

**Southeast Coastal Ocean Observing Regional Association (SECOORA):  
Supporting Resilient Ecosystems, Communities and Economies**

**Program Performance Report**

Award Number: NA16NOS0120028

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**1) Progress and Accomplishments**

**Goal 1: Continue SECOORA’s region-wide governance and communication structure to engage users and stakeholders in coastal observing science**

**Milestone A: Maintain governance and management for the RA and RCOOS**

Activities	Status
Effectively manage grants and contracts	Ongoing.
Ensure SECOORA’s operational & governance structure enables us to achieve our vision.	Ongoing.
Maintain effective communication with US IOOS and the IOOS Association	Ongoing.
Expand and diversify funding.	Ongoing.
Update and maintain SECOORA’s RCOOS Plan.	Delayed. Due to Vembu’s passing this effort was delayed. The new expected completion date is October 1, 2017.

**Milestone B: Engage users and other stakeholders to prioritize investments**

Activities	Status
Improve web-based information system and web presence	Ongoing. SECOORA continued to engage in marketing and outreach activities via e-newsletter, e-mails, social-media and website. From December 1, 2016 to May 31, 2017, we observed a 20% increase in subscription to our newsletter, from 697 to 834, Facebook “likes” have grown 10% (from 325 to 356) and Twitter “followers” have grown 20% (358 to 431). During the reporting period SECOORA shared approximately 54 Facebook posts and 100 Twitter “tweets”, referring a combined 327 sessions to the SECOORA website. During this period we focused our outreach efforts on launching and designing a new website (May 2017), resulting in a decrease in website sessions of 24% during the reporting period (74,750 sessions to

Activities	Status
	56,910 sessions). SECOORA newsletters, stories and videos can be accessed on our <a href="#">website</a> , <a href="#">Facebook</a> and <a href="#">Twitter</a> .
Identify and promote opportunities for non-members to engage in SECOORA activities and initiatives.	Ongoing. New fellowship/scholarship and data challenge initiatives are underway. Three data challenge winners were selected and announced at the SECOORA Annual meeting.
Implement an effective outreach strategy.	Ongoing.
Support citizen science opportunities.	Evaluation of citizen science activities in the region is ongoing.
Engage students in problem solving using ocean observing data.	Ongoing. Two students accepted NOAA EPP internships at USF, Cheyenne Maio-Silva and Michaela Lawrence. They will begin their internships June 1.
Coordination of SOCAN activities	Ongoing. An OA Monitoring workshop was held February 27 and 28, 2017. Sixteen OA experts participated. A draft report is available for review. Additionally, the SOCAN Steering Committee is evaluating options for restructuring to create some working groups, and make the steering committee a little smaller.
Animal Telemetry Workshop (Joint SECOORA, CariCOOS and US IOOS)	Complete. The ATN workshop was very successful, with 45-50 participants. A draft workshop report is currently undergoing review. Meeting Materials: <a href="http://secoora.org/atnworkshop2017/">http://secoora.org/atnworkshop2017/</a>

### Milestone C: Maintain and Operate DMAC (SECOORA and Axiom Data Science, LLC)

Activities	Status
IOOS DMAC standards compliance and implementation Data Management, Products and Services	Ongoing. We follow the IOOS recommended standards based services and requirements to ingest, manage and provide access to all our funded data streams (in-situ, remotely sensed and numerical models). See <a href="http://portal.secoora.org">portal.secoora.org</a> . A few improvements over this period include: 1. Developed a static asset tool to aid in SECOORA planning (RCOOS, build-out, etc). Trello. Tool. 2. Improved the inclusion of the CNAPS model into SECOORA, including improved metadata, imagery, and access via THREDDS. Trello. Portal. Integrated new datasets into the SECOORA Portal: 1. NOAA Coastal relief models - Trello. Portal. 2. Extratropical storm surge guidance - Trello. Portal. 3. FACT layers. Trello. Portal. New features on the portal include: a. Station landing pages. Portal. b. PI provider landing pages. Portal. c. Station results in catalog search. Portal. d. New charting/time-series displays for all graphs. Portal.
Maintenance of DMAC infrastructure (hardware and software)	Ongoing. Responsible contractor: Axiom Data Science, LLC.
Establishment and release of new SECOORA content website	Ongoing. A soft launch of the new website occurred in May 2017. Key new features include consistent colors aligned with SECOORA's branding, responsive design, prominent highlight of the data and data portal, content rewrite and a strong focus on linking our data efforts to theme areas.

