NOAA’S ACTION PLAN
TO ADDRESS
HSRP MOST WANTED
HYDROGRAPHIC SERVICES IMPROVEMENTS

Special Report
I. Aggressively Map the Nation’s Shorelines and Navigationally Significant Waters

NOAA’s Resources ≠ MTS Growth
NOAA should aggressively survey and map the 500,000 SNM of navigationally significant areas and 95,000 miles of shoreline by:

Expanding NOAA’s in-house and contract survey capabilities to acquire and process more hydrographic and shoreline mapping data;

Developing and implementing more efficient surveying, mapping, and processing techniques and technologies; and...

Replacing aging single-purpose hydrographic ships with modern, multi-purpose vessels to further maximize the use and reach of NOAA resources.
# Aggressively Map the Nation’s Shorelines and Navigationally Significant Waters

<table>
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<tr>
<th>Current Capacity</th>
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<th>FY08 Goals</th>
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<tbody>
<tr>
<td>Survey average 3000 SNM a year</td>
<td>Survey 10000 SNM a year</td>
<td>$130M</td>
<td>2500 SNM</td>
<td>$46M in-house and contract</td>
<td>7500 SNM</td>
<td>3000 SNM</td>
</tr>
<tr>
<td>Map 12% of port areas every year</td>
<td>Map 20% of port areas each year</td>
<td></td>
<td>12.0%</td>
<td></td>
<td>8%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Map 3% of national shoreline each year</td>
<td>Map 10% each year</td>
<td>$16M</td>
<td>3.0%</td>
<td>$6.1M</td>
<td>7%</td>
<td>3.3%</td>
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I. NOAA will take the following actions in FY2008

• Survey 2500 SNM of navigationally significant areas (940 SNM contracted)
• Collect useful data thru Integrated Ocean and Coastal Ocean Mapping Plans
  – California State Mapping (2000 SNM multi use data)
  – US Army Corps of Engineers shoreline & nearshore
• Develop curricula for enhancing data collection and processing
• Improve digital sensor development and technology transfer
• Conduct demonstration projects/in-house training for ellipsoid hydrographic surveying
• Initiate hydrographic services socio-economic studies
• Continue plans to replace NOAA’s aging fleet:
  – construct NOAA Ship HASSLER (replacing NOAA’s 39 year old Ship RUDE)
  – procure replacement for NOAA S/V BAY HYDROGRAPHER
  – replace 2 hydrographic launches on NOAA Ship RAINIER

• Expand Autonomous Underwater Vehicle (AUV) in-house/contract hydrographic data collection capacity by developing Standard Operating Procedures
II. Integrate Coastal Mapping Efforts and Ensure Federally Maintained Channels, Approaches and Anchorages are Surveyed to the Highest Standard

Data Integration = Conserved Resources, Minimized Data Duplication and Inconsistency, and Maximized Return on Taxpayer Investments
NOAA should take a larger role in improving partnerships with other Federal and State agencies and other non-government entities to:

Integrate coastal mapping efforts with coordinated mapping plans and tools such as VDatum; and...

Ensure that the Nation’s federally maintained channels, approaches, and anchorages are surveyed with full bottom coverage technologies
II. NOAA will take the following actions in FY2008

• Engage in the NOAA’s Integrated Ocean and Coastal Mapping Initiative by:
  – Participating with USGS/MMS/DOD on the Joint Subcommittee on Ocean Science and Technology (JSOST) Interagency Working Group on Oceans and Coastal Mapping to ensure federal, state and local level collaboration
  – Support California coastal water, multi-use, survey data needs
  – Collaborate with USACE to tailor shoreline/nearshore mapping standard specification and develop a joint National Survey Plan
  – Explore opportunities to work with FEMA to improve national baseline floodplain maps
  – Define NOAA’s role in Homeland Security mapping for safe ports
• Execute VDatum National plan to provide total CONUS coverage

• Collect GPS geodetic and ellipsoidal ties at water levels stations in AK, HI, PR

• Provide workshop to establish national standards for referencing vertical heights to MLLW and NAV88

• Discuss potential USACE resources allocations for further development of VDatum tools

• Work with USACE for a consistent, authoritative and accurate channel spatial reporting system
Integrate Coastal Mapping Efforts and Ensure Federally Maintained Channels, Approaches and Anchorages are Surveyed to the Highest Standard

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<td>28% of top 175 U.S. seaports with VDatum</td>
<td>VDatum covering contiguous U.S.; AK; HI, territories</td>
<td>$3.5M per year</td>
<td>30% (58% cumulative)</td>
<td>$1M</td>
<td>42% of top U.S. seaports</td>
<td>5% (63% cumulative)</td>
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III. Modernize Heights and Implement Real-Time Water Level and Current Observing Systems in all Major Commercial Ports

NOAA’s Navigation Services = Critical Components in an Integrated Ocean Observing System (IOOS)
NOAA should expand and fund real-time water level and current observations such as PORTS®, in commercial ports,.....

