

# NOAA Office of Coast Survey

Navigation Services Division

Kyle R. Ward

NOAA Navigation Manager

Southeast and Caribbean Region

August 8, 2017

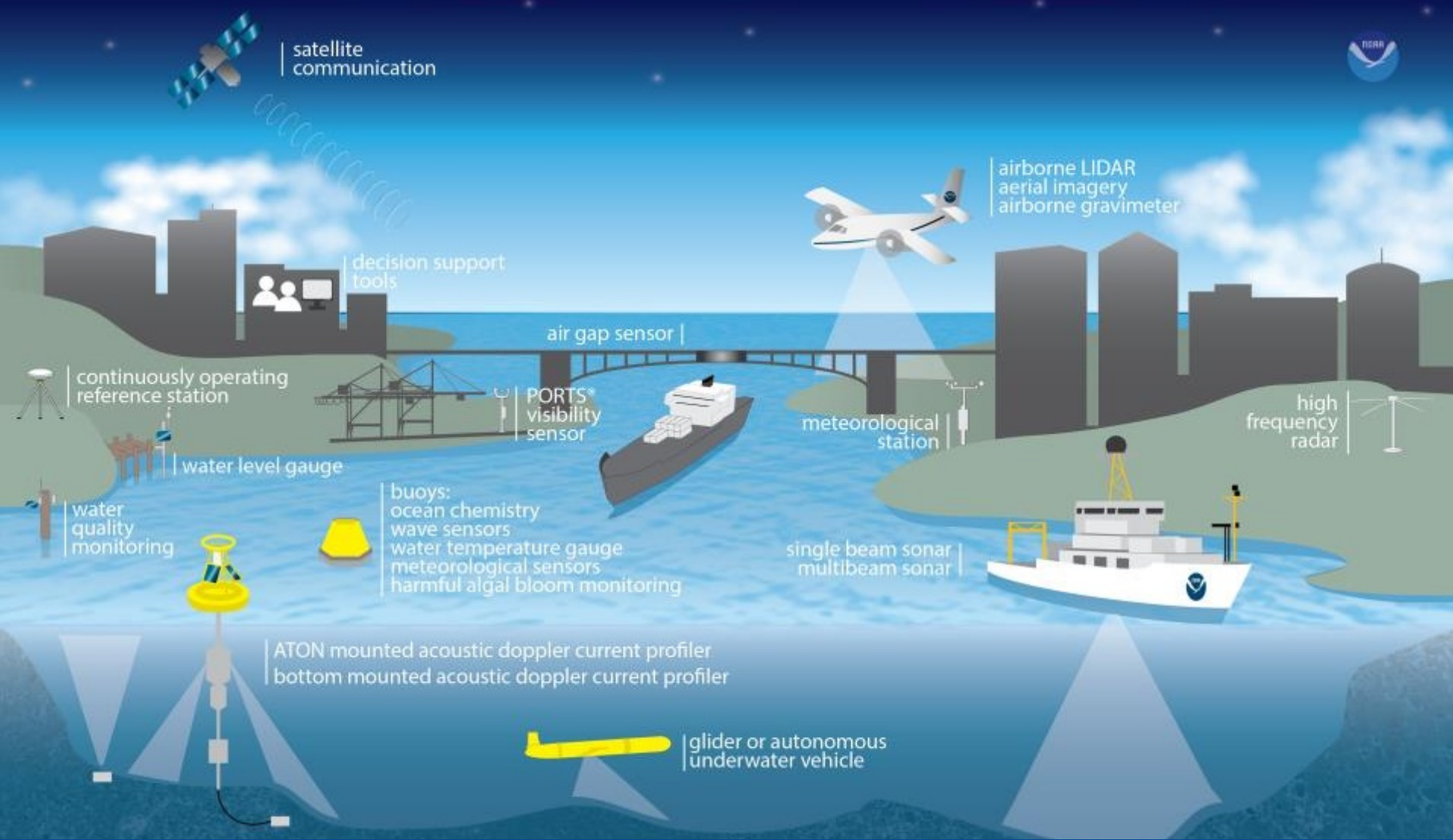


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National Oceanic and Atmospheric Administration



# NOAA: environmental intelligence



# NOAA: environmental intelligence



National Hurricane Center  
<http://www.nhc.noaa.gov>



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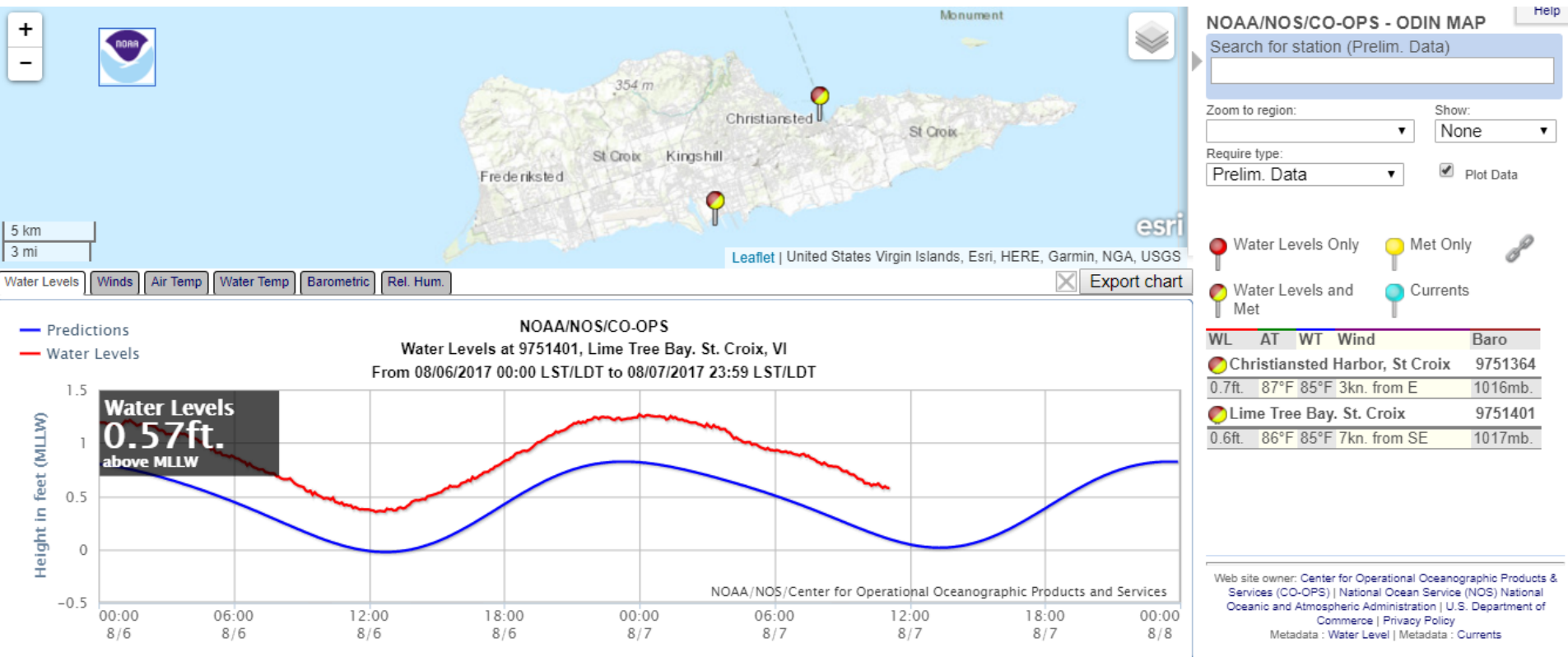


# NOAA: environmental intelligence

Center for Operational Oceanographic Products and Services

## CO-OPS

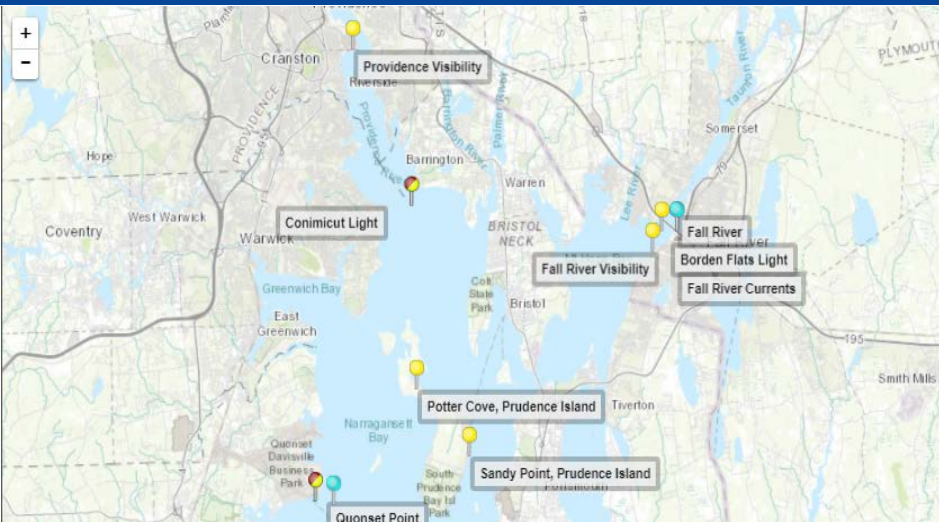
<https://tidesandcurrents.noaa.gov/>



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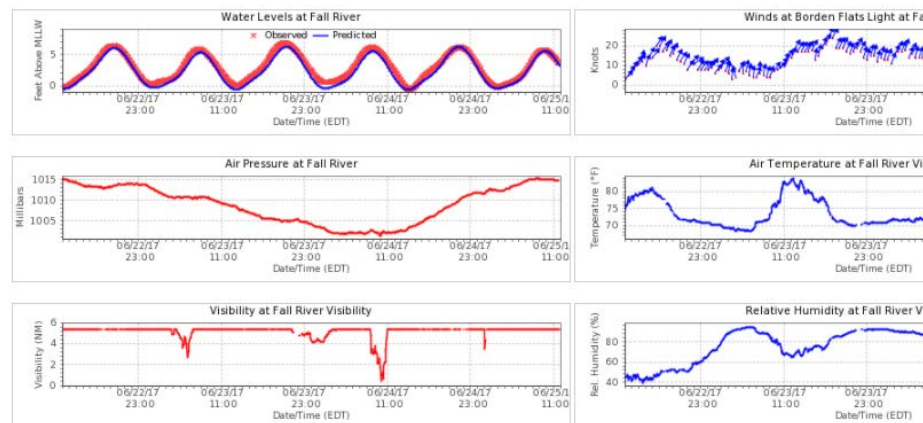
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# NOAA: environmental intelligence



