PRECISION MARINE NAVIGATION Information Infrastructure for the New Blue Economy

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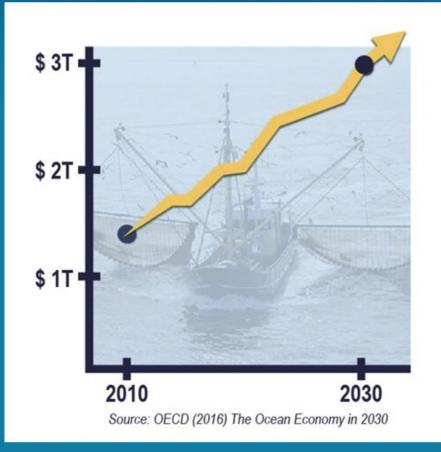
What is precision marine navigation?

...the ability of a vessel to safely and efficiently navigate within the U.S. EEZ and operate in close proximity to the seafloor, bridges, narrow channels, or other marine hazards.

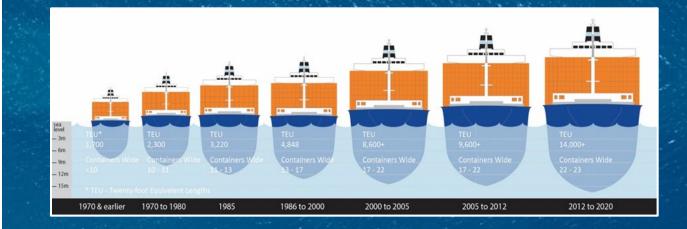


The Maritime Economy

Projected Global Growth by 2030

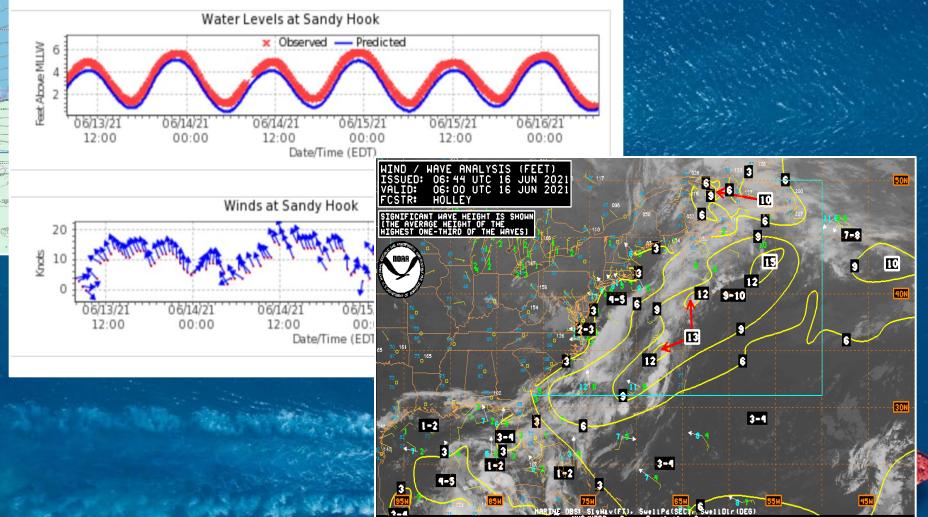


NOAA





NOAA's Navigation Products



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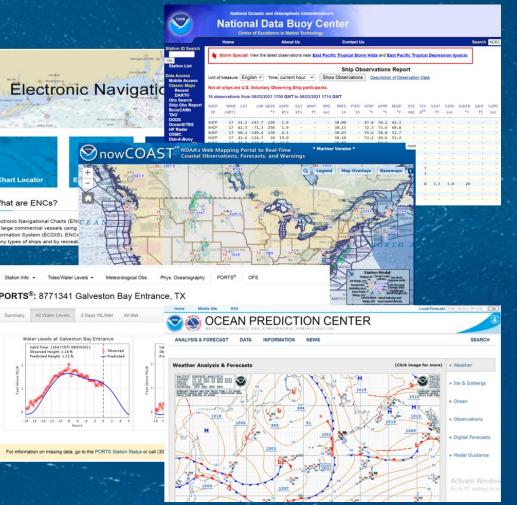


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Navigation Data Challenges

Difficult to access and process NOAA's navigation data, due to:

- Multiple devices and systems required to access the data
- Datasets spread across various websites and data servers
- Datasets are encoded in different formats that are not navigation standards







