

THE ECONOMIC BENEFITS OF THE SOUTHEAST COASTAL OCEAN OBSERVING SYSTEM

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Executive Summary

The oceans are one of the least understood regions of the planet. Better information about the oceans has many uses, and efforts are underway to improve our understanding. The Southeast Atlantic Coastal Ocean Observing System (SEACOOS) consists of a program of oceanic and atmospheric observation, modeling, and data management. SEACOOS data are collected off the coasts of North Carolina, South Carolina, Georgia and Florida using buoys, tide gages, and other instruments.

The estimated cost of establishing and maintaining coastal ocean observation systems nationwide ranges from tens of millions to billions of dollars each year. Determining whether the benefits of SEACOOS are greater than the costs is a major issue. A recent North Carolina Sea Grant report, "The Potential Economic Benefits of Coastal Ocean Observing Systems: The Southeast Atlantic," develops estimates of the economic benefits of SEACOOS information to maritime commercial shipping, the recreational cruise industry, oil spill prevention and mitigation efforts, commercial fishing, coastal recreation and tourism, search and rescue operations, hurricane evacuation, and beach erosion management.

Maritime commercial shipping

Cargo vessels, barges and tankers make thousands of visits to SEACOOS region ports each year. Oceangoing ships will use SEACOOS information on currents, winds, waves and fog to improve routing efficiency, minimize transit time, and reduce fuel and labor costs. The benefits of SEACOOS information to the maritime transportation industry are about \$4.6 million each year. The use of SEACOOS information on visibility and water depth will help vessels avoid damage and injuries to crew and passengers from groundings and other accidents. The annual reduction in commercial maritime grounding costs are \$135 thousand for the SEACOOS region.

Recreational cruise voyages

SEACOOS region ports handle over 4 million cruise passengers each year. SEACOOS information benefits the cruise industry by improving the scheduling efficiency of cruise operations and reducing idle time in port. SEACOOS information increases benefits to the cruise industry by \$27 million each year.

Oil spill prevention and mitigation

The cost of oil spills has risen dramatically since the catastrophic 1989 Exxon Valdez oil spill in Alaska and the passage of the Oil Pollution Act of 1990. Improved SEACOOS information will reduce costs associated with oil spill prevention and mitigation. Significant oil spills can occur when vessels load or unload oil, or when vessels sink, run aground or collide. The oil spill reduction benefits from SEACOOS information are \$648 thousand annually.

Commercial fishing

The commercial fisheries of the SEACOOS region lands fish and shellfish worth over \$300 million each year. SEACOOS information will decrease commercial fishing costs by improving trip scheduling and fishery management regulations. The benefits of SEACOOS information for commercial fisheries are \$2.8 million each year. Commercial fishing is one of the most dangerous occupations. SEACOOS weather and sea condition information will increase fishing vessel safety at sea, reducing injuries and fatalities. The annual reduction in accident-related costs is \$611 thousand for the SEACOOS region each year.

Coastal recreation and tourism

Each year saltwater recreational anglers take over 8 million boat fishing trips in the SEACOOS region. People spend about 250 million days at SEACOOS region beaches each year. SEACOOS information will increase the number of fishing and beach trips by helping people know when and where to travel. The benefits of the additional fishing and beach trips are \$3 and \$88 million in the SEACOOS region each year.

Search and rescue

Each year the US Coast Guard conducts over one thousand search and rescue missions in the SEACOOS region. The goal of the U.S. Coast Guard's Search and Rescue Program goal is 93% of lives saved. SEACOOS will provide better information about ocean currents and weather to help the US Coast Guard reach this goal. The search and rescue benefits of SEACOOS are almost \$40 million each year.

Hurricane evacuation

Each year hundreds of thousands of SEACOOS region residents evacuate their homes for hurricanes that strike somewhere else. Improved information from SEACOOS will allow hurricane forecasters to make better predictions about where hurricanes will land. This will allow emergency managers to give more accurate hurricane evacuation orders. The benefits of SEACOOS information for hurricane evacuation decisions are \$941 thousand each year.

Beach erosion

Driven by a rising sea level, large storms, flooding, and powerful ocean waves, erosion wears away the beaches along the SEACOOS region coastline. Erosion can destroy waterfront homes, businesses, and public facilities. SEACOOS information will reduce the costs of beach nourishment and other erosion management policies. The cost reductions are almost \$2 million each year.

Conclusions

The total benefits of SEACOOS information are \$170 million each year. Florida receives more than two-thirds of the benefits, due to disproportionately large benefits in the beach recreation and recreational cruise categories. Coastal recreation and tourism, including recreational boating safety (search and rescue) and recreational cruises are large beneficiaries of improved SEACOOS information. The results of this study indicate that the economic benefits of the Southeast Atlantic Coastal Ocean Observing System likely justify the costs.