PORTS®: 8447412 Fall River Visibility, MA

Summary 3 Days WL/Met All Met



## PORTS®

- Measures and disseminates observations, predictions, and nowcast/forecasts for water levels, currents, bridge air gap, salinity, and meteorological parameters (e.g., winds, waves, atmospheric pressure, visibility, air and water temperatures).
- Improves navigation safety by reducing groundings and collisions by up to 60% for commercial and recreational vessels and preventing oil spills.
- Increases shipping efficiency by reducing transit delays and allowing mariners to optimize cargo load.



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# Navigation managers provide NOAA resources

## Navigation managers work with:

- ✓ U.S. Coast Guard
  - ✓ Marine pilots
  - ✓ Port authorities
  - ✓ State officials
  - ✓ Media
  - ✓ Recreational boaters
  - ✓ Coastal managers
  - ✓ Members of Congress
- 
- Eleven stationed strategically in port areas along U.S. coasts and Great Lakes
  - Help identify navigational challenges facing the marine transportation system
  - Provide the resources and services that promote safe and efficient navigation

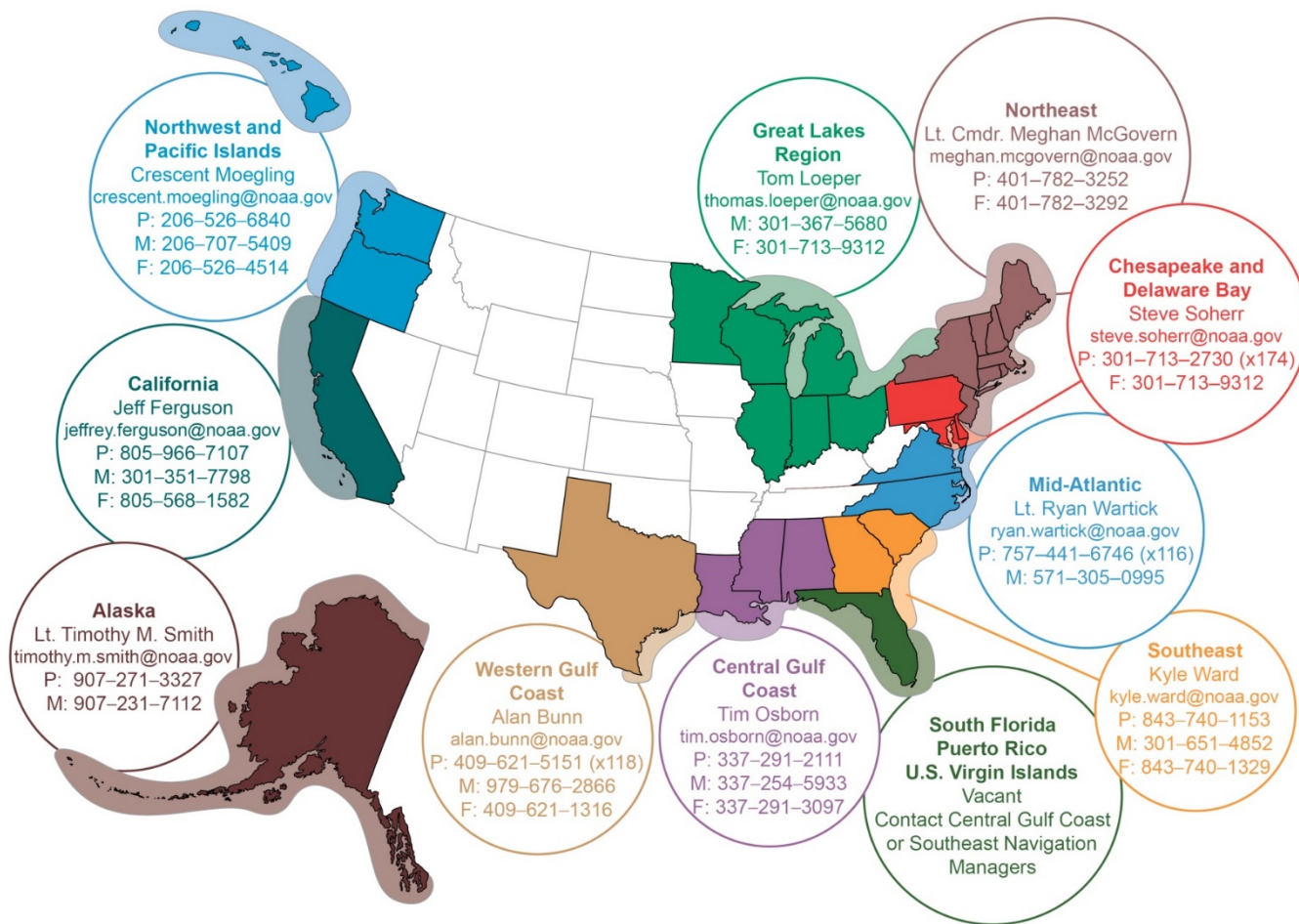


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# Navigation managers provide NOAA resources

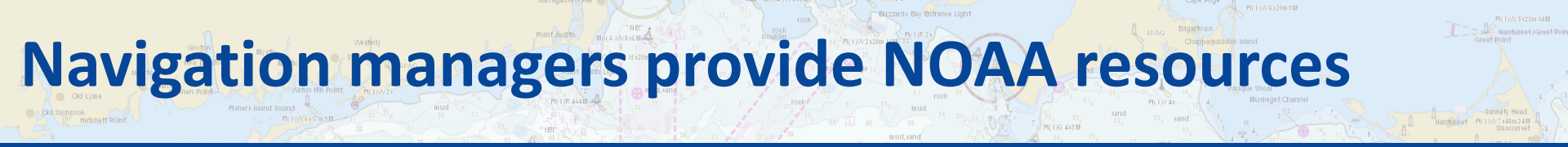


<https://www.nauticalcharts.noaa.gov/nsd/reps.htm>



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# Navigation managers provide NOAA resources