Precision Marine Navigation Program

MARINE

- Leveraging International Standards (S-100)
- Precision Marine Navigation
 Data and Dissemination
 Services

□ Machine to Machine capability

Marinenavigation.noaa.gov Website





TOOLS CHARTS WARNINGS OBSERVATIONS & FORECASTS CONTACT NEWS ABOUT

PRECISION MARINE NAVIGATION

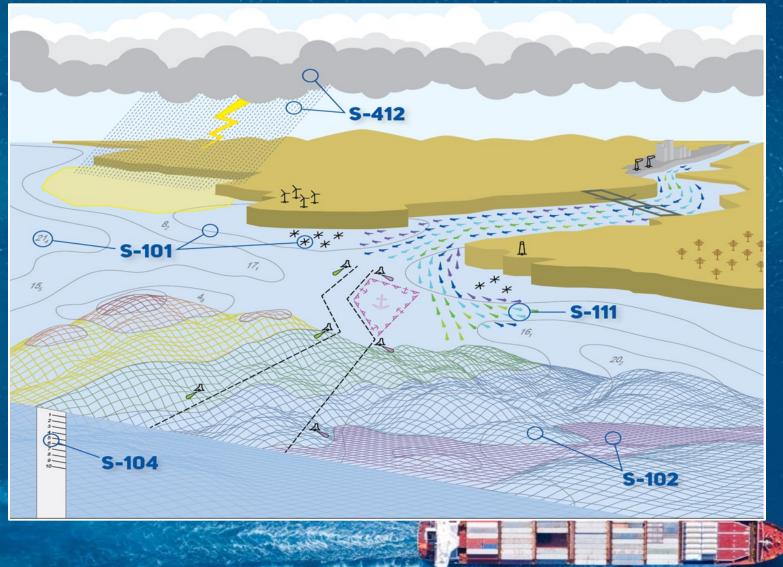
Precision marine navigation is the ability of a vessel to navigate safely and efficiently within U.S. waterways. It relies on foundational oceanographic, meteorological, and electronic navigational charing data, observations; predictions and forecasts; and critical martine information. Our goal is to make this information easily accessible and readily available in internationally recognized navigation standards, such as S-100. Doing so will provide support to mariners throughout every step of a voyage. Here you can find summaries of and links to the various navigation products and services that NOAA and its Federal partners offer.



S-100 Data Framework

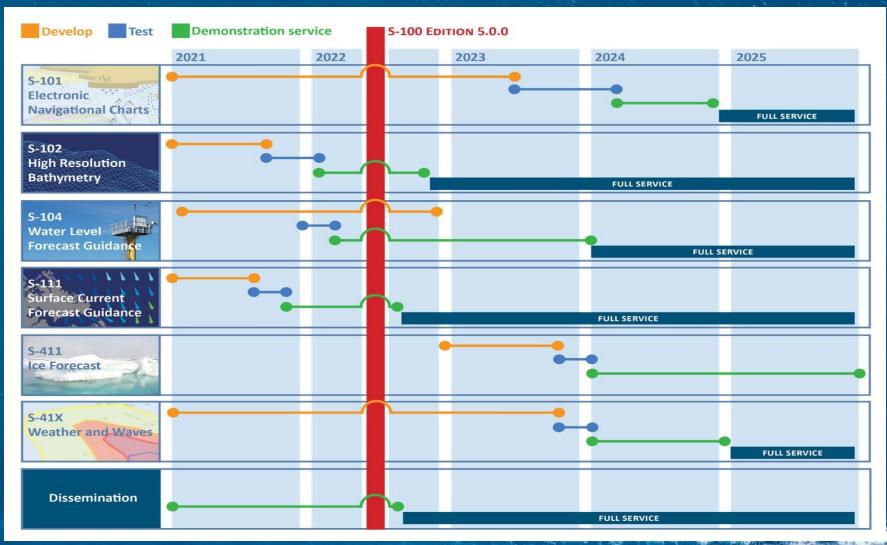
S-100 Data Products

- **S-101**: Electronic Navigational Charts
- **S-102:** Bathymetric Surface
- □ S-104: Water Level Information for Surface Navigation
- S-111: Surface Currents
 S-41X: Weather Overlays



