

The Continued Development of the Northeastern Regional Coastal Ocean Observing System

J. Ruairidh Morrison
NERACOOS

570 Ocean Blvd., Rye, NH, 03870

Phone: (603) 319-1785 FAX: (603) 319-1799 E-mail: ru.morrison@neracoos.org

CO-PI(s)

Tom Shyka (NERACOOS), Changsheng Chen (University of Massachusetts, Dartmouth), Robert Beardsley (Woods Hole Oceanographic Institution, WHOI), Scott Gallager (WHOI), Michele Dionne (Wells National Estuarine Research Reserve), Ted Diers (New Hampshire Department of Environmental Services), Neal Pettigrew (University of Maine), James O'Donnell (University of Connecticut), Joe Salisbury (University of New Hampshire), Al Hanson (University of Rhode Island), John Annala (Gulf of Maine Research Institute), Peter Smith (Bedford Institute of Oceanography), Annette deCharon (University of Maine), Hauke Kite-Powell (WHOI), Christine Tilburg (Gulf of Maine Council on the Marine Environment), Wendy Graham (RMC Research Corp.), Craig Swanson (Applied Science Associates), James Manning (NOAA, National Marine Fisheries, Northeast Fisheries Science Center)

Award Number: NA11NOS0120034

<http://www.neracoos.org>

Period of Performance: June 1 – November 30, 2011

1. PROJECT SUMMARY

Long-term goals

The overarching intent of this proposal is to continue operation and further the development of the integrated ocean observing system for the Northeast and to expand the user base through consultation and outreach.

Objectives

At the recommended funding level NERACOOS will achieve the following objectives detailed in the original work plan of the proposal submitted in the fall of 2010. Due to the overlap in the performance periods of the FY2010 and FY2011 IOOS Implementation awards, efforts will be able to maintained at current capacity without the anticipated decrease in activity with level funding. In addition, enhanced capacity will be achieved in nutrient and water quality monitoring especially in Narragansett Bay and wave measurements on Jeffreys Ledge.

1. Coordinated Regional Management
 - 1.1. NERACOOS office at base capacity.
2. Observing Subsystem
 - 2.1. Planning for future enhancement and National Synthesis of Regional Build Out Plans
 - 2.2. The Gulf of Maine buoy array will be maintained at current capacity (6 buoys – UMaine).
 - 2.3. The Long Island Sound buoy array will be maintained at current capacity (3 buoys – UConn).

- 2.4. The Great Bay Coastal Buoy and Coastal Marine Lab will be maintained at current capacity (UNH).
- 2.5. The Gulf of Maine HFR array will be maintained at current capacity (3 locations – UMaine).
- 2.6. HAB monitoring in the Bay of Fundy and MERIS satellite work will be maintained at current capacity (BIO).
- 2.7. Nutrient work will obtain additional capacity to allow buoy integration at URI and maintain capacity of the AZMP program (URI and BIO).
- 2.8. Enhanced observing capacity will be achieved with continuing the deployment of Jeffreys Ledge CDIP wave buoy (UNH).
- 2.9. Enhanced observing capacity will also be obtained with the real-time telemetry Narragansett Bay Fixed-Site Water Quality Monitoring Network (NBFSMN, URI).
- 3. Data Management and Communications Subsystem
 - 3.1. DMAC coordination will be maintained at current capacity (GMRI)
- 4. Modeling and Analysis Subsystem
 - 4.1. The Northeast Coastal Ocean Forecast System will be maintained at current capacity (UMassD).
 - 4.2. The WaveWatch III wave model will be maintained at current capacity (BIO).
- 5. Outreach and Education
 - 5.1. Current capacity at the NERACOOS office will be maintained.

2. PROGRESS AND ACCOMPLISHMENTS

U.S. IOOS regional awards were finalized by NOAA in late August 2011, so work on this award is just beginning. Much of the work was sustained with funds awarded in previous cooperative agreements with NOAA where there is a large amount of overlap in goals and objectives. This includes observing subsystem activities not associated with regional build out plans, as well as DMAC and Modeling and Analysis subsystem activities. These operations subsystem efforts were sustained with funds from the FY10 IOOS award to NERACOOS, NA10NOS4730019, and reported upon in appropriate progress reports. However significant progress has been made in a number of areas especially in Coordinated Regional Management, the Regional Build Plans, and Education and Outreach as detailed below. There is overlap with progress reported recently in the progress report for the regional planning grant, NA08NOS4730296.

