Precision Navigation Services are Key in Supporting Safe and Efficient Navigation

Approximately 35% of the Vessel Control Measures issued in 2017 affect the Kill Van Kull. The timing and planning of ship movements is critical to safe and efficient navigation. NOAA's Precision Navigation Services help users mitigate these events by allowing users to integrate high-resolution bathymetry with real-time, nowcast and forecast data such as winds, water levels, currents, salinity, and temperature to provide enhanced decision support.

75%

10%

85%

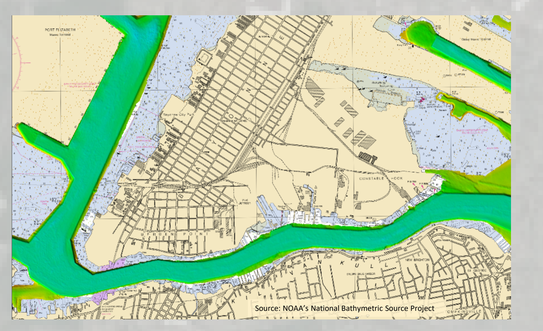
10%

5%

100%

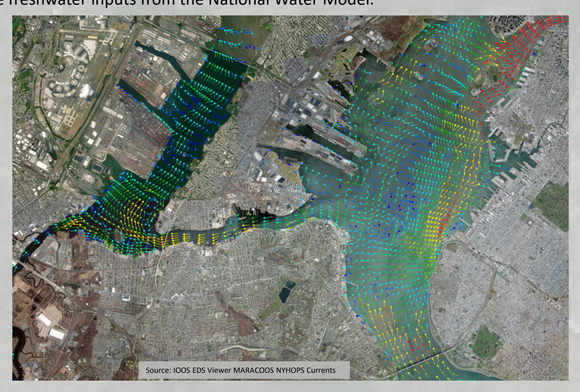
NOAA Precision Navigation Services

High Resolution Bathymetry serves as cornerstone for Precision Navigation. It is the surface for which mariners need to navigate as well as a foundational element of any physical oceanographic model in the precision navigation suite. High resolution bathymetry has been collected by NOAA and USACE. USACE regularly collects multibeam bathymetry with the federal channels and shares it with NOAA.



Real-time observations are provided at key locations through **NOAA's PORTS®**. The location of observations are based on stakeholder's needs. The PORTS® suite includes: water level, currents, temperature, salinity, air gap and visibility. Observations are updated every 6 minutes. New York/New Jersey Harbor PORTS® consists of 11 locations with a variety of different sensors at each site.

Operational Models serve as planning tools for mariners. Weather and Water Models are state of the art numerical models driven by real time observing systems that predict conditions that may affect the safety and efficiency of movements with the harbor. The **New York and New Jersey Operational Forecast System** (NYOFS) is currently run and disseminated by NOAA's Center for Operational Oceanographic Products and Services. Requirements are being collected to inform the 2020 upgrade of the NYOFS model. The upgraded version of NYOFS will serve a larger domain, forecast in three dimensions and have freshwater inputs from the National Water Model.



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Legend:
Facility Capacity: %
Real Time Winds:
Real Time Water Level:
Real Time Air Gap:
Real Time Currents:
Nowcast & Forecast: