

CI - Hydrographic Engineering

Who We Are and What We Do

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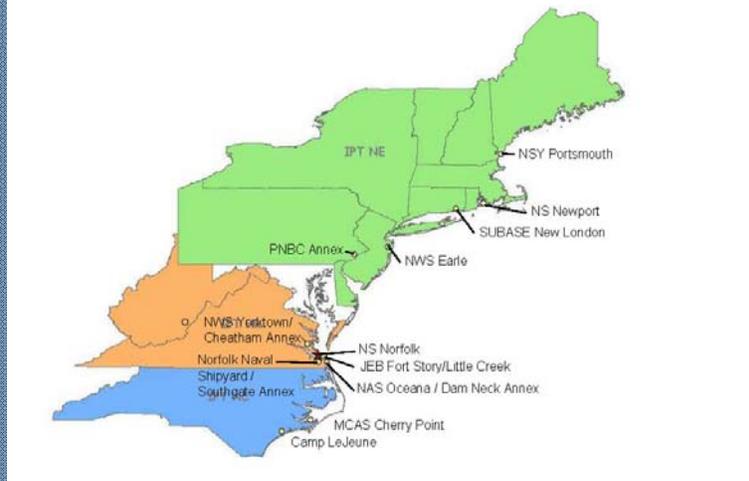
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CI-Hydro Team from Left to Right: Ed Harris, Bob O'Malley, Dane Wray, Tommy Burritt, Lee Pennypacker and Jim Georgo

CI - Hydrographic Engineering

NAVFAC MIDLANT Area Of Responsibility



CI - Hydrographic Engineering

- **Hydrographic Surveying**
 - Single-Beam Sonar Bathymetry
 - Multi-Beam Sonar Bathymetry
 - Multi-Beam Sonar Imaging
- **Side Scan Sonar Imaging**
- **Dredging Project Engineering and Permitting**
- **Near Shore and Beach Topographic Surveying for Beach Nourishment**
- **RTK GPS Mapping and Surveying**

Single-Beam Sonar Bathymetry Used in Support of:

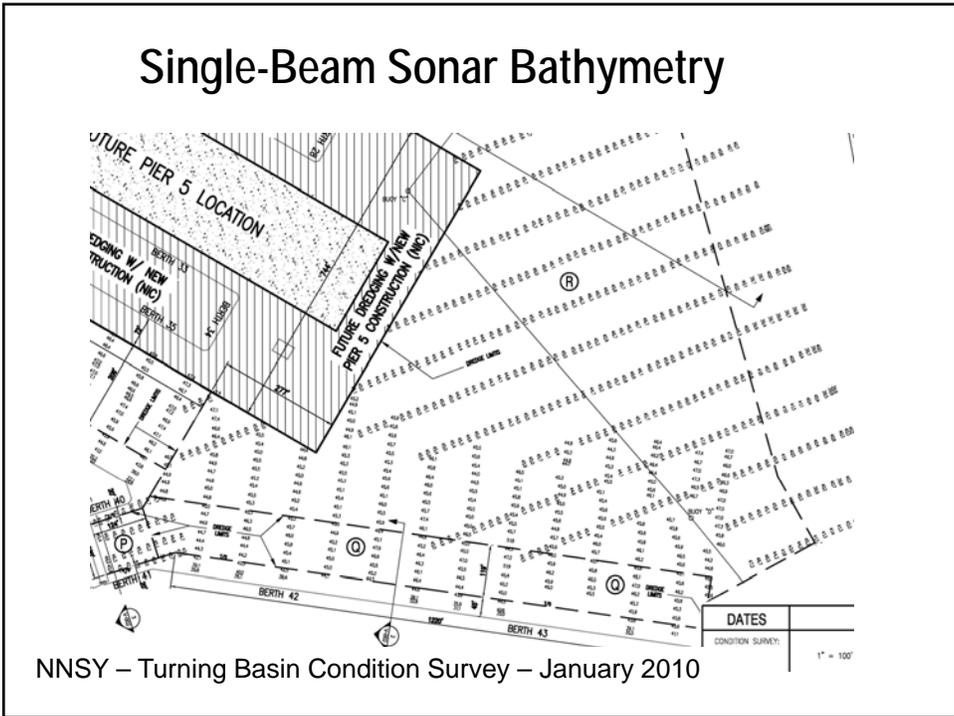
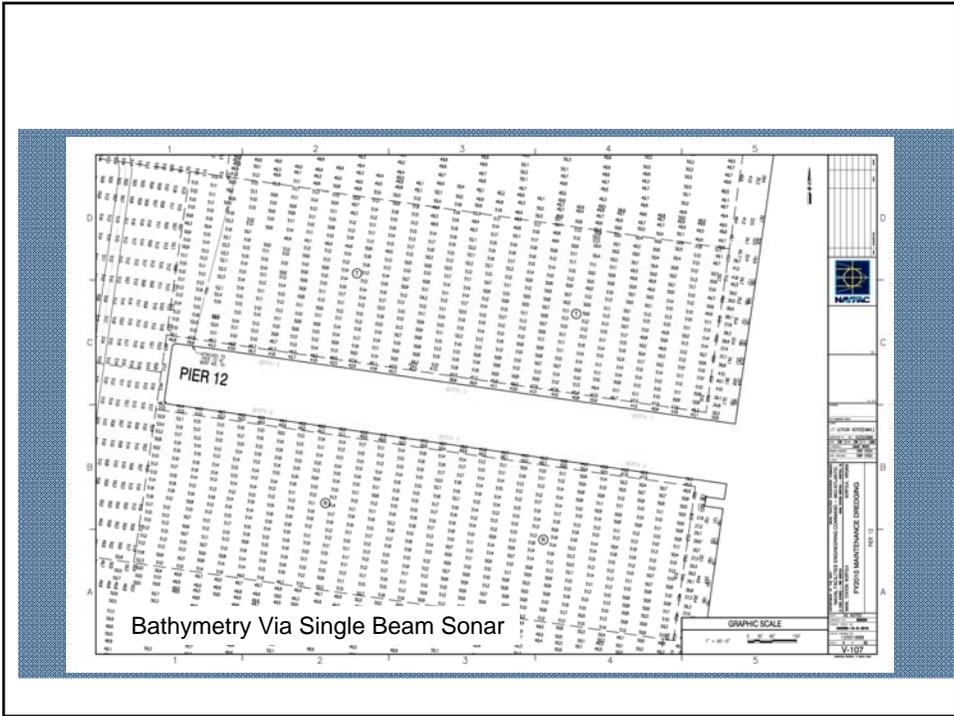
- Pre-Design Condition Surveying
- Pre-Dredge Surveying and Volume Calculations
- Post-Dredge Surveying to Verify Project Depths and Volume Calculations



S/V Hydro 1



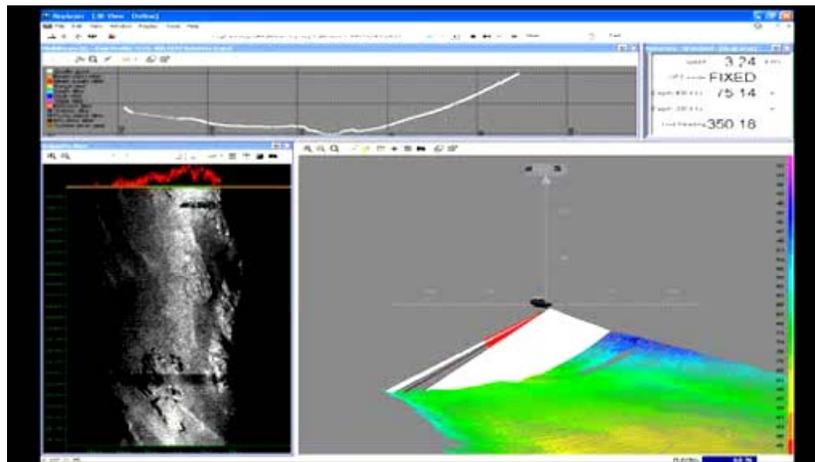
S/V Souder



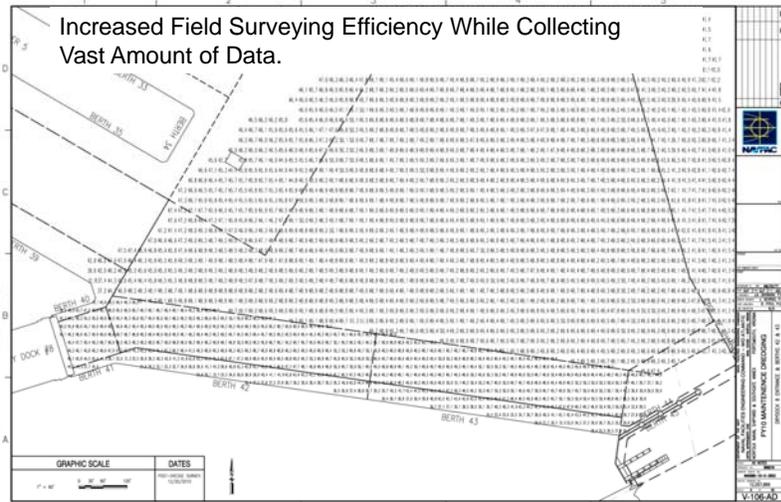
Multi-Beam Sonar Surveying



- Reson 7101 Multi-Beam Sonar w/ Applanix POS/MV
- Multiple Simultaneous Sonar Pings Sweep the Bottom
- Simultaneous Side Scan Sonar Imaging



Multi-Beam Sonar Survey For Maintenance Dredging



NNSY – Turning Basin After Dredge Survey – November 2010

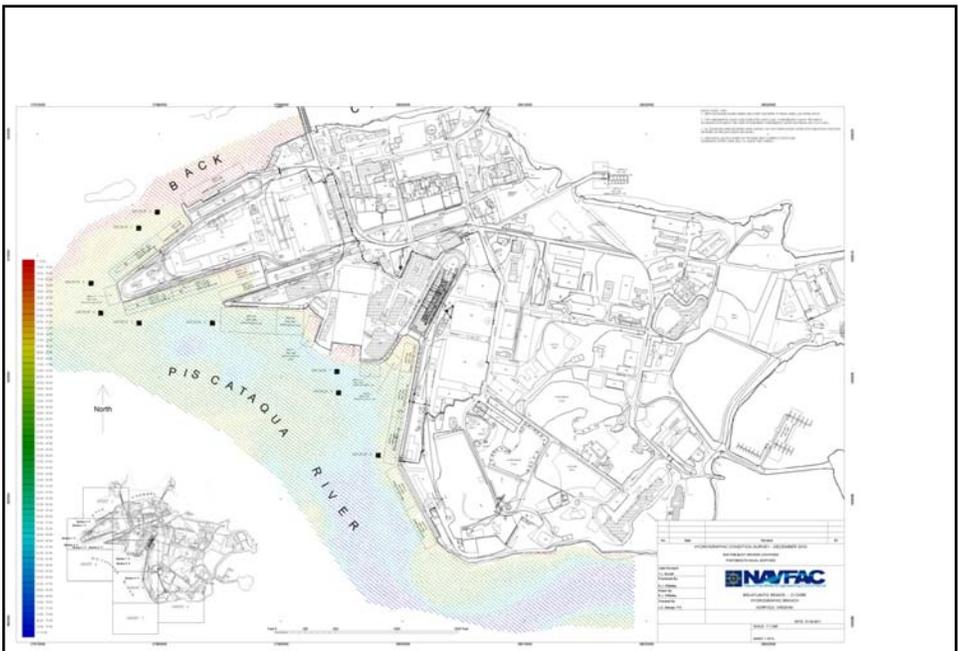
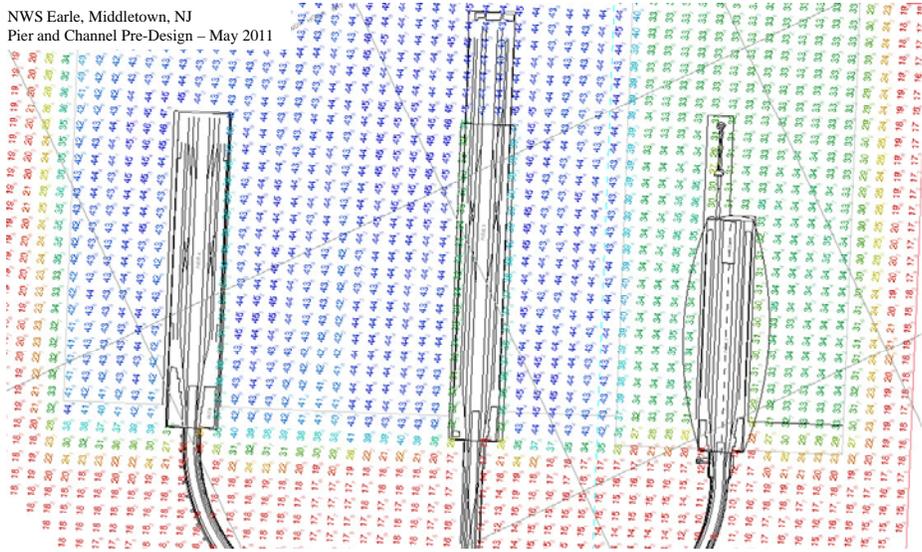
Multi-Beam Sonar Survey For Maintenance Dredging