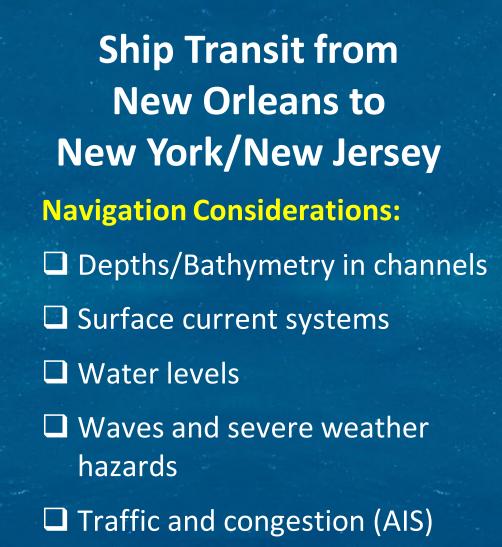


PMN Rollout



CAN SERVICE CONTRACTOR

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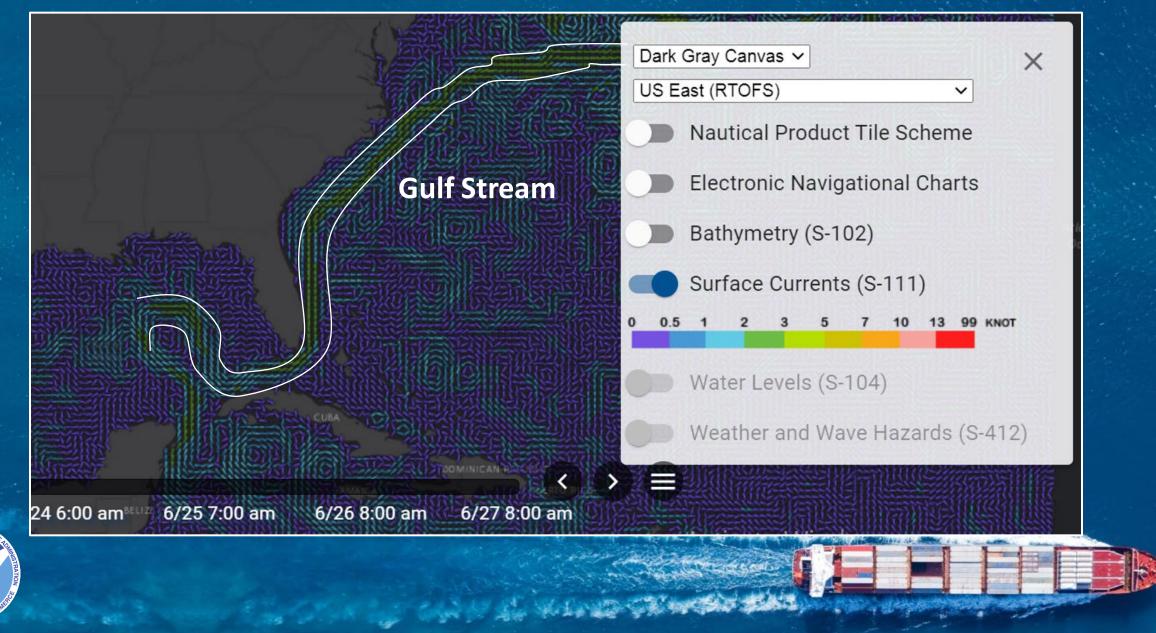








Pre-Voyage: Route Planning



IORE

Pre-Voyage: Route Planning

S-111 12-hour Forecast (NOLA)

S-111 72-hour Forecast (NYC)

