NOAA Update

American Association of Port Authorities
Harbors and Navigation Committee Meeting

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Center for Operational Oceanographic Products and Services

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Three things you should know

1) Precision Navigation Initiative
2) Office of Coast Survey
3) Physical Oceanographic Real Time System®
What is Precision Navigation?

U.S. ports and waterways are the economic gateways to the world, moving 95% of U.S. foreign trade.

Ships are increasing in size and draft, putting a strain on existing and emerging marine transportation infrastructure.

- **Precision navigation is the next generation of marine navigation tools** - rather than multiple streams of predictions/observations, precision navigation will seamlessly integrate the relevant port-specific data to provide the mariner with ‘bottom line’ information they need to make navigational decisions in any condition.

- NOAA’s current generation of information-based navigation infrastructure—charts, sensors, and models—address many of these challenges, but the **Nation will need a new generation of navigation tools to keep pace with maritime transportation sector growth**.
Precision Navigation pilot – Port of Long Beach, CA

NOAA products and services supported the Port of Long Beach precision navigation project and will soon save vessels ~$10 M/year in lightering costs. And, for every extra foot of draft allowed by the port, tank vessels can load $2M of extra product.

Public-private partnership between NOAA, the port of Long Beach, and ProTide (software developer) to allow the port to be as efficient and safe as possible while bringing in maximum cargo.
Office of Coast Survey: NATIONAL CHARTING PLAN
A strategy to transform nautical charting

Purpose  Improve NOAA nautical chart coverage, products, and distribution

Improvements

- Reduce unwarranted alarms
- Convert to metric
- Provide timelier data
- Improve chart coverage
- Create an orderly layout
- Reduce uncertainties
- Improve chart update information
- Increase efficiency

Outcome  Ease of access to more precise, higher-resolution charts that deliver the most up-to-date navigation information possible

Thank you for your comments.
Office of Coast Survey: External Source Data
Office of Coast Survey: Unmanned Systems
CO-OOPS Observing Systems

Turning oceanographic data into meaningful information for the Nation

- National Water Level Observation Network (NWلون):
  - Water level, wind speed / direction, barometric pressure, air and water temperature, conductivity

- National Current Observations
  - Short-term current meter deployments

210 NWلون Stations
How did PORTS® get started?

Sunshine Skyway Bridge

- May 9, 1980
- Tampa Bay, Florida
What Is PORTS®
Local Observing System

Measures and disseminates observations and predictions

- Water levels
- Currents
- Salinity
- Air gap
- Meteorological parameters
- Visibility
- Waves

Physical Oceanographic Real-Time System
What Is PORTS®
Data Products and Tools

- Real-time data dissemination
  - Internet
  - Voice response
  - Mobile
- Products
  - PORTS Pics
  - MyPORTS
  - ARNS

Automated Real-Time Narrative Summaries (ARNS)

Bridge Clearance (air gap)
Benefit of PORTS®

Improved Safety

Economic Efficiency – More (or less) Cargo?
PORTS® Partnership Program

PORTS® is a **partnership** with responsibility shared between NOAA and the local maritime community.

**NOAA**
- Program management
- Data collection and infrastructure
- Data dissemination
- 24/7 quality control
- National standards
- Development for future enhancements

**Partner**
- Site selection for a user-defined system
- **Funding for local:**
  - Equipment
  - Installation
  - Operation & Maintenance
PORTS® Partners

- Port Authorities
- Marine Exchanges
- Pilots
- US Navy
- U.S. Army Corps of Engineers
- Private sector
- State agencies
Existing PORTS® Capability at the Nation’s 175 Top Seaports in Total Tonnage

These 175 seaports are grouped into 50 PORTS® service areas represented by the dots on the map.

Number of Seaports served by the PORTS® System

- 1-2
- 2-4
- 4+

Assessment of Existing PORTS® Capability

- No PORTS® established
- Partial PORTS® established
- Substantially complete PORTS® established

NOAA’s CENTER for OPERATIONAL OCEANOGRAPHIC PRODUCTS and SERVICES
Increased Safety

Accidents have been reduced at seaports currently served by PORTS®.

Collisions and Groundings

- **59%** Groundings (33% when groundings are combined with collisions)
- **37%** Property damage
- **45%** Injuries
- **60%** Deaths

Oil spills have been reduced at seaports currently served by PORTS®.

