FY2013: Regional Integrated Ocean Observing System (IOOS®) Development

U.S. IOOS is an operational system and a network of regional partners responsible for regional observations, data management, modeling and analysis, education and outreach, and research and development. The overarching purpose of U.S. IOOS is to address regional and national needs for ocean data and information. NOAA continued to provide merit-based funding in 2013 to further develop the IOOS regional network. IOOS regional partners provide coordination with regional stakeholders while contributing data and other outputs to the national system – supporting regional priorities while advancing national objectives.

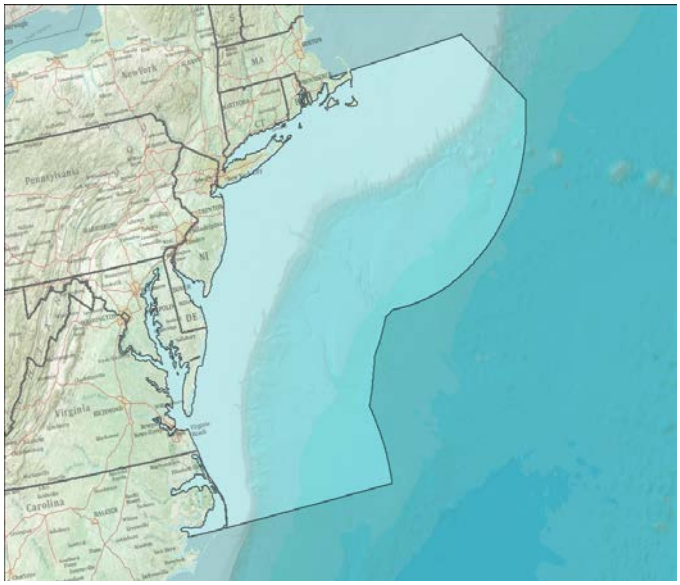
MID-ATLANTIC REGION

The Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) extends 1,000 km alongshore from Cape Cod to Cape Hatteras. It comprises ten states, five major urban ports and estuaries, and a wide continental shelf cut by multiple deep shelf-break canyons. The region supports one quarter of the U.S. population, one quarter of U.S. Maritime commerce, and both commercial and recreational fisheries. A century of industrialization and a growing coastal population impact water quality. Damage from tropical storms and nor'easters are year-round threats. Climatic-scale warming trends are altering fish and shellfish habitats. Population density, reliable winds and shallow coastal zones combine to support the nation's first offshore wind development projects in response to the nation's most congested electrical power grid.

NOAA Funding:

Prior to FY 2011, IOOS regional partners received two awards – one for development of the Regional Coastal Ocean Observing System (RCOOS), and one for planning and stakeholder engagement by a Regional Association (RA). Starting in FY 2011, IOOS made a single award to each region for management of these activities. Funds awarded by NOAA since establishment of the U.S. IOOS Program Office are as follows:

FY 2013 - $3,030,848
FY 2012 - $2,456,472
FY 2011 - $2,070,000
FY 2010 - $1,700,000 RCOOS, $400,000 RA
FY 2009 - $1,700,000 RCOOS, $400,000 RA
FY 2008 - $1,700,000 RCOOS, $400,000 RA
FY 2007 - $1,700,000 RCOOS, $400,000 RA



Regional Priorities:

MARACOOS seeks to discover and apply new knowledge and understanding of our coastal ocean to help save lives and livelihoods, and maintain the quality of life in the Mid-Atlantic Region. To accomplish this, MARACOOS membership has identified five high-priority regional themes: Maritime Safety, Ecological Decision Support, Water Quality, Coastal Inundation, and Energy.

A fundamental MARACOOS asset is the diverse expertise of its approximately 1/3 academic, 1/3 industry, and 1/3 non-profit/government membership. MARACOOS has developed a collaborative network of scientific, business, non-profit and government leaders who are dedicated to applying their combined expertise to address priority regional needs. Multiple federal agencies have recognized the combination of expertise, operational capabilities, and opportunities in the Mid-Atlantic with their investments in this region including NOAA, Department of Defense, National Science Foundation, Department of Homeland Security (including U.S. Coast Guard), NASA, and the Environmental Protection Agency.

To address the primary regional themes, the MARACOOS implementation plan first prioritized and then established six primary real-time observing and forecasting assets:

- An array of High-Frequency (HF) Surface Current Radars covering the entire Mid-Atlantic Bight (MAB),
- A fleet of underwater gliders able to adaptively sample the entire MAB,
- A network of hardened meteorological stations distributed throughout the MAB,
- Five satellite ground stations acquiring imagery of the ocean, atmosphere and land,
- Coast Guard drifters used for SAR operations and to evaluate the skill of the forecasting systems, and
- An ensemble of both statistical and dynamical ocean forecast models that (a) assimilate spatial data from the satellites, the HF Radar network, and the fleet of autonomous ocean gliders, and (b) are forced by an ensemble of atmospheric models validated with the meteorological network.

Initial MARACOOS successes have already been demonstrated and communicated. Regional HF Radar-derived surface current data, and the resulting short-term statistical forecasts, are now an operational component of the Coast Guard's Search and Rescue Optimal Planning System (SAROPS) and through MARACOOS, are helping to save lives at sea. Collaboration with NOAA Fisheries has developed observatory based habitat models for critical species distributed throughout the MAB. Water quality efforts have demonstrated new products for floatables (oil, trash) and rainwater, and have developed regional plans for dissolved oxygen. Coastal inundation demonstration projects have been conducted in the region's bays. State support has enhanced regional activities to inform offshore wind energy development.

The 5-year future vision for MARACOOS includes sustained operations of the regional network consisting of the Observing, Data Management, and Modeling & Analysis Subsystems, and expanding the Education & Outreach Subsystem activities to include extension to new users. Specifically, MARACOOS is focusing on two primary goals:

1. Maintain and gap-fill the existing observing, data management and forecasting subsystems focused on the transition from data-generated products to model-generated ensemble forecast products that can be repurposed for multiple users.
2. Expand end-to-end operations across all five regional themes through: (a) broadening IOOS support and leveraging of non-IOOS activities, (b) enhancing the extension components of MARACOOS, and (c) developing and applying IOOS-endorsed metrics to measure and demonstrate success.

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