6/26 6:00 am

6/27 8:0

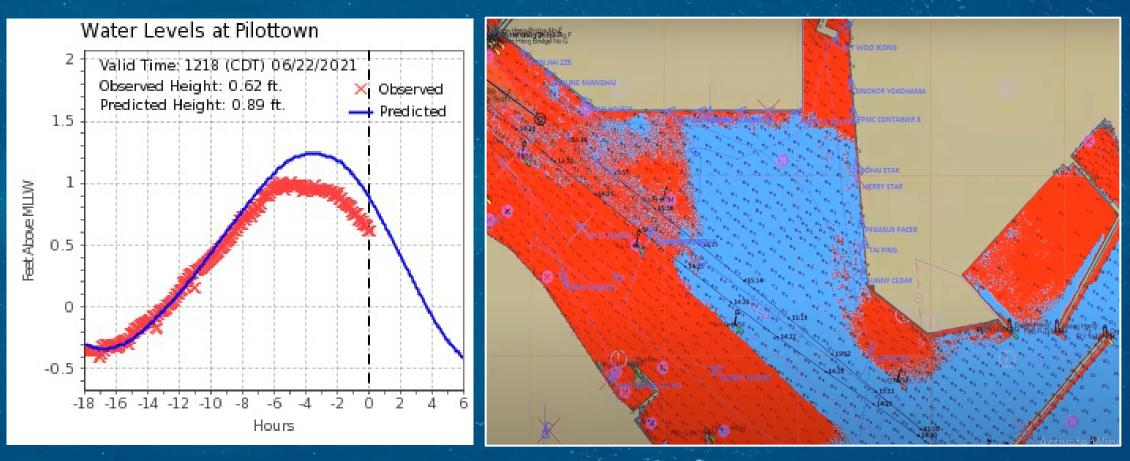


S-111 surface current data enables route optimization; Fuel reductions = emissions reductions and cost savings

the star



Leaving New Orleans: Water Levels



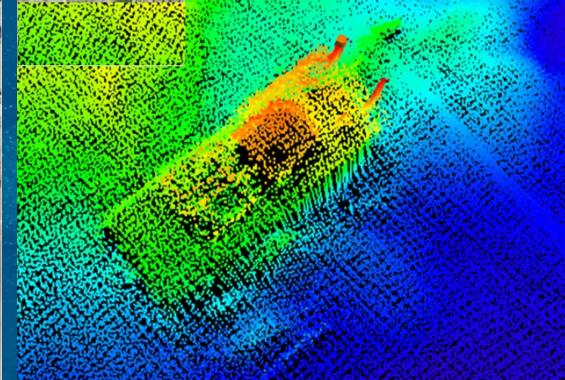
S-104 data will make it clear where it is safe for the ship to maneuver





South of Baton Rouge, LA: Bathymetric Surface



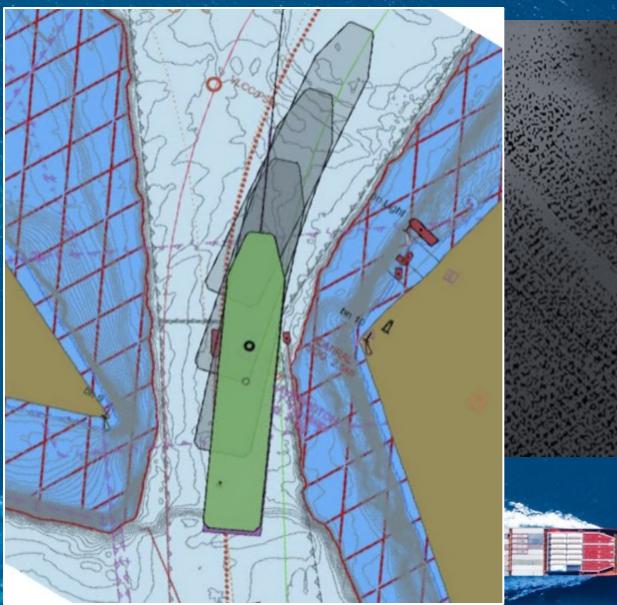


Numerous accidents occur in the Lower Mississippi, including groundings where there is little underkeel clearance