## Marine Transportation System – Recovery Unit



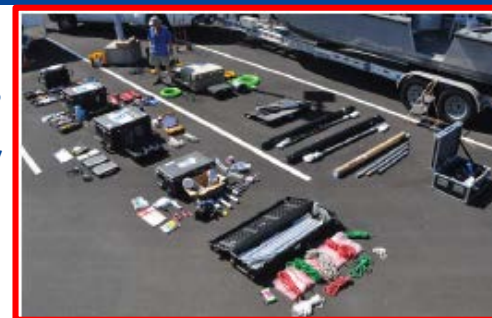


# NOAA survey assets



*Thomas Jefferson*  
Norfolk, VA

*MIST - Mobile  
Integrated Survey  
Team*



*Rainier*  
Newport, OR

*Ferdinand R. Hassler*  
NH



*Fairweather*  
Ketchikan, AK

Navigation  
Response Team  
NRT-2 in  
Jacksonville, FL



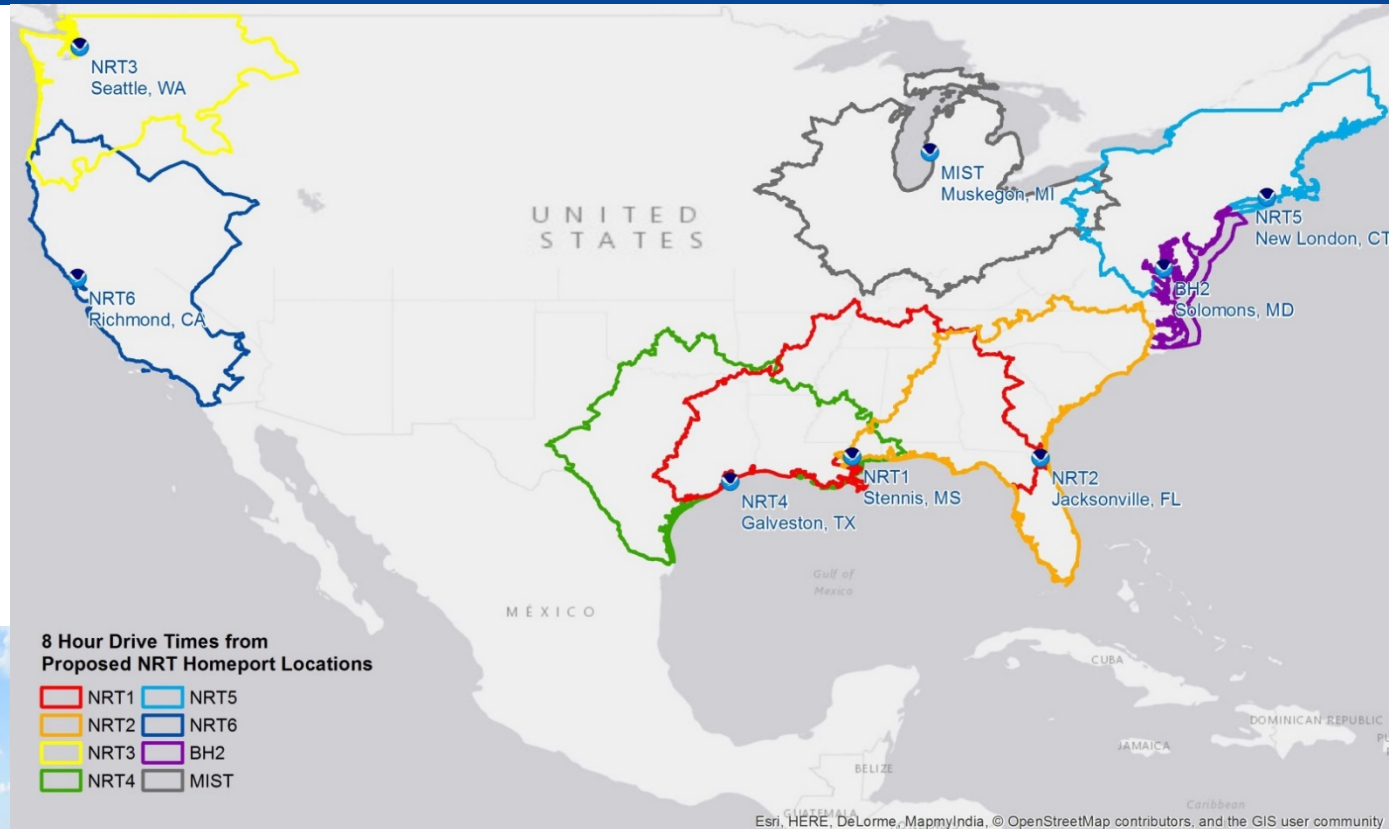
King Air



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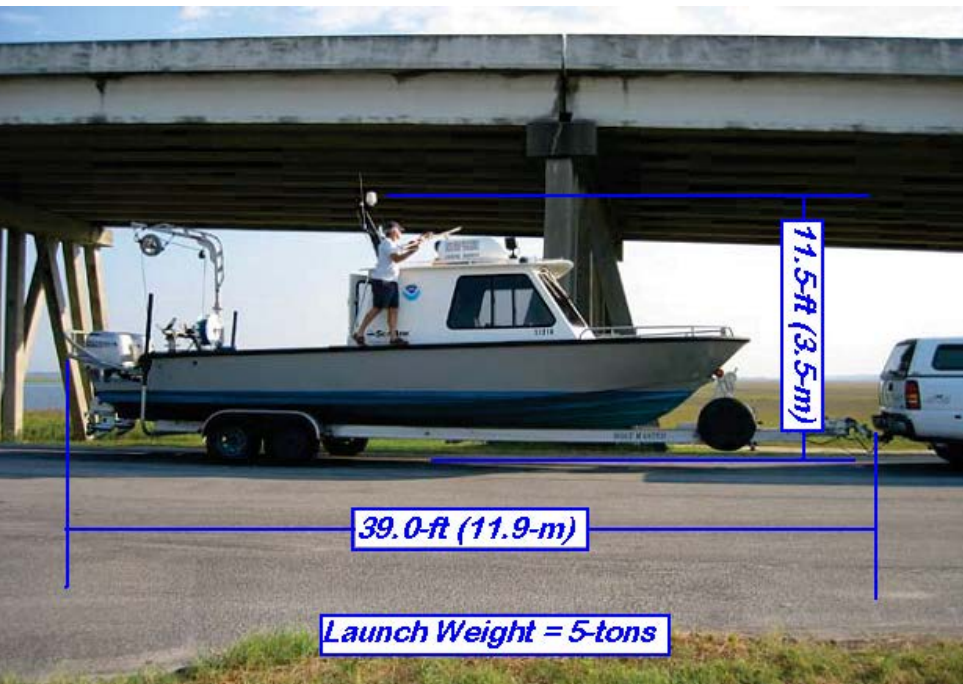
# Navigation response teams

*NRTs work closely with navigation managers*



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# Navigation response teams



## Navigation Response Team 2

- 3-personnel
- 30' SeaArk Hydrographic Launch
  - Dual 4-stroke outboards
  - Trailer requires 2-5/16" ball
  - Differential GPS and IMU positioning
  - Multi-beam Sonar (depth and object detection)
  - Side-Scan Sonar (object detection)
- 2 Chevrolet Suburbans (tow package)
- Chevrolet 1-ton pickup (tow package)
- Office trailer with processing and plotting equipment
- In-house survey planning, data acquisition, and processing capability



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# Navigation response teams

## Navigation Response Team 2

### Requirements

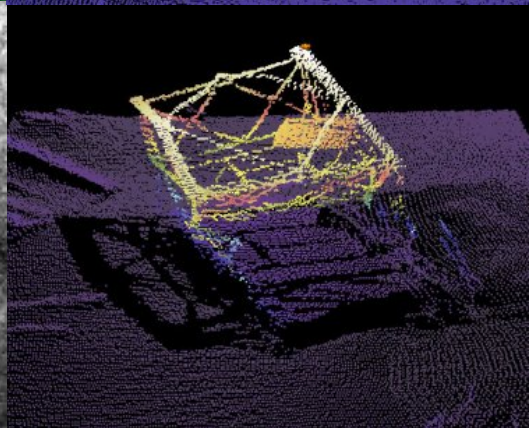
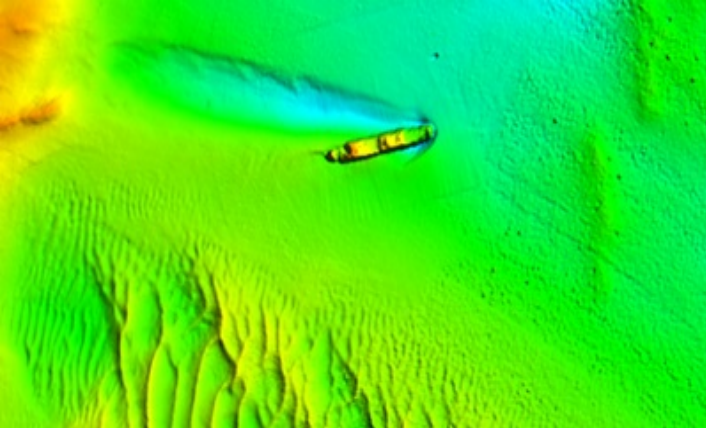
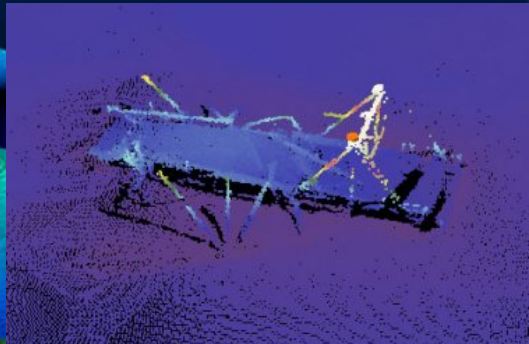
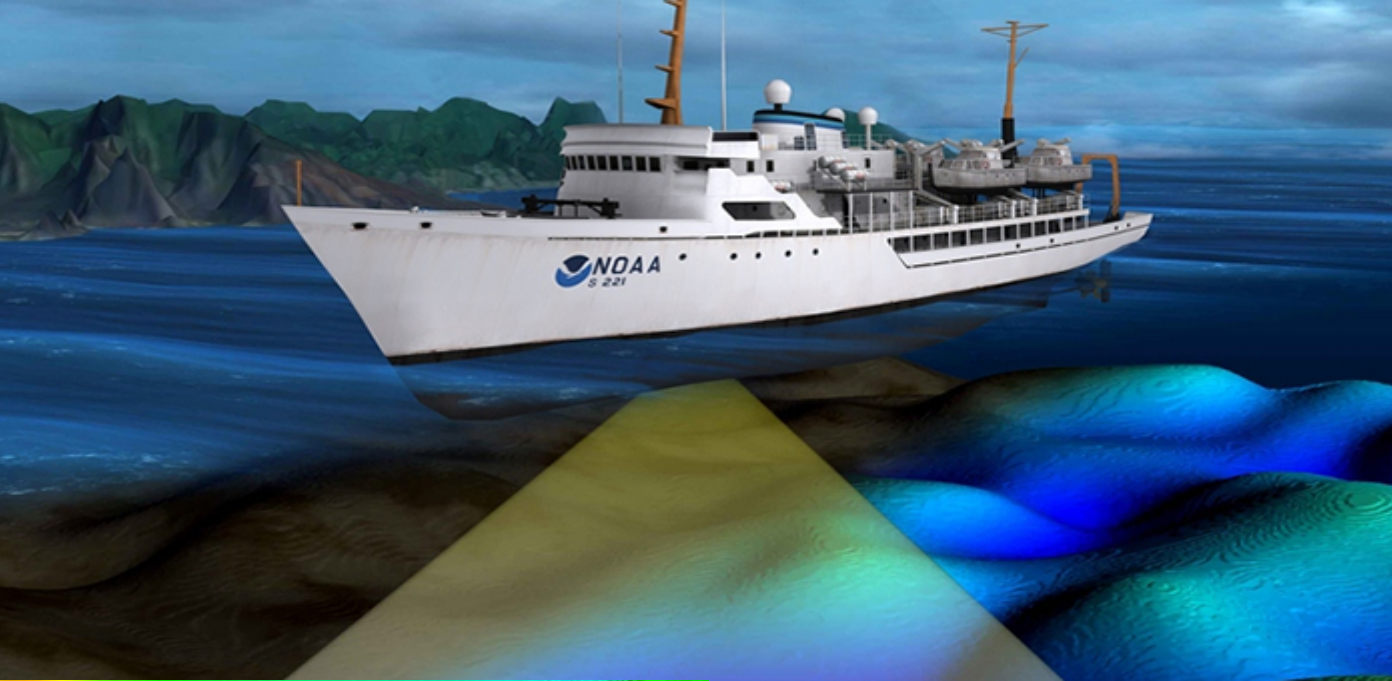
- Lodging or access to lodging for 3-personnel
- Access to fuel (gasoline for vehicles and boat)
- Access to food supplies and/or meals
- Secure Storage for boat trailer
- Secure Parking for 3 Government Vehicles
- Access to boat ramp or secure moorage for survey launch
- 125-V (50-Amp or 30-Amp) Shore power supply—OPTIONAL
- Office space for processing or power and site for office trailer