NWS Earle, Middletown, NJ
Pier and Channel Pre-Design Condition Survey
May 2011



Multi-Beam Sonar Survey For Maintenance Dredging

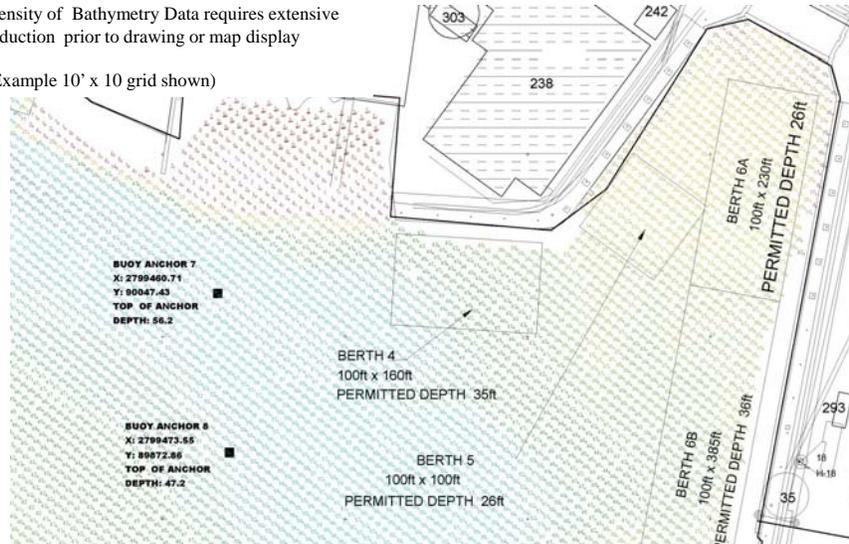
NWS Earle, Middletown, NJ
Pier and Channel Pre-Design – May 2011



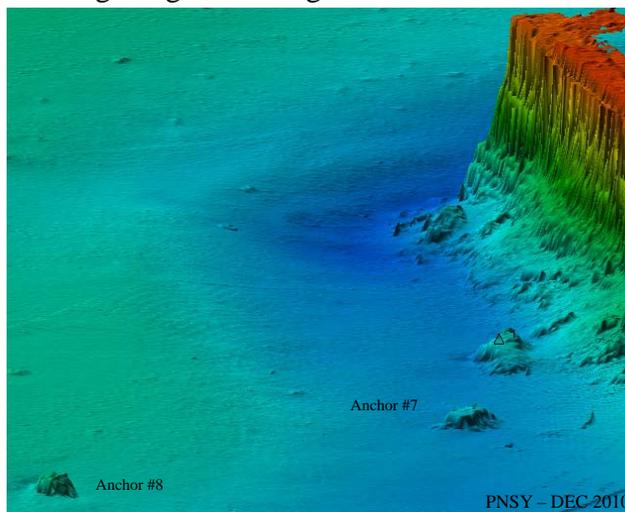
Portsmouth Naval Shipyard, Kittery Maine – Surveyed December 2010

