surveys and shoreline surveys in critical areas will be needed, as well as the installation of PORTS® sensors in key locations. Once data are collected, NOAA and partners will process and apply them to site-specific experimental models.
- In the following years, NOAA will validate and finalize the forecast system model and work with partners on dissemination and utilization.
- To maximize return on investment, the enhanced mapping and observations will produce benefits in advance of the precision navigation tool in the form of better electronic navigational charts and PORTS® data.

### Customer and stakeholders who have voiced strong support for this project:

- The Crescent River Port Pilots Association (Belle Chasse, LA)
- The New Orleans-Baton Rouge Steamship Pilots Association (Metairie, LA)
- The Associated Branch Pilots (Metairie and Venice, LA)