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# Navigation products



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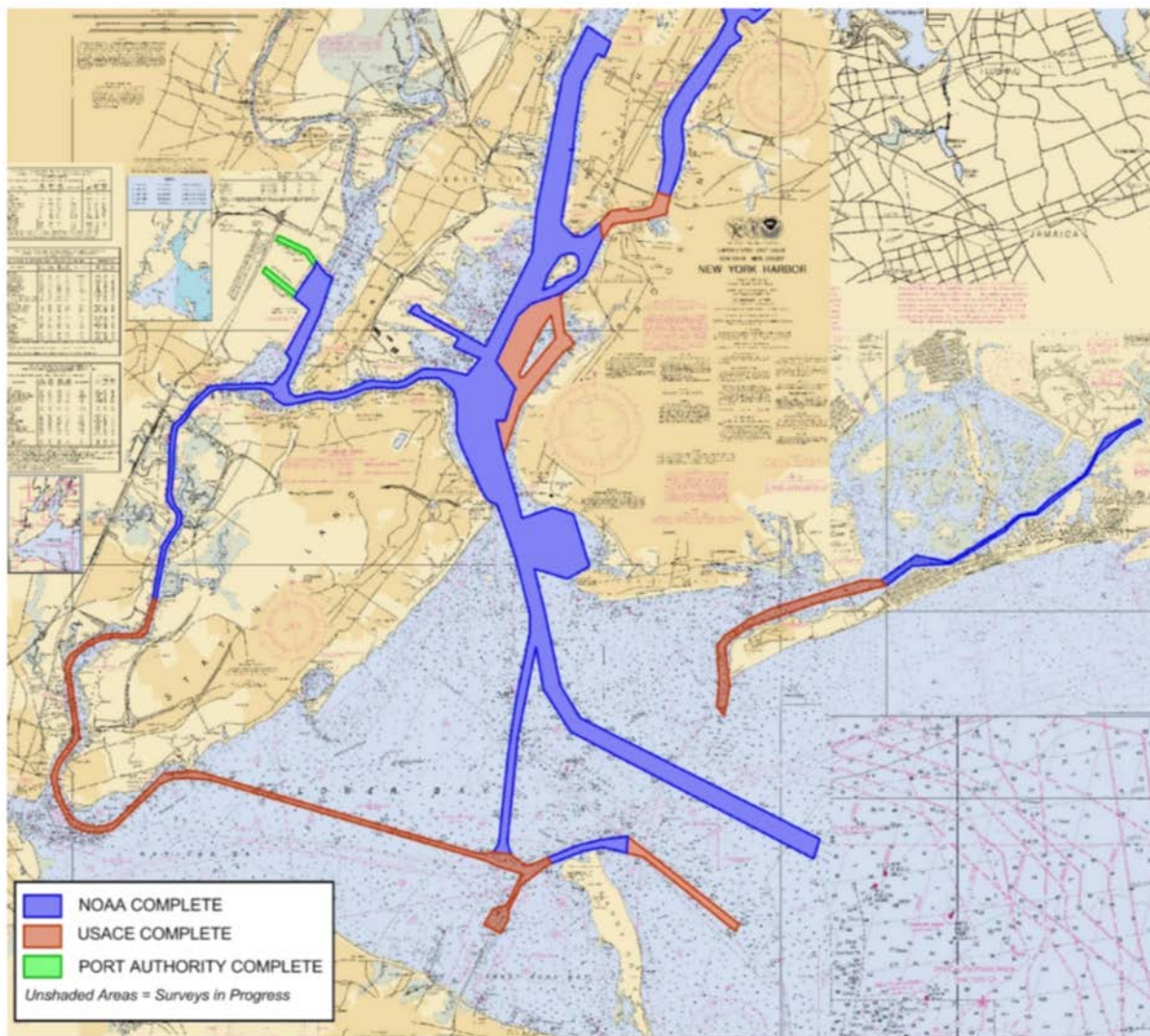


# Navigation products





# Ex: NOAA Sandy response surveys



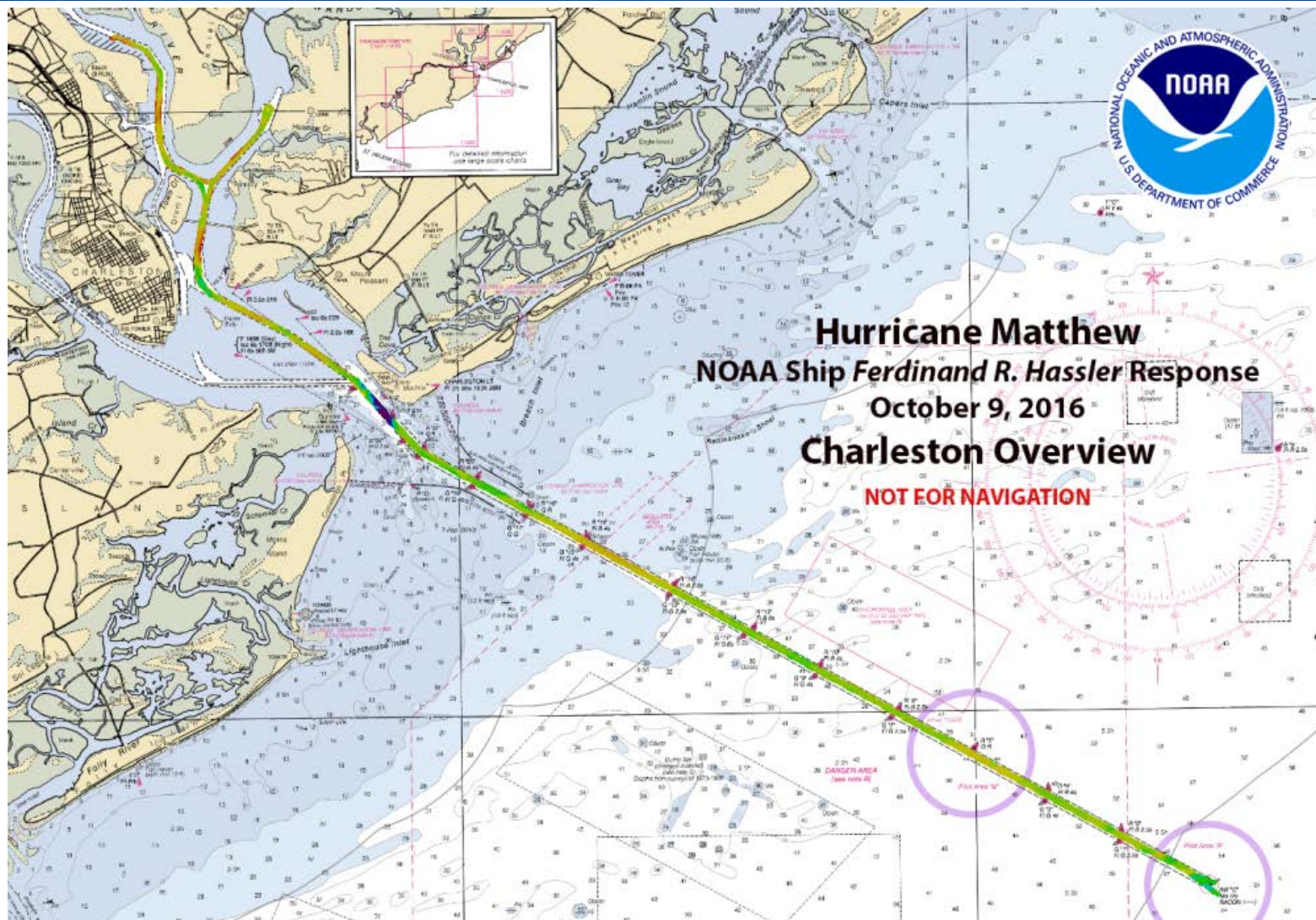
NOAA surveyed 20-square nautical miles in 5 days, ensuring that all shipping channels in the Port of New York & New Jersey were clear of any hazards.