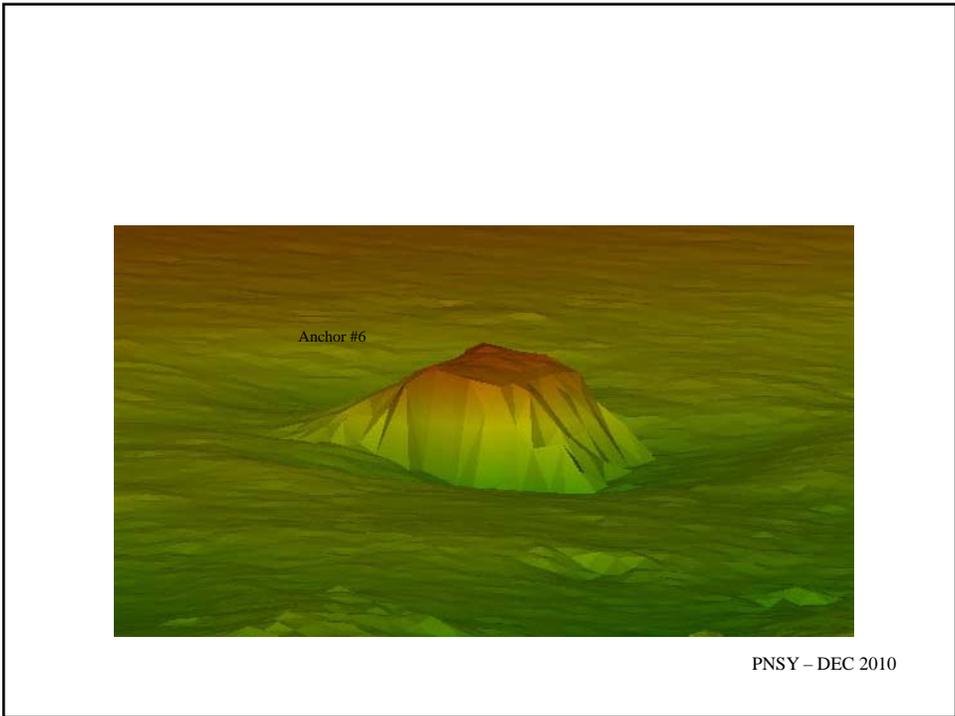
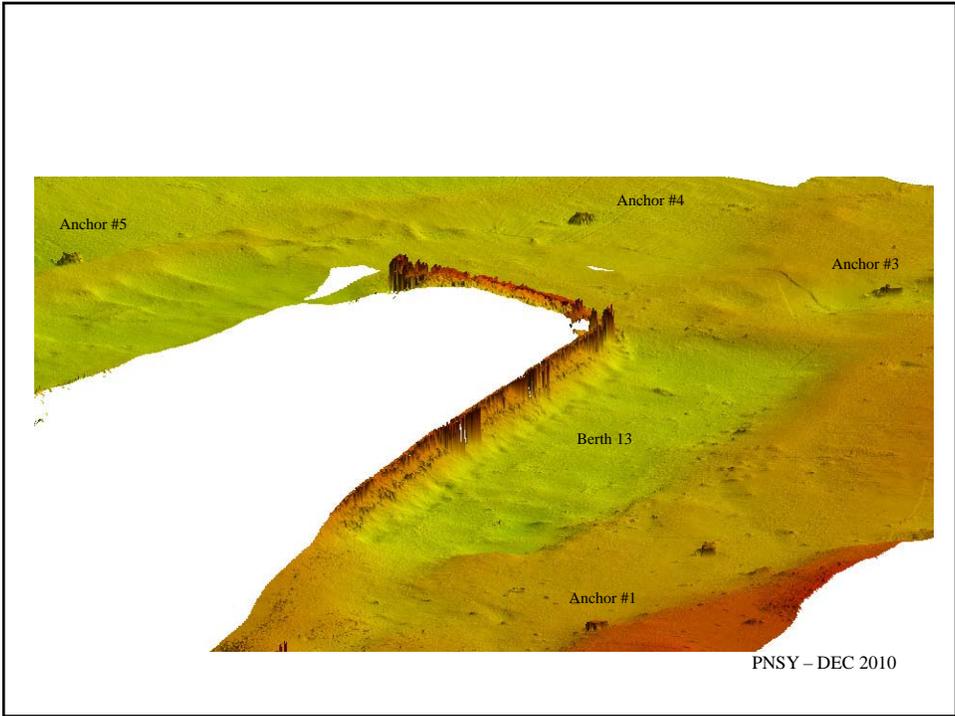
Density of Bathymetry Data requires extensive reduction prior to drawing or map display