Oil Spills

- **21%** Reduction in oil releases due to collisions and groundings at seaports currently served by PORTS®.
## Estimated Economic Benefits of a Fully-Built National PORTS® System

### Potential Value of an Expanded PORTS® System Serving 175 Major U.S. Seaports

<table>
<thead>
<tr>
<th>Benefit Area</th>
<th>Potential Annual Value</th>
<th>Potential Ten-Year Net Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improved Safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced Commercial Marine Transportation Accidents</td>
<td>$7.7</td>
<td>$64.4</td>
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<tr>
<td>Property Damages</td>
<td>$19.1</td>
<td>$156.3</td>
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<tr>
<td>Injuries and Deaths</td>
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<td></td>
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<tr>
<td>Reduced Recreational Boating Accidents</td>
<td>&lt;$0.1</td>
<td>&lt;$0.1</td>
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<tr>
<td>Property Damages</td>
<td>$0.4</td>
<td>$3.1</td>
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<tr>
<td>Injuries and Deaths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced Oil Spill Remediation</td>
<td>$5.2</td>
<td>$42.3</td>
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<tr>
<td><strong>Increased Efficiency</strong></td>
<td></td>
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<tr>
<td>More Efficient Commercial Marine Transportation</td>
<td>$265.5</td>
<td>$2,172.3</td>
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<tr>
<td>Enhanced Fishing Productivity</td>
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<td></td>
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<tr>
<td>Commercial Fishing</td>
<td>$1.8</td>
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<tr>
<td>Recreational Fishing</td>
<td>$0.3</td>
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<tr>
<td><strong>Total</strong></td>
<td>$300.0</td>
<td>$2,456.0</td>
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</tbody>
</table>

*(Millions of 2010 dollars)*

*(Ten-Year Net Present Value is the sum of discounted benefit values for the next 10 years)*

• Builds on the 2012 study, focused on impact of PORTS® on allisions, collisions and groundings (ACGs)
• Looked at 2005–2016 data: 77 seaports which had PORTS® and 163 without PORTS®
• Used 2008-2010 period where 17 seaports had PORTS established.

Data Sources
• USACE Channel Portfolio Tool
• USCG Marine Information for Safety and Law Enforcement
• DOC USA Trade On-Line
• .... And others
VEssel transits per allision

Source: United States Army Corps of Engineers, CPT Database; United States Coast Guard, MISLE Database
VESSEL TRANSITS PER COLLISION

Source: United States Army Corps of Engineers, CPT Database; United States Coast Guard, MISLE Database
VEESEF TRANSITTS PER GROUNDING

NUMBER OF VESSEL TRANSITS

WITH PORTS®
+184%

WITHOUT PORTS®
-36%

ALL LOCATIONS

Source: United States Army Corps of Engineers, CPT Database; United States Coast Guard, MISLE Database
IMPACT OF PORTS®

Source: United States Army Corps of Engineers, CPT Database; United States Coast Guard, MISLE Database
Questions?
# DOMINANT ACG OCCURRENCE LOCATIONS WITHOUT PORTS®

(2005-2016)

<table>
<thead>
<tr>
<th>PORT</th>
<th>NUMBER OF ACGS</th>
<th>PORT</th>
<th>NUMBER OF ACGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Louis, MO</td>
<td>142</td>
<td>Perth Amboy, NJ</td>
<td>56</td>
</tr>
<tr>
<td>Freeport, TX</td>
<td>89</td>
<td>Honolulu, HI</td>
<td>53</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>77</td>
<td>Chicago, IL</td>
<td>51</td>
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<tr>
<td>Louisville, KY</td>
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<td>Panama City, FL</td>
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<td>Miami, FL</td>
<td>73</td>
<td>Beaufort, NC</td>
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<tr>
<td>Wilmington, NC</td>
<td>69</td>
<td>Port Everglades, FL</td>
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<tr>
<td>Greenville, MS</td>
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<td>Vicksburg, MS</td>
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<tr>
<td>Peoria, IL</td>
<td>65</td>
<td>Brownsville, TX</td>
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<tr>
<td>Seattle, WA</td>
<td>64</td>
<td>Matagorda, TX</td>
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<tr>
<td>Corpus Christi, TX</td>
<td>63</td>
<td>Charlotte Amalie, VI</td>
<td>37</td>
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<tr>
<td>Memphis, TN</td>
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<td>Detroit, MI</td>
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</tr>
<tr>
<td>San Diego, CA</td>
<td>58</td>
<td>Kodiak, AK</td>
<td>32</td>
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</tbody>
</table>
ACCIDENT DEFINITION

• **Allision** – Striking of a moving vessel with a stationary object

• **Collision** – Striking of two moving vessels

• **Grounding** – Vessel striking of seabed or channel side

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ACGs are influenced by:
1. Regulations;
2. Technology;
3. Industry Best Practices;
4. Force Majeure
DATA SOURCES

• UNITED STATES ARMY CORPS OF ENGINEERS
  - Channel Portfolio Tool (CPT)
  - Restricted Access

• UNITED STATES COAST GUARD
  - Marine Information for Safety and Law Enforcement (MISLE)

• DEPARTMENT OF COMMERCE
  - USA Trade On-Line (Census Bureau)
  - Gross Domestic Product (Bureau of Economic Analysis)
  - PORTS® Location and Coverage (NOAA/NOS/CO-OPS)

• OFFICE OF MANAGEMENT & BUDGET
  - Discount Rate (Circular No, A-94)
  - Gross Domestic Product Deflator (Circular No, A-4)