NOAA's completed survey areas represent over 80% of total survey requests for the Port of New York & New Jersey





# Ex: Hurricane Matthew Response



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# Requesting a navigation response

## Initiation of NOAA NSD Response

- Requests for a NOAA response should originate from the USCG COTP office and be directed to a NOAA Navigation Manager.
- Request should be specific and in writing via e-mail.
- Will be reviewed by Navigation Manager and forwarded to the Chief, NOAA Navigation Services Division for approval.
- Depending on the nature of the response, the NOAA Navigation Manager may travel to the site and act as the NOAA liaison/NOAA response coordinator under the direction of the USCG On-Scene Commander.



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# Additional response capabilities

- NOAA Office of Response and Restoration
- NOAA National Geodetic Survey



# Additional response capabilities: NGS



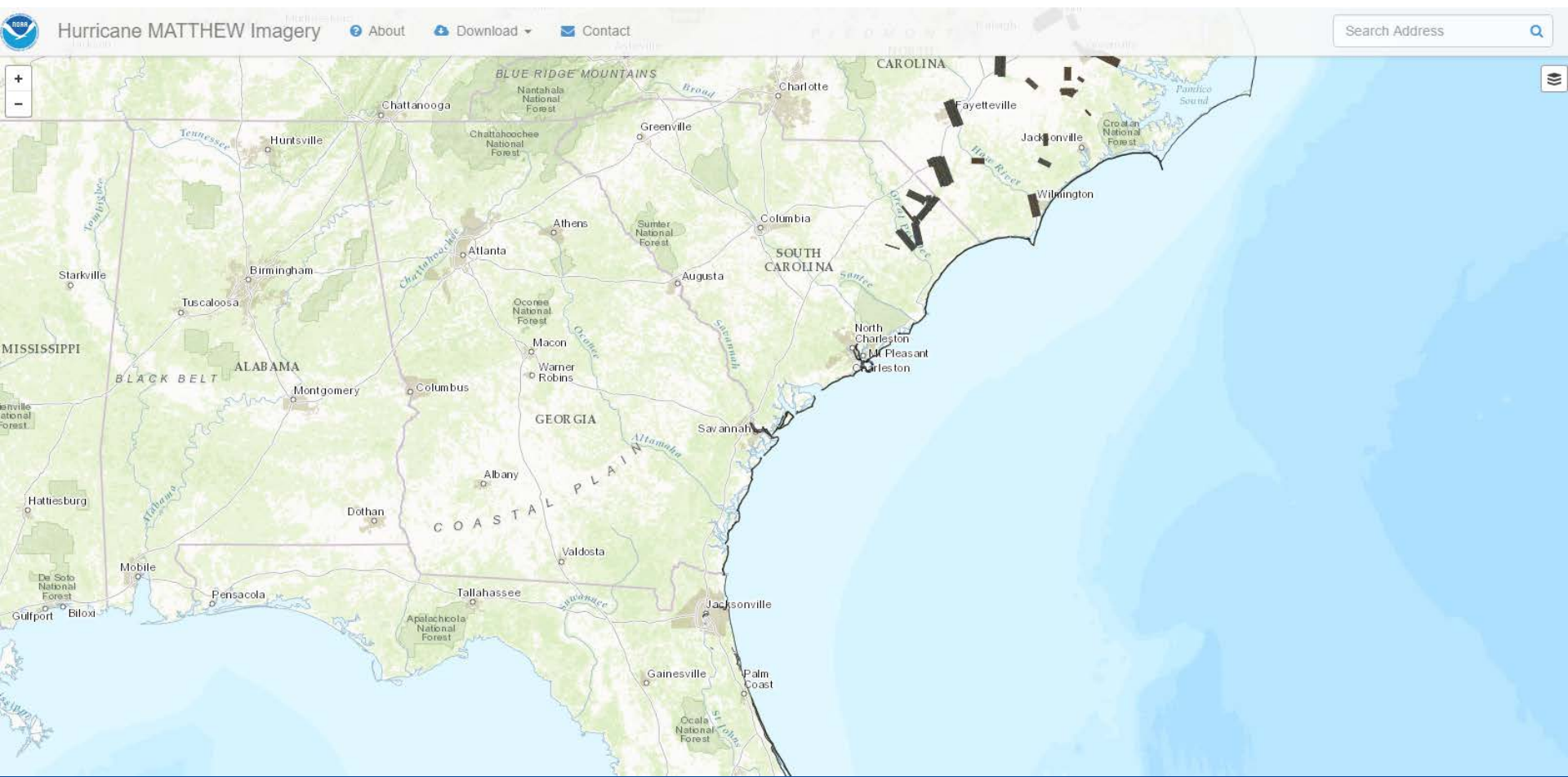
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# Additional response capabilities: NGS

## Hurricane Matthew imagery



# Additional response capabilities: NGS



## National Geodetic Survey

## National Geodetic Survey

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The imagery posted on this site was acquired by the **NOAA Remote Sensing Division** to support NOAA national security and emergency response requirements. In addition, it will be used for ongoing research efforts for testing and developing standards for airborne digital imagery.

### Emergency Response Imagery:

**Hurricane Matthew (2016)**  
**Louisiana Flooding (2016)**  
**Midwest U.S. Flooding (2015)**  
**Illinois Tornadoes (2015)**  
**Hurricane Arthur (2014)**  
**Hurricane Sandy (2012)**  
**Hurricane Isaac (2012)**  
**Hurricane Irene (2011)**  
**Joplin, MO Tornado (2011)**  
**Tuscaloosa, AL Tornado (2011)**  
**North Dakota Flooding (2011)**  
**Hurricane Earl (2010)**  
**Nor'Easter Nov09 (2009)**  
**Hurricane Ike (2008)**  
**Hurricane Gustav (2008)**  
**Hurricane Humberto (2007)**  
**Tropical Storm Ernesto (2006)**  
**Hurricane Wilma (2005)**  
**Hurricane Rita (2005)**  
**Hurricane Ophelia (2005)**  
**Hurricane Katrina (2005)**

<http://storms.ngs.noaa.gov>



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# Additional response capabilities: NGS



2016 Louisiana Flooding



2016 Hurricane Matthew (Oblique)



2012 Hurricane Sandy



2011 Tuscaloosa, AL Tornado







# Additional response capabilities: NGS

**EXAMPLE 1 (Pre-event)**  
**Damage Assessment Conducted**  
**Using FEMA's 4-Level Damage Scale**

FEMA Damage Classification		
Damage Level		Observed Damages
General Damage Classifications		
LD	Limited Damage	Generally superficial damage to solid structures (e.g., loss of tiles or roof shingles); some mobile homes and light structures are damaged or displaced.
MD	Moderate Damage	Solid structures sustain exterior damage (e.g., missing roofs or roof segments); some mobile homes and light structures are destroyed, many are damaged or displaced.
ED	Extensive Damage	Some solid structures are destroyed; most sustain exterior and interior damage (roofs missing, interior walls exposed); most mobile homes and light structures are destroyed.
CD	Catastrophic Damage	Most solid and all light or mobile home structures destroyed.

2011 Tuscaloosa, AL, Tornado



**EXAMPLE 1 (Post-event)**  
**Damage Assessment Conducted**  
**Using FEMA's 4-Level Damage Scale**

FEMA Damage Classification		
Damage Level		Observed Damages
General Damage Classifications		
LD	Limited Damage	Generally superficial damage to solid structures (e.g., loss of tiles or roof shingles); some mobile homes and light structures are damaged or displaced.
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# Additional response capabilities: NGS