**Goal 2: Maintain existing core observation investments in the region**

**Milestone A: Maintain HF Radars distributed throughout the region: Ongoing.**

Institution/Contractor	Status
University of South Florida (UFS) (Weisberg, Merz)- Support four CODAR radar arrays on the West Florida Shelf	<b>Operational uptime and average spatial range statistics:</b> Naples (97.6%, 187km); Venice (100%, 114.3km); Reddington Shores (99.7%, 190.7km) Fort DeSoto (99.8%, 134.6 km). <b>Operational issues:</b> No significant issues to report.
University of Georgia (UGA), Skidaway Institute of Oceanography (SkIO) (Savidge) - Support two WERA radar arrays on St. Catherine’s and Jekyll Island, GA	<b>Operational uptime and average spatial range statistics:</b> Jekyll Island (78%, 0km) and St. Catherine’s Island (42.7%, 160km). <b>Operational Issues:</b> Both sites were affected by hurricane Matthew and had power outages and damages. Repairs were completed in January. Lightning damage has been a recurrent issue at St. Catherine’s, resulting in significantly reduced transmit power and range. Some continuing struggles exist with transferring data to the SECOORA data portal. The data are successfully pushed to HFRnet, through the UM gateway. However some combination of SkIO’s domain migration with SECOORA’s new portal, along with a change of personnel (Amft/Moore retirements, death of our IT manager in FY16) continues to thwart successful transfer of data to SECOORA. NOTE: Four new WERA radars (funded by NSF) were installed by SkIO on the Outer Banks of North Carolina this spring. While not technically part of SECOORA, we intend to make these data accessible to the public through SECOORA-funded entities, i.e., the SECOORA website, or the visualization capabilities of the SECOORA-funded R. He group at NCSU. Radars are 13.5MHz, and provide extensive coverage of the northern SECOORA footprint
University of Miami (Shay) - Support three WERA radar arrays at Crandon, Virginia Key and Dania Beach	<b>Operational uptime and average spatial range statistics:</b> Virginia Key (99%, 117km), Crandon Park (85.2%, 139km); Dania Beach (81.8%, 98km). <b>Operational issues:</b> Nothing significant for exiting sites. Negotiating (still!) with Florida Power and Light Turkey Point facility for a possible permit for an HF radar site. It is now being reviewed by the Nuclear Regulatory Commission. Our assessment of Elliot Key is that it is not optimal and prohibitively expensive to service the HF radar unit (e.g., requiring a boat to reach the site).
University of NC - Chapel Hill (UNCCH) (Seim) - Support three CODAR radar arrays on the Outer Banks of NC	<b>Operational uptime and average spatial range statistics:</b> Cape Hatteras (93.7%, 168km); Duck (96.4%, 190km); and Core Banks (99.2%, 217km). <b>Operational issues:</b> The brief downtime at DUCK was due to a cut cable near the base of the transmitter in early December 2016 that was promptly repaired. NOTE: One of NSF-funded PEACH project WERA systems belonging to Skidaway Institute of Oceanography is co-located with HATY and is sharing communications infrastructure.
University of South Carolina (Voulgaris) -Support two WERA arrays on Fort Caswell, NC and Georgetown, SC	<b>Operational uptime and average spatial range statistics:</b> Georgetown (99.9%, 231km) and Fort Caswell (100%, 167km). <b>Operations issues:</b> Structural changes were made at GTN to address potential interference with sea turtle nesting activities prior to the nesting season.