South of Baton Rouge, LA : Bathymetric Surface

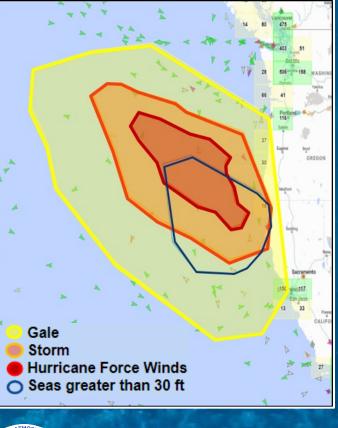


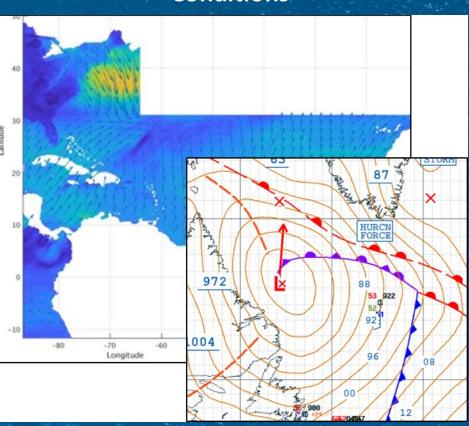


At Sea: Waves and Weather

S-412: Wave and Weather Hazards S-413: Wave and Weather Conditions

S-414: Wave and Weather Observations





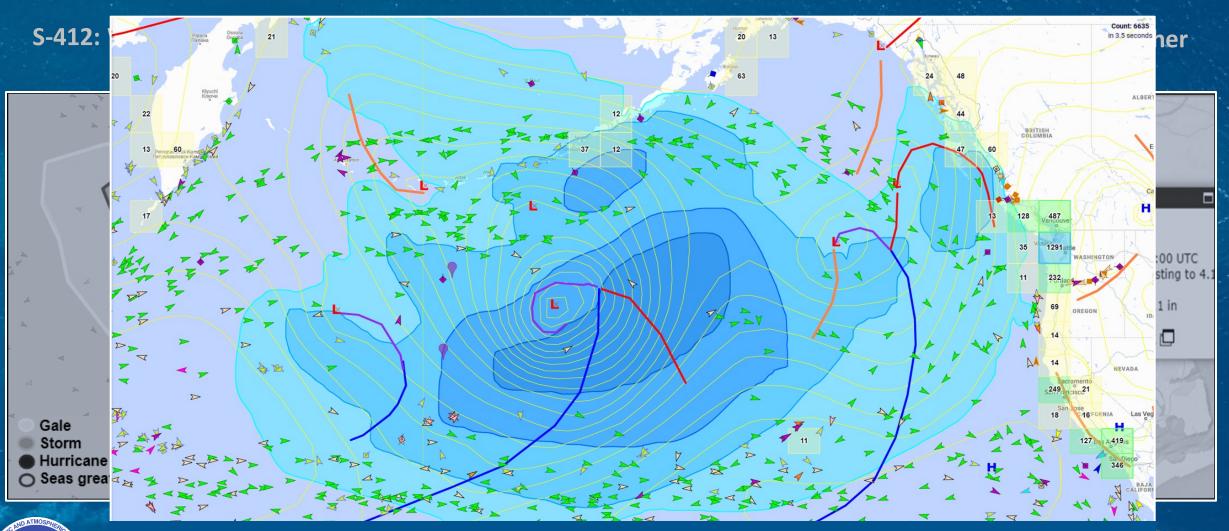


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At Sea: Waves and Weather



S-41X will provide critical marine weather information to ensure safety at sea

NOAA

Arriving at New York/New Jersey:

dde Island Sound

Hudson

Using PMN services can improve efficiency and reduce congestion

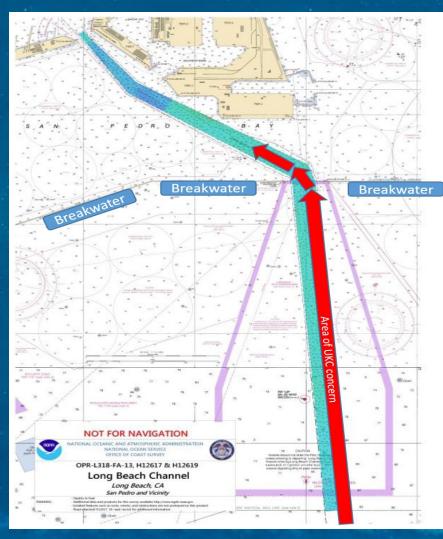
Long Island Sound

Benefits of Precision Marine Navigation Making the marine navigation data more accessible can enhance the decision-making process, leading to increased efficiency...

Optimizing routes for fuel savings and reduced CO2 emissions
 Reducing lightering offshore (Safety issue)
 Reducing port wait times
 ...and improved safety
 Reduced collisions, allisions, and groundings
 Avoiding hazardous weather conditions



PMN Success Story



Underkeel Clearance concerns in the Long Beach Channel: Dredged to 76' to allow tankers with 69' draft Long period swells necessitated draft limitation of 65' **G** Forced offshore lightering New surveys allowed for S-102 data Draft increased to 69' Millions of dollars in savings

PMN Milestones

- Implemented full S-100 Discovery Metadata for machine-tomachine dissemination
- Released prototype PMN Data Processing and Dissemination System
- Released beta version of PMN Data Gateway viewer running on AWS
- Upcoming launch of marinenavigation.noaa.gov website

 Continued stakeholder outreach and engagement



Questions?