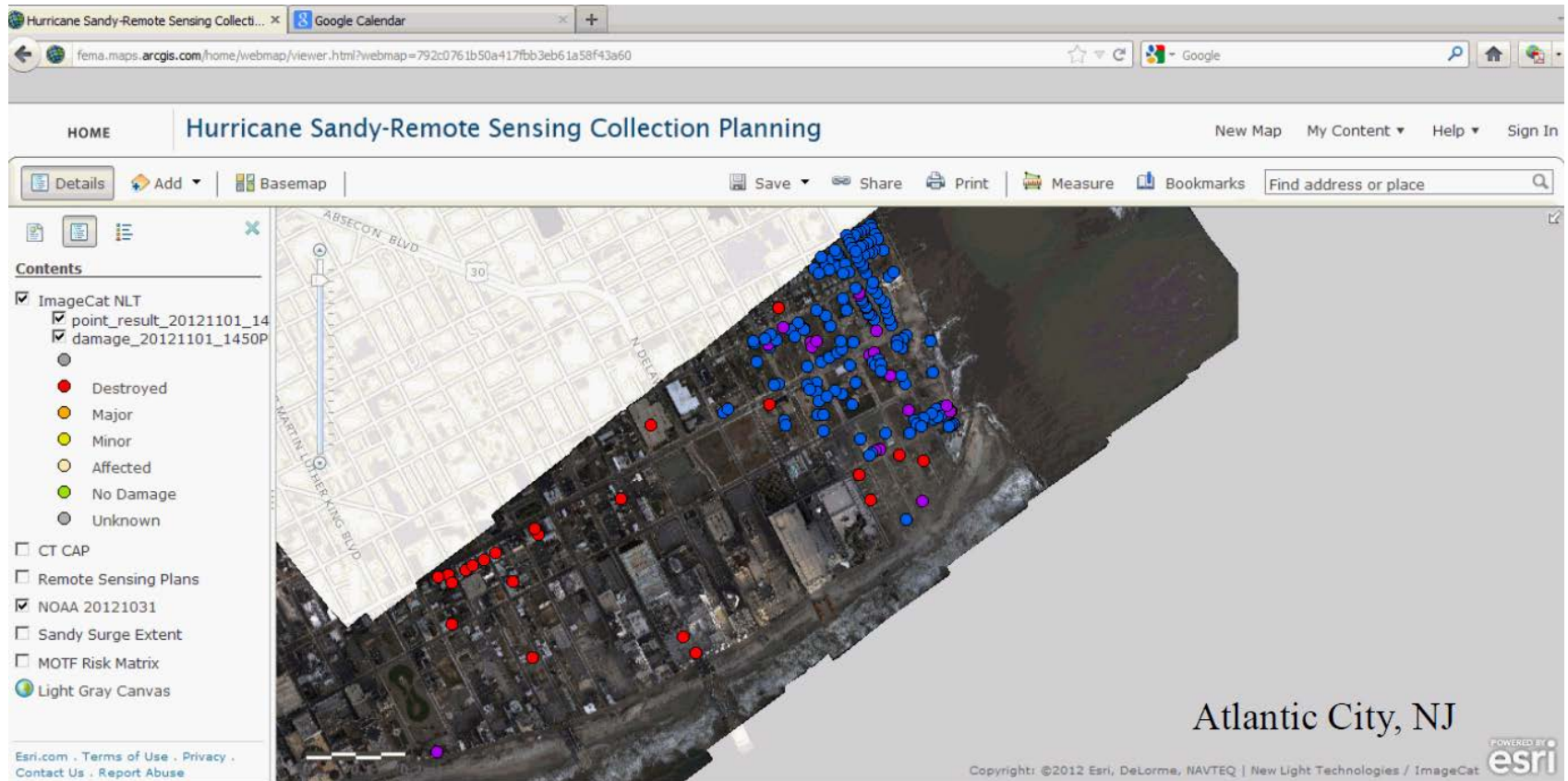


Long Beach, New York. "Before" image captured by Google; "After" image captured by NOAA's National Geodetic Survey. [Download large image](#)



# Additional response capabilities: NGS

## FEMA use of NOAA imagery for damage assessment of individual homes



Over 147,000 individual structural assessments were conducted using imagery and inundation information.



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# Additional response capabilities: NGS

## NOAA NGS Remote Sensing Division Contacts:

**Mike Aslaksen**

**Chief, NGS RSD**

**[mike.aslaksen@noaa.gov](mailto:mike.aslaksen@noaa.gov)**

**301-801-9024**

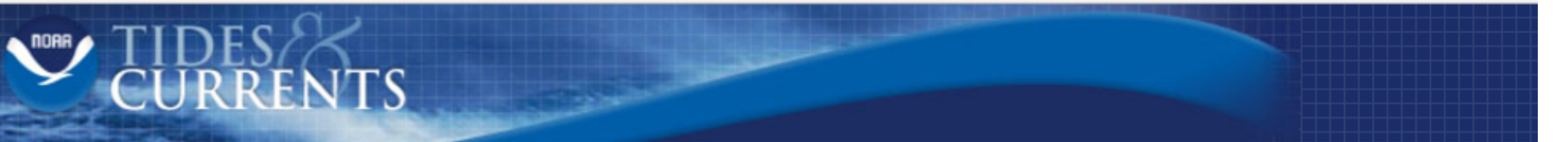
**CDR Mark Sweeney**

**Deputy Chief, NGS RSD**

**[mark.sweeney@noaa.gov](mailto:mark.sweeney@noaa.gov)**

**443-624-1190**





## PRODUCTS

Data, Analyses, and Publications

## PROGRAMS

Serving the Nation

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Tides, Currents, and Predictions

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### QUICKLOOK

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[Highest Storm Water Levels](#)

## Archived Storm QuickLooks

For the purpose of timely release, data contained within the storm QuickLooks has undergone a "limited" NOS C data has not yet undergone a final verification.

### Storms By Year

Click on any storm below to see its archived Quicklooks.

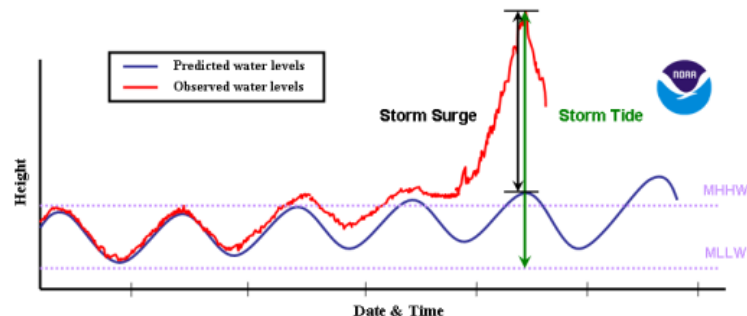
#### 2017

[Tropical Storm CINDY](#)

[Tropical Storm EMILY](#)

### Quicklooks for Selected Storms

Click on any Quicklook below to view the data.



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# Chart Resources

://nauticalcharts.noaa.gov

webTA OCS Customer Affairs CAB naviga NOAA GeoPlatform Navigation Services OCS \_ REST Ehydro EarthExplorer



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Nautical Charts & Pubs Surveys & Wrecks GIS & Other Products Research & Development Customer Service Opportunities Education

### Where to buy ...

- ▶ NOAA Nautical Charts (paper)
- ▶ NOAA Coast Pilot (printed)
- ▶ U.S. Chart No. 1 (printed)
- ▶ NGA Nautical Charts (paper)
- ▶ ENC Distributors

### Chart Updates

- ▶ Weekly Chart Updates
- ▶ Dates of Latest Editions

### Download ...

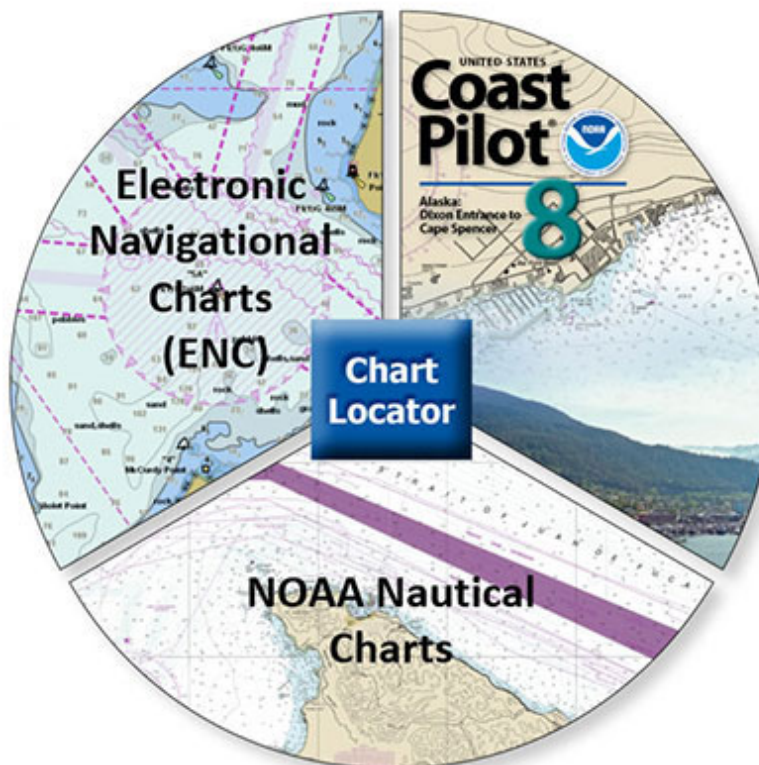
- ▶ ENCs
- ▶ RNCs
- ▶ Coast Pilot
- ▶ U.S. Chart No. 1

### Other Products and Services

- ▶ ENC Direct to GIS
- ▶ Historical Maps and Charts

### Chart Viewers

- ▶ Single Traditional Chart Display
- ▶ NOAA ENC® Online (Seamless Display)
- ▶ NOAA RNC® Online (Seamless Display)



### Latest News

- ▶ NOAA's nowCOAST® provides access to National Weather Service's new storm surge watches and warnings
- ▶ NOAA clarifies National Charting Plan vision for production of NOAA paper charts and RNCs
- ▶ NOAA's nowCOAST® provides access to global weather satellite imagery
- ▶ NOAA invites public comment on the draft National Charting Plan
- ▶ NOAA's nowCOAST® provides access to National Hurricane Center's potential storm surge flooding map
- ▶ Shepard Smith named as next director of Coast Survey

### Learn About Coast Survey

- ▶ Organization
- ▶ History



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# Chart Resources

Paper Charts (RNC & PDF)

Electronic Charts (ENC)