(Example 10' x 10' grid shown)

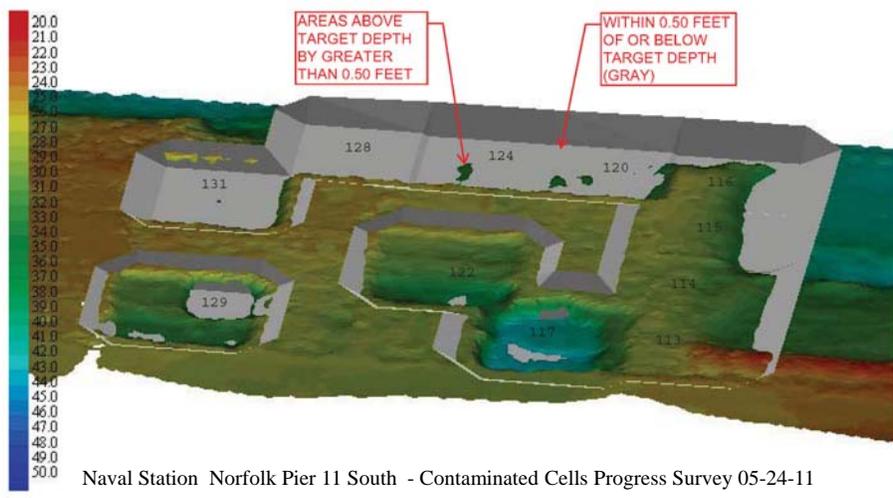
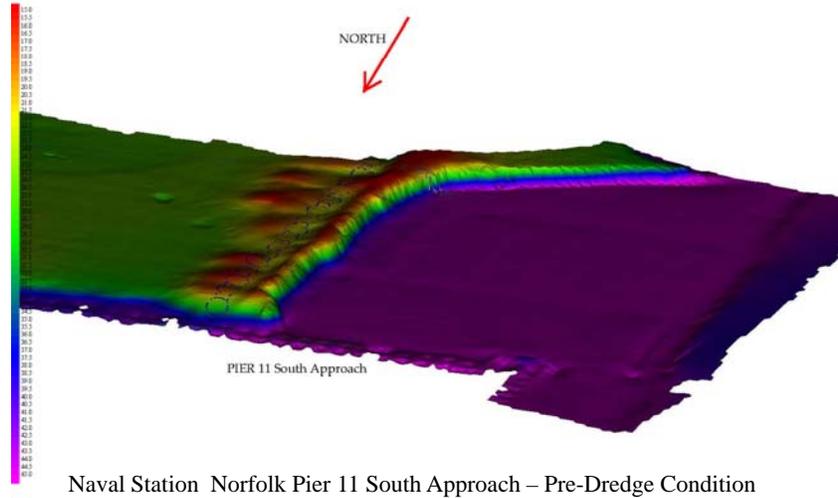


