

ANNUAL SUPPLEMENTAL TO THE MARACOOS SEMI-ANNUAL REPORT: 1

12/1/2011 – 5/31/2012

NOAA Award Number NA11NOS0120038 (June 2011 – May 2016)

1) TRAINING AND EDUCATION ACTIVITIES

In addition to MARACOOS' engagement in various educational venues, including the NFRA Education and Outreach subcommittee, MARACOOS partners are working on new ways to bring data into the classrooms. A workshop to address education at the undergraduate level was planned during this period for conduct in the next period. Of particular note during this reporting period is the establishment of a MARACOOS Intern Program to support undergraduate students with an interest in ocean observing and forecasting. 3 students were accepted into the MARACOOS Intern program in Spring of 2012: Bryan Stephan (Junior), Emily Patroliia (Sophomore), and Abigail (Abby) Barber (Sophomore). The students provided research and writing support for up to 10 hours per week during the semester. They have access to the MARACOOS Headquarters for their internship activities as well as access to MARACOOS partners. Two students will be supported as full-time interns over the summer.

2) MARKETING, OUTREACH AND ENGAGEMENT ACTIVITIES

MARACOOS and its partners have engaged with national and international organizations to represent MARACOOS and IOOS capabilities, as well as to proactively search for opportunities to partner and leverage existing funding streams. Examples of these engagements include NFRA-related activities (NFRA Board meeting), Bi-weekly MARACOOS Board meeting conference calls, International meetings in Great Britain and Korea. Through its Board, User Council with developing sub-groups, and its membership, MARACOOS is continuing to broaden its reach in the region. Activities from this reporting period include:

2011 MARACOOS Annual Meeting (December 2011)

The annual MARACOOS meeting was held in Washington D.C. December 15-16, 2011.

Joint Ocean Commission Initiative (JOCI) Strategic Planning conference (January 2012)

MARACOOS was invited to participate and contribute to the short and medium term strategy for the Joint Oceans Commission Initiative, succeeding in including integrated ocean observing (IOOS) as part of the critical objectives for the ocean community in the next several years.

ASLO/TOS/AGU Oceans 2012 Conference, Salt Lake City (February 2012)

MARACOOS participated in the conference with many partner and member groups and individuals, including several presentations/talks on IOOS and the importance of ocean observing and forecasting, also presenting MARACOOS' long term strategic vision.

NCEP Collaboration Conference Call (March 2012)

Based on several discussions with Director of NCEP, it was agreed to proceed with more detailed working discussions toward a collaborative relationship with MARACOOS and NCEP in data sharing and modeling development. An initial conference call in March with the NCEP director and several of his senior managers was very positive and resulted in the scheduling of a face-to-face working meeting in June to discuss specific areas of collaboration as well as a mechanism for a long term working relationship.

Consortium for Ocean Leadership and Ocean Observing Committee (March 2012)

MARACOOS continues to engage with the Consortium for Ocean Leadership to ensure IOOS as an important topic within internal external deliberations. Additional MARACOOS serves on the Ocean Observing Committee (MARACOOS member Dr. Steve Lorenz of Univ. Mass Dartmouth chairs the committee) to promote the collaboration of IOOS with OOI.

Delaware Sea Grant Strategy Session (March 2012)

MARACOOS was invited to contribute to Delaware Sea Grant's long term strategic plan, held in Dover, DE in March, which will contribute to the larger National Sea Grant Strategic Plan. MARACOOS emphasized the need for integrated ocean observations and the advantages that a collaboration between IOOS and Sea Grant could bring for both parties as well as the larger stakeholder community.

NOAA Chesapeake Bay Office CBIBS (March 2012)

MARACOOS is discussing with the NOAA Chesapeake Bay Office the alternatives for maintaining the Chesapeake Bay Interpretative Buoy System (CBIBS) into the future. The CBIBS data is already integrated into the MARACOOS Asset Map, making it an important data set to maintain in the future for the Chesapeake Bay stakeholders as well as being a part of the developing long term strategy for MARACOOS in the region.