**Milestone B: Maintain in-situ stations along the Carolina and West Florida Shelf (WFS) coasts: Ongoing.**

Institution/Contractor	Status
USF (Weisberg) - Coastal Ocean Monitoring and Prediction System (COMPS) moorings	Three real time surface moorings (C10, C12 and C13) were maintained, along with two (non-real-time) subsurface (C11 and C15) moorings. The up-time of all sensors on moorings is over 85%. <b>Operational issues:</b> Data telemetry system outages either power limitations (mostly winter time) or antenna issues. Birds appear to have been particularly disruptive at C10, where outages in winter were the worst

Institution/Contractor	Status
	by a combination of lower sun angle, shorter days and lack of rain (to wash the solar panels). With heavier rains recently we are back up to 92% in May 2017 (and now 96% in June).
USF (Luther) - Coastal tidal meteorological stations	<b>Operational issues:</b> The Clam Bayou site in-water sensors had to be removed temporarily in late April for renovations to the dock. The sensors were reinstalled in late May and are functioning well. The datum for the water level gauge will be re-established during the next regular service visit on June 27, 2017
University of North Carolina - Wilmington (UNCW) (Leonard) - UNCW mooring network	Moorings ILM2, ILM3, LEJ3, SUN2, CAP2, FRP2 were maintained. Except for CAP2 and SUN2, sensors uptime is over 93%. Operational issues: LEJ3 – The CTD deployed on the LEJ3 mooring has had intermittent reporting problems. The CTD lost power February 11, 2017. Weather and vessel availability inhibited replacement until May 2, 2017. Water temp data was available during this time period from the co-located waverider buoy. SUN2 - was damaged by ship strike around March 13, 2017. The mooring was replaced on April 11, 2017 during the scheduled buoy turnaround cruise on board the R/V Savannah. SUN2Wave –The mooring was recovered in December 2016 for a regularly scheduled mooring refurbishment. The mooring was redeployed Feb. 2017. CAP2 - CTD lost power ~ March 12, 2017. CAP2 was damaged by either ship strike or experienced failure due to severe weather damage. The buoy was replaced April 11, 2017 during the scheduled buoy turnaround cruise on board the R/V Savannah.

**Milestone C: Maintain the sensors on NOAA GRNMS buoy: Ongoing.**

Institution/Contractor	Status
UGA (Noakes) and University of Delaware (UDEL) (Cai) - Support to NOAA's Ocean Acidification Program NDBC Gray's Reef National Marine Sanctuary (GRNMS) NDBC ID #41008 buoy	<b>UGA:</b> The SAMI-pH started failing in December 2016 and by January 2017, the pH values were erratic. The values were pulled from the website since they were unusable. PMEL sent a new SAMI-pH in late January and several attempts were made to schedule replacement, but due to vessel, personnel conflicts and sea conditions, the unit could not be replaced. It was decided to wait until the full spring service trip to install the SAMI-pH. <b>UDEL:</b> No new field samples were collected, however continue to analyze time series data as it becomes available.

**Goal 3: Begin to address geographic gaps in observations**

**Milestone A: Establish a regional glider observatory in the South Atlantic Bight (SAB): Ongoing.**

Institution/Contractor	Status
UGA SkIO (Edwards) North Carolina State University (NCSU) (He) UNCCH (Seim) USF (Lembke) Georgia Institute of Technology (Zhang)	Data analysis is in progress for glider data collected during the summer 2016 experiment. In May 2017, one glider was deployed off Ocracoke Inlet, NC to sample features near Cape Hatteras, but was recovered to address a hardware issue.

