NOAA Office of Coast Survey

Navigation Services Division

Kyle R. Ward
NOAA Navigation Manager
Southeast and Caribbean Region

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National Hurricane Center
http://www.nhc.noaa.gov
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.
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
Navigation managers provide NOAA resources

https://www.nauticalcharts.noaa.gov/nsd/reps.htm
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**
  - Jacksonville, FL

- **King Air**
Navigation response teams

NRTs work closely with navigation managers
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

Launch Weight = 5-tons

39.0-ft (11.9-m)

11.5-ft (3.5-m)
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
Navigation products
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.
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.
Additional response capabilities

• NOAA Office of Response and Restoration

• NOAA National Geodetic Survey
Additional response capabilities: NGS
Additional response capabilities: NGS

Hurricane Matthew imagery
Emergency Response Imagery

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
Additional response capabilities: NGS

2016 Louisiana Flooding

2016 Hurricane Matthew (Oblique)

2012 Hurricane Sandy

2011 Tuscaloosa, AL Tornado
EXAMPLE 1 (Pre-event)
Damage Assessment Conducted
Using FEMA’s 4-Level Damage Scale

<table>
<thead>
<tr>
<th>Damage Level</th>
<th>General Damage Classifications</th>
<th>Observed Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>Extensive Damage</td>
<td>Generally superficial damage to solid structures (e.g., loss of shingles), some mobile homes and light structures are damaged or displaced.</td>
</tr>
<tr>
<td>MD</td>
<td>Moderate Damage</td>
<td>Solid structures sustain exterior damage (e.g., missing roofs or roof segments); some mobile homes and light structures are damaged or displaced.</td>
</tr>
<tr>
<td>ED</td>
<td>Extensive Damage</td>
<td>Some solid structures are destroyed; most sustain exterior and interior damage (roofs missing, interior walls exposed); some mobile homes and light structures are destroyed.</td>
</tr>
<tr>
<td>CE</td>
<td>Catastrophic Damage</td>
<td>Most solid and all light or mobile home structures destroyed.</td>
</tr>
</tbody>
</table>

2011 Tuscaloosa, AL, Tornado

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

<table>
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<tr>
<th>Damage Level</th>
<th>General Damage Classifications</th>
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</tr>
</thead>
<tbody>
<tr>
<td>LD</td>
<td>Limited Damage</td>
<td>Generally superficial damage to solid structures (e.g., loss of shingles), some mobile homes and light structures are damaged or displaced.</td>
</tr>
<tr>
<td>MD</td>
<td>Moderate Damage</td>
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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
Over 147,000 individual structural assessments were conducted using imagery and inundation information.
Additional response capabilities: NGS

NOAA NGS Remote Sensing Division Contacts:

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Additional response capabilities: Storm Quick Look

Archived Storm QuickLooks

For the purpose of timely release, data contained within the storm QuickLooks has undergone a "limited" NOS QA and 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
Online Chart Resources

NOAA RNC® Online  For the most up-to-date charts, try our individual chart viewer.

Office of Coast Survey
National Oceanic and Atmospheric Administration
Chart Resources: Confidence of Source Data

Legend:
- A1
- A2
- B
- C
- D
- U

Confidence of Source Data Map:
- Virgin Islands Trough
- Saint Croix
- Frederiksted Canyon
- Charlotte Amalie
- Road Town
- Tow Rock

Credit:
- Office of Coast Survey, National Oceanic and Atmospheric Administration
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Additional Credits:
- NOAA National Geospatial-Geographic Intelligence Center
- GeoNames.org and other contributors
Chart Resources: Confidence of Source Data

Confidence of Source Data

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- H
- I
- J

St. Croix
Virgin Islands Trough
Frederiksted Canyon
Lang Bank

Bull, Benthic, COBICO, NOAA, NOS, and other contributors. 2010-2012. HERCLIP open-source software and GIS data contributed by community. Source: ESRI, Geonames, NPS, and others. HERCLIP 2010/2012

Office of Coast Survey
National Oceanic and Atmospheric Administration
Chart Resources: Confidence of Source Data

Confidence of Source Data

Legend

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Office of Coast Survey
National Oceanic and Atmospheric Administration
Chart Updates: What is wrong with your chart?
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