NOAA CO-OPS Meeting (April 2012)

Following inquiries from maritime stakeholders in the mid-Atlantic region, MARACOOS and CO-OPS held a meeting in Silver Spring, MD (at the IOOS Program Office) to discuss ways to enhance collaboration and improve the NOAA PORTS. The discussions were very positive and resulted in an initial work plan to cover 4 areas, including: getting surface current data to PORTS, getting wind data to PORTS, completing the Aids to Navigation from Stevens Institute for PORTS, and working on modeling collaboration.

MTS Oceans 2012 Conference Planning

MARACOOS is supporting the organizing committee of the MTS Oceans 2012 conference being held in October in Hampton Roads, VA, also serving on the Executive Committee, as well as on the IOOS Town Hall Planning Committee. As part of its support for the conference, for IOOS, and for the collaboration with partner RAs on the east coast, MARACOOS is worked during this period with NERACOOS and SECOORA to develop a joint booth/exhibit to highlight IOOS and the collaboration between the 3 RAs.

SECOORA Annual Mtg (May 2012)

MARACOOS participated in its neighbor RA annual meeting in Miami, Fl, presenting a talk and participating in a panel question and answer session, as well as connecting with SECOORA Board members to discuss collaborative opportunities between the RAs,

Harbor Navigation, Safety, and Operations Full Committee Meeting (May 2012)

MARACOOS presented to the Harbor Ops Full Committee in an effort to inform on existing efforts as well as plans to work with the members of the committee to develop new information products. There was interest from a number of groups including the port authority individuals interested in the enhancement of NOAA PORTS as well as the Pilots with interests in new visualizations of existing nowcasts and forecasts. Follow up discussions were arranged for MARACOOS partners.

Regional Response Team 3 Meeting (May 2012)

MARACOOS was invited to present to the meeting of the Regional Response Team at its multi-day meeting in Ocean City, MD. In addition to side discussions with Coast Guard personnel, NOAA's Office of Response and Restoration expressed interest in meeting to discuss existing information products that MARACOOS could provide immediately to benefit OR&Rs response work.

Mid-Atlantic Sea Grant Regional Collaboration Meeting (May 2012)

Based on several discussions during this period with various Sea Grant involved individuals, the Head of the Mid-Atlantic Directors for Sea Grant requested a discussion to look for ways to collaborate and benefit each others' missions. The benefit to MARACOOS would be additional points of contact with the stakeholder communities as well as an enhanced foundation for product development efforts under the new stakeholder relations strategy.

Delaware Environmental Observing System (May 2012)

As part of MARACOOS’ strategic planning efforts across the region, individual discussions regarding the role of the estuaries and the needs of the respective stakeholders are being conducted. Two discussions, including a working session with technical staff, were held to advance the partnership.

Organizational Planning for US Army Corps of Engineers Meeting

Following discussions with the US Army Corps of Engineers in the previous reporting period, a senior regional official from the Army Corps was elected to the MARACOOS Board in December 2011. Follow-on discussions during this reporting period resulted in the invitation of MARACOOS to join an Army Corps coastal workshop to discuss areas of mutual interest. MARACOOS asked to include NERACOOS in the coastal workshop, which occurs in the next reporting period.

Information for Legislative Staff

MARACOOS continued to expand its outreach with members, partners, and users and decision makers within MARACOOS’ footprint, including reaching out to educate legislative staff in the congressional offices of the 111 congressional districts within MARACOOS’ footprint, as well as the legislative staff in the Senate office of the 10 States in the Mid-Atlantic. MARACOOS also planned during this period an event to inform legislative staff about the benefits that MARACOOS partners provide to society and the region. The meeting will take place in June.

Updated Website(s)

The revamped MARACOOS website continues to be updated with enhancements to the asset map, information through news articles, and an improved slide show. A plan was devised during this reporting period to completely overhaul the layout of the website, making it more user friendly and thematically focused. Implementation of this overall was begun during the period and will continue into the next period.

