

# Supporting and Improving Marine Operations

# Challenges for Marine Operations

## **Consensus:**

**Provide forecast, real-time, and historical marine environmental data on a global basis**

**Minimize negative impacts on ocean ecosystems (e.g. pollution, noise, ship strikes, introduction of invasive species, etc)**

**Improve the efficiency, operations, and maintenance of new and existing harbors and ports**

## **Unique:**

**Develop maritime domain awareness (e.g. historical, real-time, and forecasts of ship data, meteorological and oceanographic variables, and living marine resources)**

**Coordinate and foster communication between industry, government, and academic entities**

**Pro-actively plan for the restoration of MOPS after natural, accidental, or terrorism-related disruptions**

**Ensure and improve safety and efficiency of all marine operations**

# Expected Results for Marine Operations

## **Consensus:**

**Comprehensive awareness of the maritime environment gained from expanded gathering, sharing, and coordination of information**

**Increased security protection, safer and higher-efficiency MOPS, and improved environmental protection**

**Increased capacity of ports to meet the demands of domestic and international trade in an environmentally-sustainable manner**

**Improved understanding of how MOPS affects the marine ecosystem; and the integration of that knowledge into decision-making**

## **Unique:**

**Reduction of negative economic and human impacts arising from disruptions**

**Breakdown of stovepipes between government, industry, and academia**

# Research Needs for Marine Operations

## **Consensus:**

**Improve our ability to characterize and forecast METOC conditions worldwide using high-resolution models that assimilate real-time data**  
**Impact of MOPS on ecosystems and development of mitigation strategies**  
**Improve sediment transport models to establish rapid, efficient and environmentally-sustainable dredging operations**

## **Unique:**

**Develop a comprehensive ocean acoustics observation program**  
**Social and economic implications of climate change to MOPS**

# Infrastructure and Technological Needs for Marine Operations

## **Consensus:**

**Advanced sensor and technology development (autonomous, persistent)  
Tools to simulate “What If” scenarios to determine the impact on MOPS**

## **Unique:**

**Expand the national complement of oceanographic research vessels,  
satellites, autonomous underwater vehicles and unmanned aerial  
vehicles**

**Rapid assessment methods of detecting marine contaminants/pollutants  
and harmful non-indigenous species**

**Expand the use of high-frequency radars along the coast to monitor,  
record and present real-time current data in near-shore environments**

**Long-term observing systems that are transportable and relocatable; that  
collect data anywhere on the globe as needed**