**Milestone B: Install a new coastal water quality and meteorological station in Charleston Harbor, SC: Ongoing.**

Institution/Contractor	Status
South Carolina Department of Natural Resources (Sanger)	The site of the new monitoring station will be located at 32.757326, -79.858940 at a depth of 10-12 feet MLLW. The installation has been delayed from the original

Institution/Contractor	Status
	plan due to the co-location and use of another platform than the one we originally proposed to install. The USCG has been unable to install the site due to vessel issues and a request by National Marine Fisheries Service to install outside of a May-June spawning window. Installation of the site is expected in July.

**Goal 4: Continue delivery of operational model forecasts and products to serve priority users**  
**Milestone A: Enhance and operate a Coupled Marine Environmental Assessment and Prediction System for the SE: Ongoing.**

Institution/Contractor	Status
NCSU (He) - Support and enhance SABGOM model	Ongoing. Model coupling, model skill assessments, long-term analysis, and generations of several value-added products continues. The PI and his team are also testing data assimilation schemes within the SABGOM modeling system using 3Dvar and 4Dvar data assimilation schemes

**Milestone B: Operate the WFS FVCOM ocean model: Ongoing.**

Institution/Contractor	Status
USF (Weisberg)	FVCOM is a prognostic, unstructured-grid, finite-volume, free-surface, 3-D primitive equation coastal ocean circulation model, and is run in a nowcast/forecast mode. Results are available via SECOORA data portal.

**Milestone C: Provide an early warning system for swimming beach and shellfish harvesting waters: Ongoing.**

Institution/Contractor	Status
USC (Porter)	The geographic focus of this project has shifted from the Edisto area to other beaches and locations in the Charleston Harbor area. Once acceptable models up and running for the swimming beaches of Folly Beach, Sullivans Island and Isle of Palms, and the shellfish harvesting waters within the Charleston Harbor watershed, we envision making the modeling output available to a variety of end users including the Charleston Waterkeeper, SCDHEC, SECOORA, ISSC and the NOAA National Weather Service.

**Milestone D: Optimize and enhance the SECOORA Marine Weather Portal (MWP): Ongoing.**

Institution/Contractor	Status
UNCW (Dorton)	The site is now hosted on the SECOORA website: <a href="http://mwp.secoora.org">http://mwp.secoora.org</a>

**Milestone E: Python Data Analysis Tools for Oceanographic Services: Ongoing.**

Institution/Contractor	Status
Independent Contractor (Filipe Pires Alvarenga Fernandes, Oceanographer, Brazil)	Progress report submitted to Jennifer Bosch, IOOS PO.

**2) Scope of Work**

Scope of work remains as described in [Year 1 descope proposal](#).

### **3) Personnel and Organizational Structure**

SECOORA had one major personnel change with Vembu Subramanian's passing in late January. A job announcement was just released and we expect to hire a replacement within the next 60 days. A current list of SECOORA Members and Board is available on our [website](#). The Board elected two members during special elections held in March. Roger Pugliese was elected to fill George Voulgaris' unexpired term, starting immediately. Conrad Lautenbacher, Geoptics, was elected to fill a Public Sector seat with its term beginning July 1, 2017. SECOORA's members elected 5 Board members for terms starting on July 1, 2017, at the Members Business Meeting on May 16 (Jim Murley, Miami-Dade County, Mark Willis, Surfline, Nick Shay, University of Miami, Pat Halpin, Duke University, and Jim Nelson, University of Georgia Skidaway).

### **4) Budget Analysis**

SECOORA's March 31, 2017 financial report shows a budget balance remaining of approximately \$1.6M. We are within budget and on track with spending. SECOORA continues to receive invoices regularly from our sub-awardees and we process them at one of two bi-monthly administration meetings. All invoices are paid within forty-five days. SECOORA continues to draw from ASAP monthly. As a reminder SECOORA pays out its monthly operational costs (i.e. payroll, etc.) and then conducts the ASAP draws in the middle of the following month for both the preceding month's operation expenses and the sub-awardee invoices.