3) REGIONAL OCEAN GOVERNANCE ORGANIZATION ACTIVITIES

Collaboration with the Mid-Atlantic Regional Council on the Ocean (MARCO)

Interaction between MARACOOS and MARCO continues on the development of the mapping web portal. The leadership for MARCO and MARACOOS agreed that enhanced collaboration was needed, and that additional opportunities for collaboration would be sought out commensurate with existing resources. MARACOOS offered an Ex Officio seat for a MARCO representative on its Board of Directors; Mr. Jay Odell, the MARCO Technical Director for the Web Portal, accepted to the Board-appointed position to the MARACOOS Board of Directors. Additional meetings with MARCO are planned for the next period.

4) EFFORTS TO LEVERAGE IOOS FUNDING

A summarized list of current grants that either leverage IOOS funding or that MARACOOS leverages are shown below.

Partner	Grant Title	Agency	Budget
CCNY	Cooperative Remote Sensing Science and Technology (CREST) Center	NOAA CREST	\$15,000,000
Rutgers Univ.	Ocean Observatories Initiative Education and Public Engagement IO	NSF	\$3,500,000
Rutgers Univ.	Coop. Study Addressing Butterfish & Loligo Squid Interactions	NOAA NMFS NE Coop. Research	\$438,140
Rutgers Univ.	Evaluation of broad and fine scale models of butterfish biomass	NOAA	\$160,891
Rutgers Univ.	3D Spatial and Temporal Monitoring of DO in NJ Coastal Waters using AUVs	US EPA	\$109,140

Rutgers Univ.	An Advanced Atmospheric/Ocean Assessment Program Designed to Reduce the Risks Associated with Offshore Wind Energy Development Defined by the NJ Energy Master Plan	NJ Board of Public Utilities	\$1,870,253
Rutgers Univ.	Expanding USCG Maritime Domain Awareness Capabilities in the Arctic: Vessel Tracking and Communications	US Dept. of Homeland Security	\$52,000
Rutgers Univ.	Real Time bistatic vessel detection in approaches to NY harbor HF Radar testbed	US Dept. of Homeland Security	\$86,250
Rutgers Univ.	CIT Over the Horizon Vessel Detection and Tracking	US Dept. of Homeland Security	\$116,197
Rutgers Univ.	OPT - Littoral Expeditionary PowerBuoy Vessel Detection System Testbed Development Program	Naval Surface Warfare Center	\$1,178,051
Rutgers Univ.	COSEE	NSF	\$2,500,000
Rutgers Univ.	WHOI / CINAR	NOAA	\$16,713
Rutgers Univ.	Sustaining Development of National Ocean Service Operational Forecast System	NOAA	\$50,000
Rutgers Univ.	Improving coastal circulation analysis and prediction thru refined altimeter data processing & variational data assimilation	NASA	\$824,398
Rutgers Univ.	The influence of nursery area diversity and population structure on the population dynamics of marine fishes	NSF	\$192,907
Rutgers Univ.	Impacts of changing climate and land use on carbon cycling	NASA via VIMS	\$319,157
Rutgers Univ.	Coastal Ocean Modeling of nonlinear internal wave physical and acoustic effects	ONR	\$450,000
Rutgers Univ.	Climate to humans: A study of urbanized coastal environments	NSF	\$3,853,332
Rutgers Univ.	Accounting for habitat-dependent observation error in bottom trawl survey	NOAA - S&T HAIP	\$95,000
Rutgers Univ.	The effect of channel deepening on flow properties in the Kill van Kull & Newark Bay	Hudson River Foundation	\$55,299
Rutgers Univ.	Meteorological modulation of exchange btw Raritan bay and the coastal ocean	NJSG	\$190,000
Rutgers Univ.	BIOME- Bio-Robotic Infrastructure of Oceanic Microbial Ecology	NSF	\$826,000
Rutgers Univ.	Network for ocean research interaction and application	NSF	\$410,998
Rutgers Univ.	Rapid environmental assessment using an integrated coastal ocean observation and modeling system - MURI	DOD-ONR	\$4,916,133
Stevens Inst.	The National Ctr. for Secure & Resilient Maritime Commerce & Coastal Env.	US Dept. of Homeland Security	\$10,000,000
Stevens Inst.	NJ Coastal Protection Technical Assistance Service	NJDEP	\$500,000
Stevens Inst.	Shrewsbury River Flood Warning System	Monmouth Cty, NJ, Office Emerg. Mgmt.	\$0