Coast Pilot

Help

Map

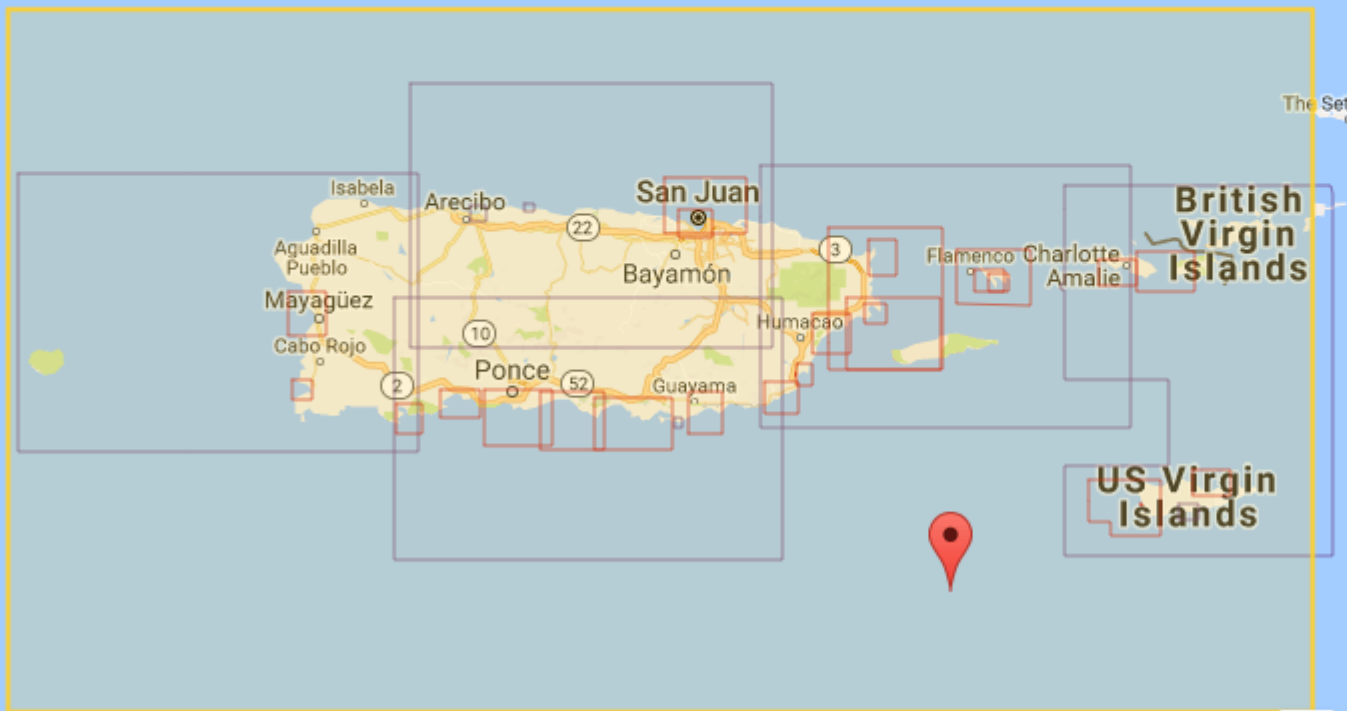
Satellite

Place Names

Standard Place Name Search...

Search

☒ Auto Zoom



## General Information & Links

### NOAA RNCs (RNC):

Geo-referenced charts in BSB format.

### Terms & Conditions

### Print-on-Demand (POD):

Order POD charts from [Certified Agent](#)

### NOAA PDFs (PDF):

Full-size, 400dpi printable charts.

### NOAA BookletChart (BC):

8.5" x 11" printable panels of the charts.

### Notice to Mariner (NM):

Weekly corrections to the RNCs.

### NOAA ChartViewer (View)

### Historical Map & Chart Collection

## Map Selection Information

Chart: 25640

1:326,856

Title:	Puerto Rico and Virgin Islands
Type:	General Chart
Scale:	1:326,856
Edition:	45
Print Date:	1/1/2013

### Available Products

[View](#) [Buy](#) [PDF](#) [BC](#) [RNC](#) [NM](#)



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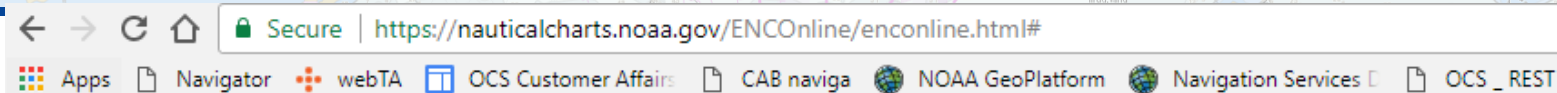
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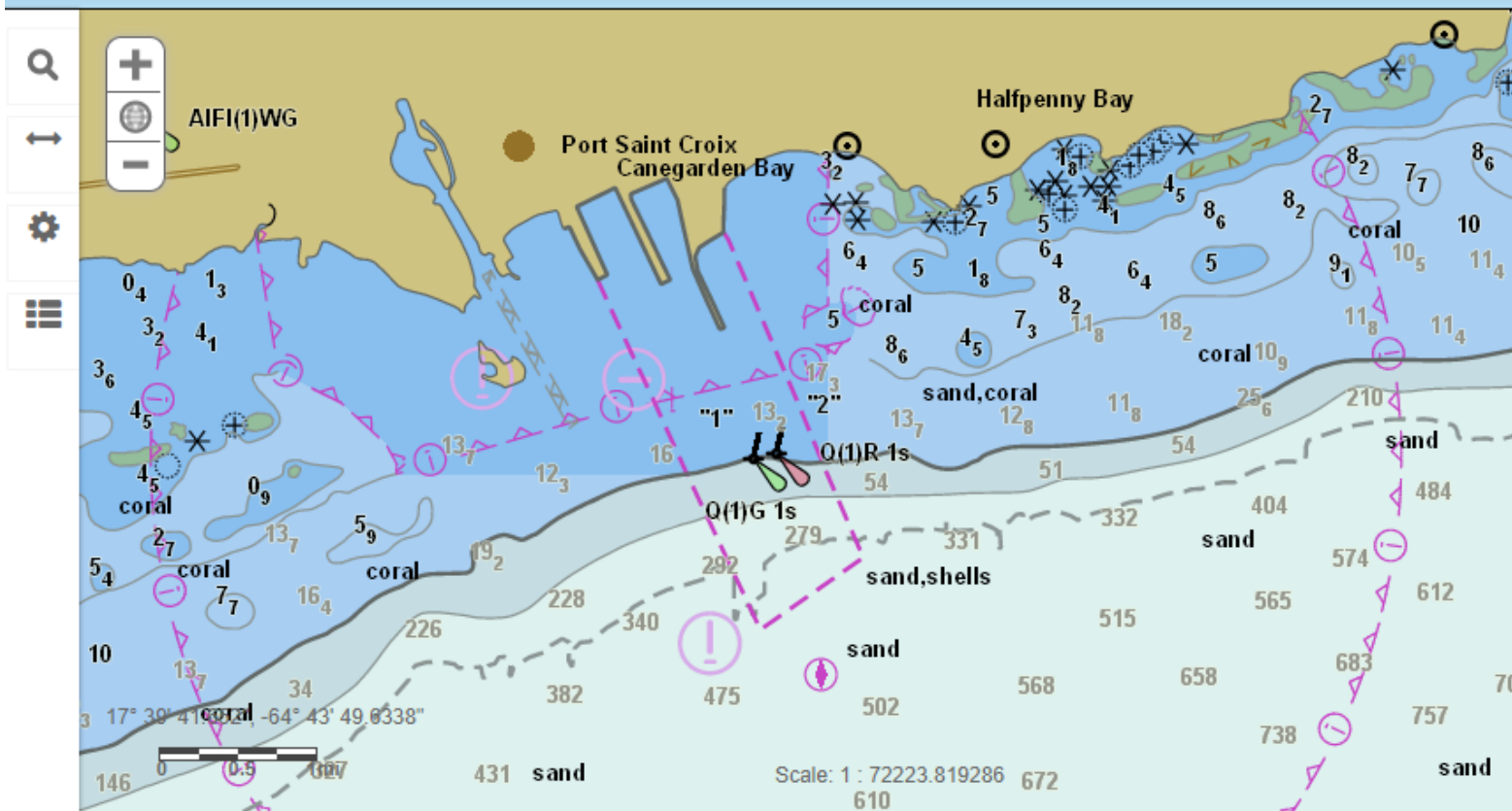
# Online Chart Resources



# Online Chart Resources



## NOAA ENC® Online



Powered By Esri

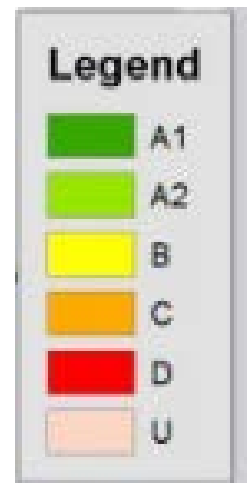
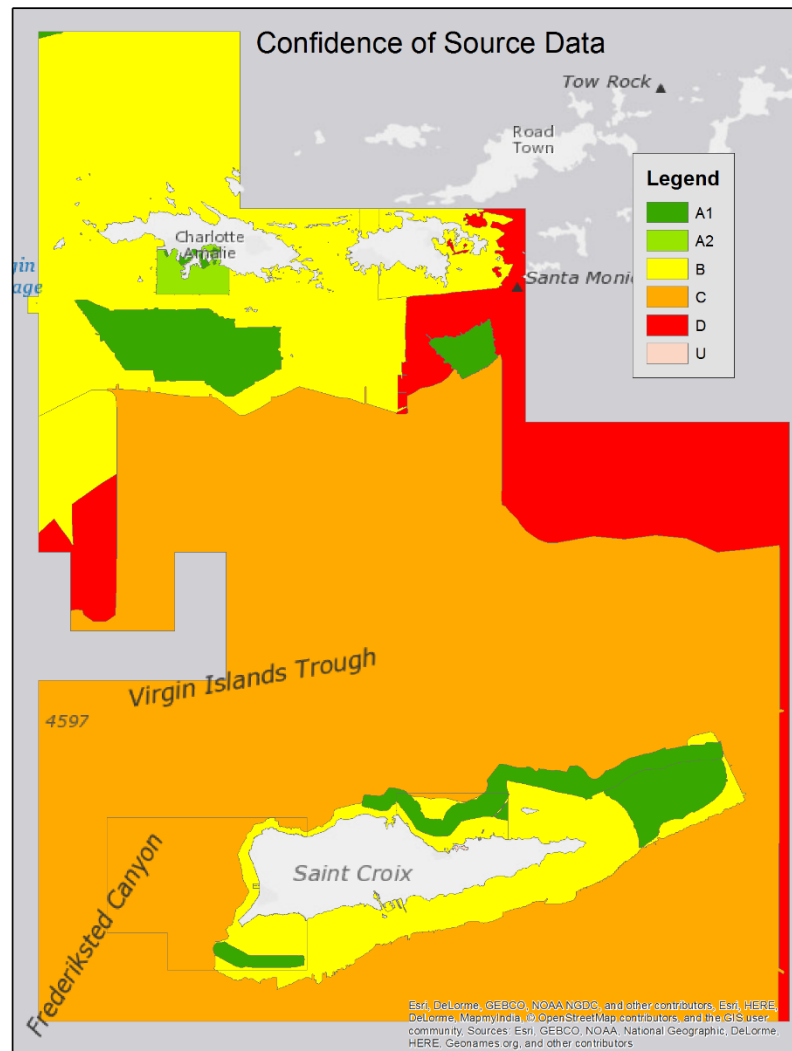
NOAA ENOnline is not certified for navigation