And, improve positioning for heights nationwide as critical components of the Integrated Ocean Observing System (IOOS)
Modernize Heights and Implement Real-Time Water Level and Current Observing Systems in all Major Commercial Ports

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<tr>
<td>PORTS®</td>
<td>175 seaports</td>
<td>$25M</td>
<td>48 seaports total</td>
<td>$2.8M</td>
<td>127 seaports</td>
<td>50 Seaports</td>
</tr>
<tr>
<td>NCOP</td>
<td>Update 130 Locations Annually</td>
<td>$4M</td>
<td>70 locations</td>
<td>$1.5M</td>
<td>60 locations</td>
<td>70 locations</td>
</tr>
<tr>
<td>NWLON</td>
<td>300 NWLON stations</td>
<td>$32.4M</td>
<td>205 NWLON Stations</td>
<td>$20.0M</td>
<td>95 NWLON stations</td>
<td>210 NWLON Stations</td>
</tr>
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III. NOAA will take the following actions in FY2008

• Add meteorological packages to 25 existing National Water Level Observation (NWLON) stations
• Expand 25 additional NWLON stations over five years and harden stations to withstand extreme weather
• NOAA Physical Oceanographic Real Time Systems (PORTS)
  – establish six additional PORTS (Pascagoula, Gulfport, New Orleans, Lake Charles, Sabine, Cherry Point)
  – add air gap sensors to NY/NJ PORTS
  – release NY/NJ PORTS economic study
## Modernize Heights and Implement Real-Time Water Level and Current Observing Systems in all Major Commercial Ports

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<tr>
<td>Number of States Participating in National Height Modernization Program each year</td>
<td>50 states and territories</td>
<td>$15M Per Year</td>
<td>11 States</td>
<td>$6.15M</td>
<td>39 States</td>
<td>16 States (Funding dependent)</td>
</tr>
<tr>
<td>Conduct a nation-wide gravity study and subsequent development of a geoid model</td>
<td>Collect Gravity data for 20% of the country each year for 5 years</td>
<td>$39M</td>
<td>Complete the Observational phase of the “high resolution snapshot” portion of the NGS Gravity Survey Plan</td>
<td>$500K</td>
<td>100%</td>
<td>Funding dependent</td>
</tr>
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• Collaborate with eleven states and award additional Geodetic Survey and Height Modernization grants
• Gravity Survey Plan
  – Complete observational phase of the “high resolution snapshot”
  – Execute and validate gravity field monitoring and airborne gravity collection to achieve national Geoid to 1 cm
• Demonstrate Global Navigation Satellite System (GNSS) capabilities
• Present 10 CORS/OPUS overviews
• Initiate socio economic study of CORS and Gravity Survey Plan
IV. Strengthen NOAA’s Navigation Services
Emergency Response and Recovery Capabilities

NOAA’s Capacity for Emergency Response and Recovery < National Needs
NOAA should seek adequate recognition and funding for NOAA-essential support functions within the Federal capacity to respond to all-hazard crises.
IV. NOAA will take the following actions in FY2008

- Work with state & federal agencies through National Response Framework Essential Support Functions (NRFESF) to prepare for and improve incident response and product delivery
- Operate 6 Navigation Response Teams
- Continue procurement of Damage Assessment Aircraft with March 2009 expected delivery date
- Contract Gulf of Mexico Marine Debris Mapping funds for roughly 935 SNM of navigationally significant area with data potential for updating nautical charts
- Coordinate reconnaissance surveys and define NOAA’s role in Homeland Security mapping for safe ports
## Strengthen NOAA’s Navigation Services
### Emergency Response and Recovery Capabilities

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<td>Operate 6 NRTs</td>
<td>Operate 10 NRTs</td>
<td>$5M</td>
<td>6 NRTs; 13 ports validated for ENCs</td>
<td>$500K</td>
<td>4 NRTs</td>
<td>8 NRTs</td>
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V. Disseminate NOAA’s Hydrographic Services Data and Products to Achieve Greatest Public Benefit

NOAA’s Navigation Data Delivery = Safe Navigation and Other Uses
NOAA should expand efforts to deliver its navigation products and services more quickly…

…and increase outreach to make navigation and non-navigation users more aware of the NOAA mapping and data resources available to them.
V. NOAA will take the following actions in FY2008

- Build 40 electronic navigational charts
- Release web-based, online geodetic user tools
- Develop and test High Frequency Radar (HFR) products for navigational community
- Conduct operational test of integrating PORTS® data into USCG Automatic Identification System
- Work with USACOE and IOOS on integration of wave data into PORTS®
- Improve Tides and Currents product delivery with customizable PORTS displays and web-based predictions (MYPORTS, E-Tides)
- Hold 12 state Height Modernization User Forms, and 3 Regional Height Modernization Forums
- Educate IOOS partners on the multi-use nature of navigation data and products
- Utilize the Joint Hydrographic Center to expand hydrographic survey technology and utility beyond traditional nautical charting applications
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<td>601 Electronic Navigational Charts</td>
<td>1000 paper-chart comparable ENCs</td>
<td>$6M</td>
<td>40</td>
<td>$3.6M</td>
<td>400 ENCs</td>
<td>$6.35M; 741 ENCs</td>
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Disseminate NOAA’s Hydrographic Services Data and Products to Achieve Greatest Public Benefit