Stevens Inst.	Validation of LiDAR Based Measurement Platforms for Remote Measurement of Offshore Wind Fields	US Dept. of Energy	\$891,093
Univ of Delaware	3-D Mapping of Ocean Water Masses and Biomes	NASA	\$310,755
Univ of Delaware	ROBERTSON-OLIVER GLIDER PROGRAM	Robertson Fund	\$501,000
Univ of Delaware	Sturgeons in the mid-Atlantic region: a collaborative research approach	Nat. Res. & Env. Control (DE)	\$160,280
Univ of Delaware	DARC: Delaware Astrobiology Res. Consortium	NASA	\$6,210,784
Univ of Delaware	Biodiversity and Functioning of two marine ecosystems (BIOFUME)	Partner University Fund	\$119,791
Univ of Delaware	PIRE: Sustaining Dynamic Ecosystem Services in the Coastal Oceans	NSF	\$4,991,967
Univ of Delaware	Sediment Sources, Transport Mechanisms and Fluxes in Coastal Plains	NSF	\$780,000
Univ Florida	Impact of secondary circulation and mixing of estuarine exchange flows	NSF	\$1,050,597
Univ. of Maryland	The Role of Wind in Estuarine Dynamics	NSF	\$2,000,000
Univ. of Mass.	Operational Modeling for the Trinidad North Brazil Current Ring & Shelf Flows	Horizon Marine	\$300,000
TOTAL:			\$65,027,126

5) UPDATE TO RA MEMBERSHIP

Below is a listing of the MARACOOS board members as well as the general MARACOOS membership.

Board Member	Board Position	Professional Affiliation
James Manning	Rep., MA/RI sub-region	Northeast Fisheries Science Center, NMFS
Andrew McGovern	Rep., LIS sub-region	NJ Sandy Hook Pilots Association
Doug Wilson	Rep., Chesapeake sub-region	NOAA Chesapeake Bay Office
Genevieve Boehm-Clifton	Rep., NY Bight sub-region	NJDOT/Office of Maritime Resources
Daniel Leathers	Rep., Delaware sub-region	University of Delaware
Edward Kelly	Board Appointed; Vice Chair	Maritime Association of the Port of NY/NJ
Michael Bruno	Board-Appointed	Stevens Institute of Technology
Jeffrey Yapalater	Board-Appointed	Freeport Tuna Club
Joseph Vietri	At-Large	US Army Corps of Eng. N. Atlantic Div.
Scott M. Glenn	At-Large	DMCS, Rutgers University
Jay Odell	Board-Appointed	Nature Conservancy, Mid-Atl. Marine Pr.
Carolyn Thoroughgood	At-Large; Chair	University of Delaware
William C. Boicourt	At-Large	University of Maryland, Horn Point Lab
Larry Atkinson	At-Large; Secretary	Old Dominion University
Wendell Brown	At-Large	University of Massachusetts Dartmouth

Membership continues to increase. Through membership acquisition efforts during this period, 2 new members (one academic institution and one business and industry entity) joined. They are the Hach Danaher Water Quality Group and Washington College. The distribution of membership among various types of organizations is: Business and Industry (30%), Government (15%), Non-Governmental Organizations (15%), and Academic Institutions (40%).

