Estimating the Value of the National Oceanic and Atmospheric Administration’s Physical Oceanographic Real Time System (PORTS®)

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Agenda

• Description of PORTS®

• Scope of Study

• First benefits analyses 2005-2010

• 2013—First national scale analysis

• Current work & next steps

• Summary
Description of PORTS®

• System of oceanographic & meteorological instruments

• Provides real-time data to mariners
  - Enhance safety
  - Improve economic efficiency of operations
Data Flows Within PORTS®
Scope of Study

• Historical and future cost data not available

• Gross benefits valuation only
Initial Studies 2005-2010
(Hauke Kite-Powell, NOAA)

- 4 ports—Tampa, Houston/Galveston, NY/NJ, Columbia River
- “De Minimis” methodology—assume 1% value
- Adjust by inputs from anecdotal evidence/Delphi techniques
- Average benefits $42.8-$47.7 million (nominal)
National Estimate 2013 (2010 Data) (Eric Wolfe & David MacFarland, NOAA)

• Channel Portfolio Tool, Dr. Ned Mitchell
U.S. Army Corps of Engineers (USACE)

• Detailed vessel movement data
  - Cargo value and weight
  - Channel depth
  - Vessel type & draft
Under Keel Clearance--Vessels at Risk
Vessel Accident Data
U.S. Coast Guard

• Accidents of interest
  - Allisions (vessel striking stationary object)
  - Collisions (vessel striking vessel or other moving object)
  - Groundings

• Consequences—fatalities, injuries, property damage, pollution

• 10-year history
Valuation Methodology

• GIS—assign accidents to PORTS® regions
  - Lassoing technique showing areas of influence/coverage

• Trend analysis—CPT & accident data
Valuation Methodology

• Cargo valuation—Maritime Administration (MARAD) & U.S. Census Bureau

• Consequences—USCG
  - Property damage recorded
    (Vessel, Cargo, Facility, Other)
  - Pollution—clean-up costs avoided-$10,700 / barrel
  - Fatality & injury counts monetized by VSL
Valuation Results for 2013 Study

• Current installations at 58 ports
  - $217.4 million per year (2010 Dollars)
  - $1,779.3 million over 10 years

• Add PORTS® to additional 117 ports
  - $82.6 million per year
  - $676.7 million over 10 years
SUMMARY OF ESTIMATED ACG RATE CHANGES

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-20 to -60

2008 - 2010 17 ADDED PORTS®

2010 ONLY

SEVEN BEFORE AND AFTER PORTS®

KITE-POWELL
Current Work & Next Steps
(Eric Wolfe & Percy Pacheco, NOAA)

- Adding Electronic Navigation Charts (ENCs) to analysis
- Updating data through 2017
- Add detailed position signal data (AIS) to analysis
Summary

• Methodology uses multiple data sources
  - Vessel movements—USACE, MARAD
  - Accident history—USCG
  - VSL—fatalities and injuries valuation

• Moved from individual port studies to national scale

• Moved from anecdotal to data-driven benefits analysis

• Robust methodology for updating and expansion
Citations