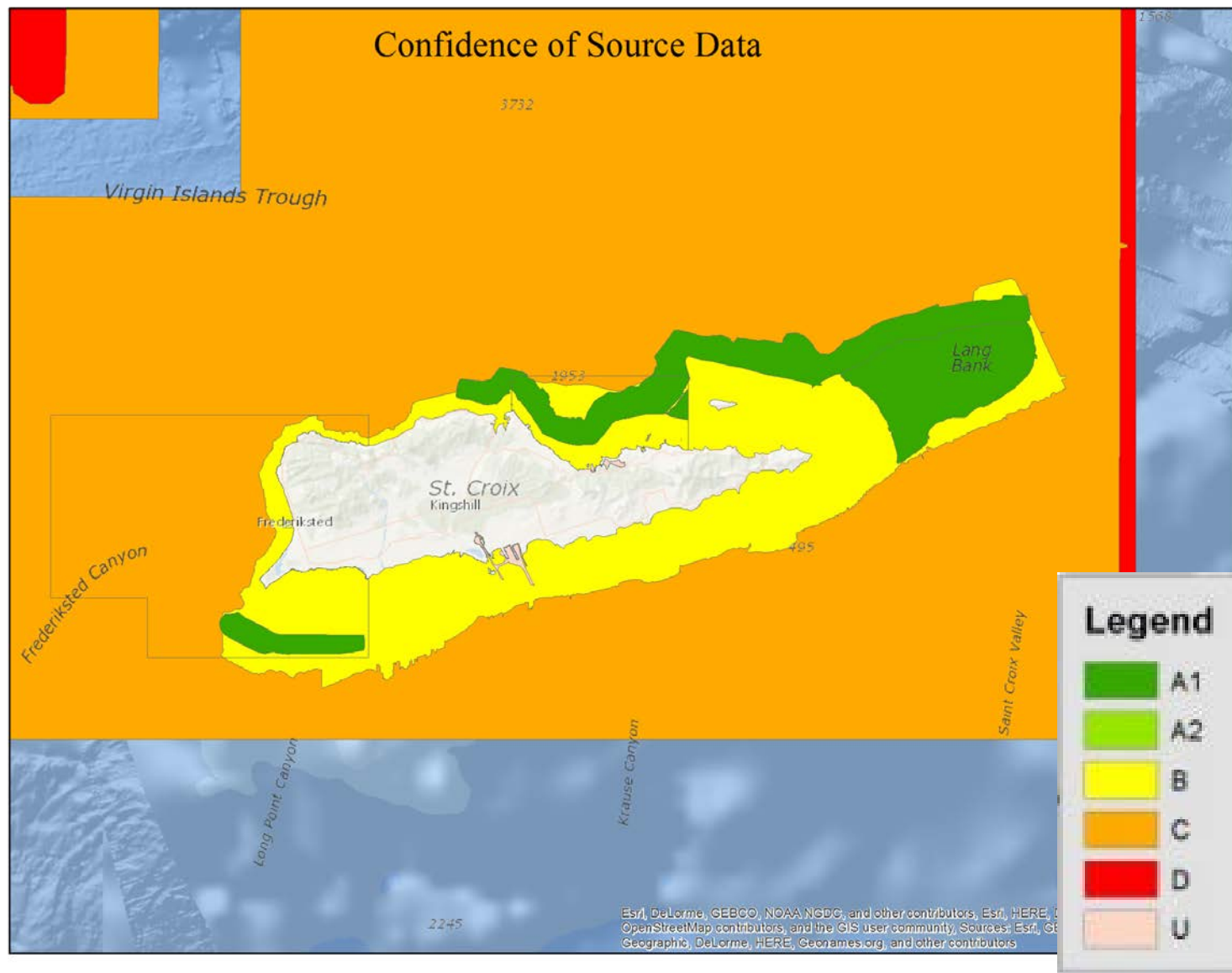
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# Chart Resources: Confidence of Source Data



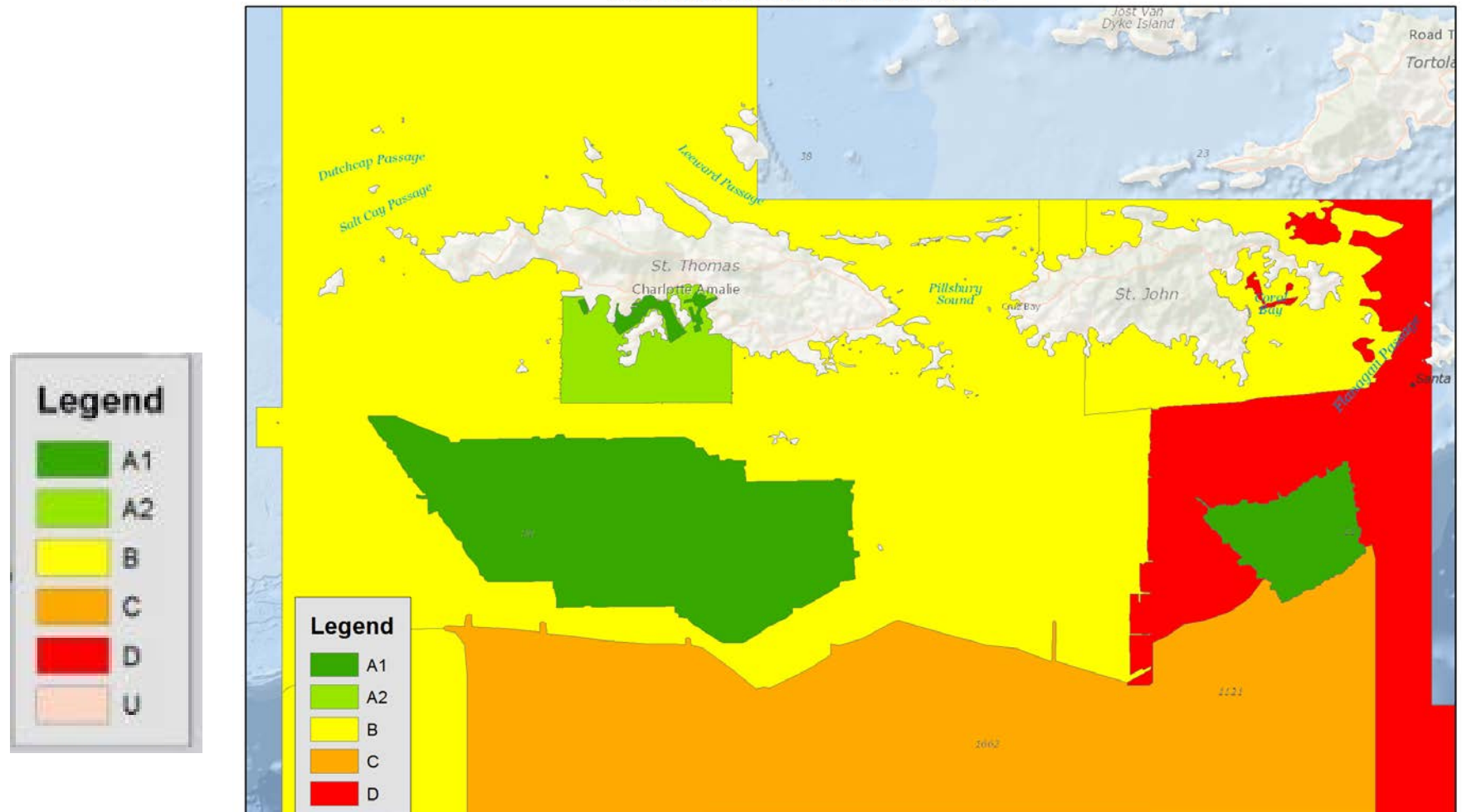
# Chart Resources: Confidence of Source Data





# Chart Resources: Confidence of Source Data

Confidence of Source Data



# Chart Updates: What is wrong with your chart?



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[www.nauticalcharts.noaa.gov](http://www.nauticalcharts.noaa.gov)

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**301-651-4852**