Objective 1 – Coordinated Regional Management

Board Activities – The NERACOOS Board of Directors met twice during the reporting timeframe, on August 16 and November 27. Again, travel distance, time requirements, cost, and carbon footprints were reduced for the August meeting with multi-location video teleconferencing (central location of the Seacoast Science Center and satellite locations in Canada and Connecticut).

The November Annual meeting was held over two days, November 28 and 29th.

The first day was a business session for the board. The nominating committee developed an election slate to replace board members whose terms had expired. Jon Pennock (UNH), Al Hanson (URI), and Christine Tilburg (GOMC) were re-elected to another term. Matt Lyman (CT DEEP) was elected to replace Kevin O’Brein. A replacement for John Conway to represent Connecticut industry still needs to be identified. Alternate board members were also confirmed: Doug Vandemark (for Jon Pennock,

UNH), Ted Diers (for Chris Nash, NH DES), and Marianne Molchan (for Cheryl Zimmerman, FarSounder).

Approximately 60 people attended the second day of the meeting at the Seacoast Science Center where they heard about NERACOOS' progress and plans from Ru Morrison and ocean observing at national and international scales from Zdenka Willis, the Director of the US IOOS Program Office. A press event celebrating the FY2011 NOAA IOOS award drew a number of reporters including a TV crew from the Portland NBC affiliate WCSH-6. Ru Morrison, Zdenka Willis, and PJ Johnson, a pilot from Portsmouth NH, talked about the importance of ocean observing especially the buoys and presented an award to Neal Pettigrew and the buoy group from the University of Maine marking over ten years of buoy operations. Coverage ran that evening on WCSH-6 and was also carried in a number of print and online publications. More interactive sessions followed including a panel discussion with representatives from a number of NEACOOS theme/ focus areas and a multi-group review and discussion of the upcoming new NERACOOS website. The website is scheduled for launch in January 2012. Gabrielle Cannonico from the US IOOS Program Office also attended the Annual Meeting.

Strategic Planning and Implementation (SPI) Team

Regional Build Out Plan – The major activity of the SPI Team this period was the development of the Regional Build Out Plan. This was achieved with a community based approach with various avenues for input from diverse stakeholders in the region. Initial planning teleconference calls established writing groups and leads for each of the major issue areas identified in the guidance documents and templates developed by the national steering committee. (Ru Morrison was also part of this steering committee). The issues were identified and described and the information required to address the issues identified. Input was sort all along through a number of webinars in the run up to an expanded SPI Team meeting on September 15 at the Great bay Discovery Center of the Great Bay National Estuarine Research Reserve. At this meeting, the issues and associated information requirements were presented prior to developing the observing subsystem design. Two groups considered a range of fixed, mobile, and remote platforms needed to deliver the required information and developed separate and in the end very similar plans. The observing subsystem plan was later synthesized by NERACOOS staff from the output of the two groups and other subsystems' elements updated based on input from the meeting and those unable to attend. The final plan was presented on a webinar before submittal to the national contractors.

Regional Coordination

The New England – Canadian Maritime Collaboration and Planning Initiative – NERACOOS participated in an effort looking at collaboration amongst four regional entities in New England and Canada's Maritime Provinces. These organizations have complementary and in some cases overlapping missions to promote inter-governmental cooperation and scientific understanding in a marine region that cumulatively extends from the Gulf of St. Lawrence to the New York Bight. The entities are: Regional Committee on Coastal and Ocean Management (RCCOM), Gulf of Maine Council on the Marine Environment, Northeast Regional Oceans Council (NROC), and Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS). All four entities comprise state, provincial, and federal agencies concerned with marine resources and, in the cases of the Gulf of Maine Council and NERACOOS, representatives from nonprofit, industry, and/or academic sectors as well. Three of the entities – the Gulf of Maine Council, NROC, and NERACOOS – have programmatic elements that rely on financial resources that fluctuate and may not meet minimum requirements over the long term. In each case, human resources are stressed due to the multiple roles some managers and their agencies play among two or more of the entities. The Maine State Planning

Office funded an independent consultant, Evan Richert, to determine whether some measure of consolidation or additional cooperation would relieve some of the financial and human resource stresses that participants in the entities are experiencing. A report for consideration by the organizations will be ready in December 2011.