MARACOOS Members	
1	Applied Science Associates
2	Battelle Memorial Institute
3	Beacon Institute
4	CARIS USA
5	Center for Innovative Technology
6	Chesapeake Bay Observing System
7	Chesapeake Research Consortium
8	City College of NY NOAA Cooperative Remote Sensing Sci. & Tech. Center
9	CODAR Ocean Sensors
10	Delaware River Basin Commission
11	East Carolina University, Institute for Coastal Science and Policy
12	Fugro Atlantic
13	Fugro Earthdata
14	Hach / Danaher Water Quality Group
15	Hudson River Foundation
16	Maryland Department of Natural Resources
17	Mid-Atlantic Fishery Management Council
18	Millersville University
19	Monmouth University, Urban Coastal Institute
20	NJ Sea Grant Consortium
21	NOAA Chesapeake Bay Office
22	NOAA CoastWatch - East Coast Node
23	NY Dept. of Env. Conservation, Hudson River Env. Conditions Obs. System
24	Old Dominion University, Center for Coastal Physical Oceanography
25	Partnership for the Delaware Estuary (NEP)
26	Rutgers University, Inst. of Marine & Coastal Sciences
27	Science Applications International Corporation
28	Sonardyne International Ltd.
29	Stevens Inst. of Technology, Charles V. Schaefer, Jr. School of Engineering
30	Stony Brook Univ., School of Marine & Atmospheric Sciences
31	Sutron Corporation
32	Teledyne RD Instruments
33	U.S. Geological Survey, New Jersey Water Science Center
34	U.S. Naval Academy, Center for Chesapeake Bay Obs. & Modeling
35	Univ. of Connecticut, Dept. of Marine Sciences
36	Univ. of Delaware, Office of the Provost
37	Univ. of Delaware, Delaware Sea Grant College
38	Univ. of Maryland, Center for Environmental Science
39	Univ. of Maryland, Maryland Sea Grant College
40	Univ. of Massachusetts at Dartmouth, Ocean Observation Laboratory
41	Virginia Inst. Of Marine Science, College of William & Mary
42	Virginia Maritime Association
43	Washington College, Center for Environment & Society
44	WeatherFlow Inc.
45	Woods Hole Group
46	YSI, Inc.

6) LETTER OF SUPPORT FROM USCG

Below we are including a letter of support from the USCG for MARACOOS work in attempting to locate a sunken fishing vessel off of the NJ coast.



Commanding Officer
United States Coast Guard
Sector Delaware Bay

1 Washington Avenue
Philadelphia, PA 19147
Phone: (215) 271-4800
Fax: (215) 271-4967

22 FEB 2012

Dr. Josh T. Kohut
Assistant Professor
Marine and Coastal Sciences
New Jersey Agriculture Experiment Station School of Environmental and Biological
Sciences Rutgers, The State University of New Jersey
71 Dudley Road
New Brunswick, New Jersey 08901

Dear Dr. Kohut,

I would like to extend my most sincere appreciation for the assistance you and your colleagues provided in our search for the commercial fishing vessel Mandy Ness off the coast of New Jersey this month. With unknown variables such as the potential for a semi-buoyant hull moving along the ocean floor, your efforts and recommendations were critical in vastly improving the value of our search patterns.

Utilizing superior knowledge and experience, you assisted our teams by calculating the effects of subsurface currents for the vicinity of the subsurface search area. These efforts led to multiple teams and assets vigorously exploring twenty square miles of seabed in efforts to locate the sunken vessel, an important piece of evidence in an ongoing investigation.

While we were unable to locate the vessel, your skills and welcomed ability to translate scientific analysis and information into layman's terms were instrumental in educating my crew on subsurface current effects. For many of the Coast Guard members involved, this was their first introduction to subsurface searches, current calculations and direct modeling support from the Mid Atlantic Regional Association Coastal Ocean Observing System, tools that we will utilize more frequently in the future.

Thank you again for your continued support of our Coast Guard missions.

Sincerely,

A handwritten signature in blue ink, appearing to read "MLA".

Meredith L. Austin
Captain, U.S. Coast Guard
Captain of the Port