a day and have the ability to stop dissemination of any
data which do not meet QC standards. CO-OPS also
ensures quality by overseeing the design, installation,
and maintenance of PORTS® instrumentation and
communication systems. PORTS® observations are
updated at 6-minute intervals and are available via the
internet (www.tidesandcurrents.noaa.gov/ports) and toll-
free phone calls.

The future holds many challenges for the US maritime
transportation system. The total volume of domestic and
international marine trade is expected to triple over the
next 20 years. In that same time frame, commercial and
recreational users are expected to grow by over 65%. The
high quality, reliable information provided by PORTS® will
support safe navigation and help port managers balance
environmental and economic priorities as maritime
activity increases.

Studies in three different ports have shown over
a 50% decrease in groundings following the
installation of a PORTS®.

Typically located in estuaries, most ports are
home to diverse forms of marine life, which also
makes them attractive venues for 70% of US
commercial and recreational fishing. PORTS®
helps boaters and fishermen plan voyages and
avoid dangerous weather conditions.

PORTS® information is used by a broad group of
commercial, recreational, and governmental organiza-
tions, as well as by individuals. Among its major user
communities PORTS® has proven to deliver benefits
that include:

- Safer shipping and boating
  - Fewer groundings and collisions
  - More accurate marine weather forecasts
  - Improved response to distress calls
- More efficient port operations
  - Optimized cargo loading
  - Increased throughput with fewer delays
- Improved environmental planning and protection
  - More effective response to hazardous spills
  - Better information for coastal management

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Center for Operational Oceanographic Products
and Services (CO-OPS)

Physical Oceanographic Real-Time System (PORTS®)

ports@noaa.gov
(301) 713-2981

CO-OPS is a center of expertise whose mission is the collection,
analysis, and dissemination of integrated oceanographic
information to protect life, property, and the environment.
The US marine transportation system consists of over 25,000 miles of waterways, ports, and other navigable waters, as well as over 3,700 marine terminals, and is the backbone for the movement of goods, services, and people throughout the nation and abroad. In fact, over the last decade, fueled by a rapidly growing global economy, more than 95% of all US trade has involved some form of maritime transportation. Recent estimates suggest that maritime commerce contributes in excess of $742 billion annually to the US Gross Domestic Product and sustains over 13 million jobs.

Like any infrastructure system, the nation’s network of waterways and ports faces the challenge of keeping up with growth, with the greatest challenges being safety and security. Not surprisingly, the rapidly increasing pace and volume of maritime commerce also corresponds to greater potential for accidents. With over 3,500 ships annually involved in accidents on the nation’s waterways, and hundreds of groundings and collisions in the nation’s major ports, developing a safe and efficient maritime transportation infrastructure is essential to the nation’s economy and key to its ability to compete successfully in the expanding global economy.

Guided by the mission of promoting safe and efficient navigation in US waters, the Center for Operational Oceanographic Products and Services (CO-OPS), part of NOAA’s National Ocean Service, developed the Physical Oceanographic Real-Time System (PORTS®). PORTS® integrates and delivers environmental observations in real-time and through nowcasts and near-term forecasts to users in many of the nation’s major ports. Using PORTS® information in conjunction with NOAA Nautical Charts and US Coast Guard (USCG) Navigational Aids has proven to reduce groundings. PORTS® data will be integrated with other operational data disseminated via the USCG Automated Identification System (AIS).

One major oil spill can cost millions of dollars and destroy fragile coastal ecosystems. PORTS® gives ship pilots real-time, accurate information to help them navigate crowded waterways and avoid accidents. When an accident does occur, PORTS® information is critical for rapid response and damage mitigation.

Tailored to the specific needs of the local community, PORTS® measures, integrates, and disseminates observations of water levels, currents, salinity, wind, and bridge clearance, all of which help mariners successfully guide ships into and out of the nation’s ports. In several locations PORTS® also provides forecast model guidance which supports informed decision making in advance of transit scheduling and loading operations.

Increased port traffic and larger vessels demand continuous quality control (QC) of PORTS® data. CO-OPS personnel monitor PORTS® operations 24 hours.