Together with the Northeast Regional Ocean Council (NROC), NERACOOS led the *New England-Canadian Maritime Collaboration and Planning Initiative* which brought together 13 regional organizations including the Northeast Coastal and Ocean Data Partnership (NeCODP) and the NOAA North Atlantic Regional Team (NART). A final partner meeting on October 27 built on the series of four theme-based meetings in May and June (Ocean and Coastal Ecosystem Health, Renewable Ocean Energy, Coastal Hazards, and Ocean Observing). These theme meetings produced project implementation summary sheets for a number of regional priorities and finalized versions with updates from the October 27 meeting are available. Progress continues to be tracked on a number of the projects.

Coastal Marine Spatial Planning (CMSP)

The Northeast Ocean Data Portal Working Group is a collaborative group including NERACOOS, SeaPlan (the renamed Massachusetts Ocean Partnership), The Nature Conservancy, NOAA's Coastal Services Center, Applied Science Associates, the Gulf of Maine Research Institute, and NROC. The CMSP data portal for the northeast that consists of a website (www.northeastoceandata.org) and data viewer was launched in June prior to the national CMSP working at which Ru Morrison presented as part of the National Information Management System session. NROC was awarded funds by NOAA and the Moore Foundation to further develop CMSP in the region and significant resources are expected to be devoted to the data portal work.

NERACOOS and Northeast Coastal and Ocean Data Partnership (NeCODP)

NERACOOS will host the annual meeting of the NeCODP this time at the University of New Hampshire on June 8 and 9. Derrick Snowden from the IOOS Program Office attended and the meeting included a metadata workshop.

Other meetings

NERACOOS representatives attended numerous other meetings during the performance period reported on here including the Capitol Hill Oceans Week, Gulf of Maine Council, EnergyOcean International, Coastal Zone 11, three eastcoast regional associations meeting with Kathy Sullivan at Rutgers University, LISS meetings, 2011 Regional Association for Research in the Gulf of Maine (RARGOM) Annual Science Meeting, ME/NH Port safety forum meetings, COSEE Broader Impacts Workshop.

Objective 2 – Observing Subsystem

Objective 2.1 Planning for future enhancement and National Synthesis of Regional Build Out Plans

Efforts for developing the regional build out plan are detailed in the coordinated regional management section above.

At a national level, Drs. Holly Price and Leslie Rosenfeld were selected as the contractors to support the national synthesis of the regional build out plans from a pool of applicants who responded to a request for proposals issued by NFRA. The selection was made by the build out plan steering committee which included members of the IOOS program office and IOOS regions. Five tasks

identified included; 1) assist the Steering Committee and RAs with completion of initial drafts of build out plans, 2) initial high-level review of submitted plans, 3) synthesis of Regional Plans for November Workshop, 4) finalize the synthesis, and 5) prepare synthesis, gaps identification and Executive Summary. To date aspects of tasks 1 to 3 have been worked on and completed. A National Synthesis workshop was held in Portland, ME on November 16 and 17 with representation from all eleven IOOS regional associations, the IOOS Program Office and the Interagency Committee on Ocean Observing (IOOC). Work continues on the synthesis which will be concluded before the end of the first quarter in 2012.

Objective 5 – Education and Outreach

NERACOOS and New England Ocean Science Education Collaborative (NEOSEC)

NERACOOS and other NEOSEC partners have continued work on the NOAA funded *Families by the Seaside* project. This 2-year program will advance the way informal ocean science education institutions reach underserved/underrepresented families by facilitating and formalizing relationships between informal science education centers and community based organizations. Project teams in five New England communities will collaborate to create a practicable, outdoor ocean-science learning experience specifically designed for families in their shared service area. Building on a needs assessment produced through target-audience focus groups, the program will combine coastal field experiences with web-based interactive and participatory learning activities developed and tested by the Encyclopedia of Life (EOL; www.eol.org/) and NERACOOS to support in-field and ongoing learning. Science content will be informed and vetted by NOAA research scientists and work between the science centers and community organizations will be professionally facilitated. Formats and effectiveness will be evaluated by external evaluators and revised throughout the project. Cassie Durette has also attended a number of additional NEOSEC meetings during the time period. We have also participated in the NFRA Education and Outreach Committee calls and activities as well as attending and presenting at the National Marine Educators Association annual meeting.