100% coverage to generate high resolution sea floor images

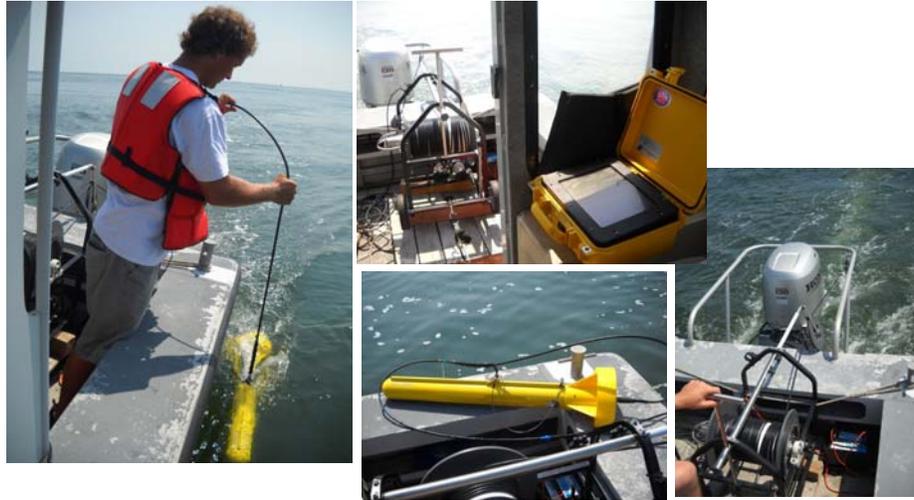




Support 3D Modeling For a Wide Variety of Applications

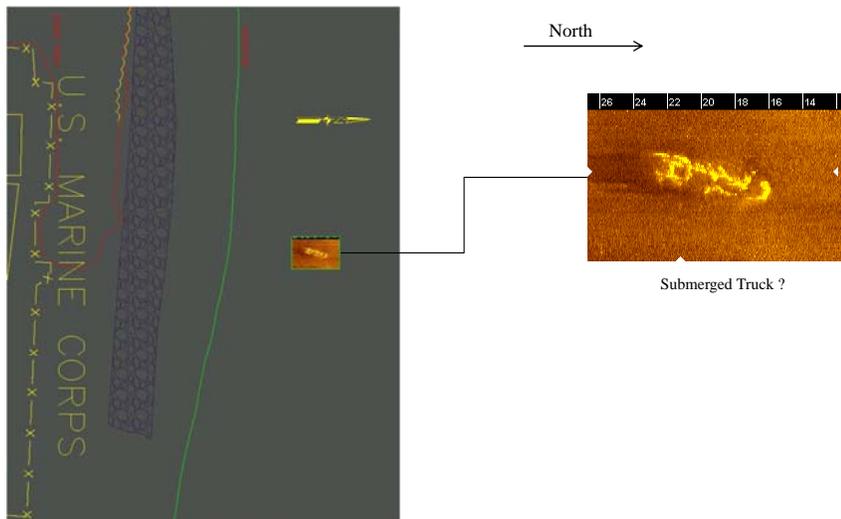


Side Scan Sonar Imaging



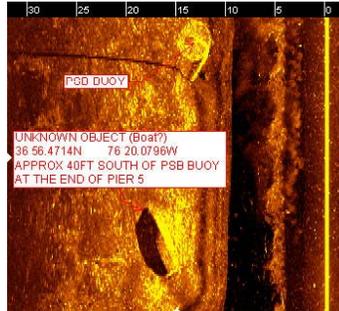
Deploying Tow Fish Side Scan Sonar Along Fort Story Near Shore – June 2011

Side Scan Sonar Imaging



Fort Story - Side Scan Sonar Imaging of Navigation Hazards Along Near Shore – June 2011

Side Scan Sonar Imaging



NavSta Norfolk – Post Hurricane Irene Side Scan Sonar Imaging of Navigation Hazards

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Coming In FY 2012

- ❖ Deployment of 2nd Multi-Beam Sonar System Reson 7125
- ❖ Two Multi-Beam Sonar Systems will permit nearly 100% use for MIDLANT projects
- ❖ Higher Resolution System Will Dramatically Improve Quality of Structural Imaging

Stay Tuned!