



**Year 4 (2005-2006)**

**Mid-Year Progress Report**

### **Managing and Lead Principal Investigators:**

University of North Carolina

Russ Lea, Vice President for Research, UNC Office of the President (Managing S.I.)

Harvey Seim (Lead S.I. and Chief Operating Officer)

### **SEACOOS Members**

- Florida Center for Ocean Sciences Education Excellence (FL COSEE)
- Florida Sea Grant (FSG)
- North Carolina Sea Grant (NCSG)
- Southeast Center for Ocean Sciences Education Excellence (SECOSEE)
- Skidaway Institute of Oceanography (SkIO)
- South Carolina Dept. Natural Resources (SCDNR)
- 
- South Carolina Sea Grant Consortium (SCSGC)
- University of Georgia Marine Extension
- University of Miami (UM)
- University of North Carolina at Chapel Hill (UNC-CH)
- University of South Carolina (USC)
- University of South Florida (USF)

### **SEACOOS Affiliate Members**

- Beaufort TACTS/Naval Surface Warfare Center/USN
- Carolinas Coastal Ocean Observing and Prediction System (Caro-COOPS)
- Center for Operational Oceanographic Products and Services/NOS/NOAA
- Coastal Ocean Monitoring and Prediction System (CORMP)
- Fish and Wildlife Research Institute (FWRI)
- Florida Keys National Marine Sanctuary/NOS/NOAA (FKNMS)
- Marine Modeling and Analysis/EC/NCEP/NWS/NOAA
- Miami FL Weather Forecast Office/NWS/NOAA
- National Coastal Data Distribution Center/NESDIS/NOAA
- National Data Buoy Center/NWS/NOAA
- Southeast Fisheries Science Center/NMFS/NOAA (SEFSC)
- SeaKeys
- South Atlantic Fisheries Management Council (SAFMC)

### **SEACOOS Affiliate Member Nominees**

- Atlantic Oceanographic and Meteorological Laboratory/OAR/NOAA (AOML)
- Beaufort Marine Laboratory/NOS and NMFS/NOAA (BML)
- Camp LeJeune Integrated Observing Network/USMarines
- Coastal Services Center/NOS/NOAA
- Field Research Facility/US Army Corps of Engineers
- Florida Space Port

- Gray's Reef National Marine Sanctuary/NOS/NOAA (GRNMS)
- Jacksonville FL Weather Forecast Office/NWS/NOAA
- Naval Atlantic Meteorology and Oceanography Center/USN
- Naval Research Laboratory
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GEORGIA MARINE EXTENSION SERVICE.....  
*Georgia Extension and Education – S.I. Randy Walker.....*

NC SEA GRANT.....  
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MANAGEMENT.....

UNIVERSITY OF NORTH CAROLINA SYSTEM.....  
*UNC Office of the President, Dr. Russ Lea, Managing SI.....*  
*Grants Manager, Sarah Smith.....*

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL.....  
Project Office Management - SI and C.O.O., Harvey Seim

## Work Statements and Budget Justifications

### Observations

*Observational subprogram – S.I. and Workgroup Chair Robert Weisberg (West Florida Shelf), co-S.I. Mark Luther (Coast and Tampa Bay), USF*

#### WORK STATEMENTS

▪ <b>Moored array</b> - Maintain the SEACOOS/COMPS moored array, providing real time data to the general public, via the COMPS and SEACOOS Web sites, and to NCEP and private entities, via NDBC. Emphasis will be on improving real time data reliability.	60%
▪ <b>Coastal stations</b> – Maintain the SEACOOS/COMPS coastal array. Add (via other funding sources) sea level/met stations compatible with NOAA NOS standards.	60%
▪ <b>HF-radar</b> – Maintain the WFS long-range CODAR array that presently consists of three sites [Redington Beach, Venice, & Naples]. The Venice site is presently operated in collaboration with the Mote Marine Laboratory and Rutgers University. Add (via existing or other funding sources) new sites at Cedar Key to the north and at Siesta Key (near Venice).	60%
▪ <b>Near-shore stations</b> – These will sample the near-shore region of estuarine influence that is not covered by HF-radar. Developed in Year 3, and expanded with other funding, two sites with surface met, ADCP, T/S, and waves are anticipated (in Pinellas and Sarasota Counties).	60%
▪ <b>Profilers and gliders</b> – Our BSOP profilers (developed under separate funding) and a glider (also under separate funding) will be used for T/S sampling (and possibly other biological and chemical measures).	60%
▪ <b>Data analyses</b> – Analyses are aimed at understanding the synoptic, seasonal, and inter-annual variations of WFS material properties, including the ocean circulation, the ocean-atmosphere interactions, and the ecological ramifications of these.	60%
▪ <b>Fields of variables for description and support of models</b> – Continue to develop products from all applicable observational sources for descriptive and modeling uses, such as data assimilation and quantitative assessments of model performance. The observational and modeling components at USF are linked and these joint activities are also aimed at improving our ability to monitor the coastal ocean based on understandings of coastal ocean dynamics, the interactions between the deep-ocean and the shelf and between the shelf and the estuaries.	60%

*Budget Justification:* Salary support is for the S.I. (1 mo.), a computer analyst/data manger (7 months) three technicians (3, 6, and 4 months), engineering support (3 months) and a graduate

student (12 months). Equipment is budgeted for meteorological station and telemetry system spares. Travel is for SEACOOS meetings and field support. Materials and supplies are largely for seagoing items and for computer related items. Other costs are for ship-time, tuition, Service ARGOS locations, computer maintenance, publication, and HF-radar telecommunications. USF fringe is @ 16.5%, plus \$590/month health insurance (1% on students), and indirect is @ 47%.

Narrative:

- 1) We continue to maintain a total of 10 mooring sites, 6 in with surface buoys for real time telemetry and 4 subsurface without telemetry.
- 2) We continue to maintain the COMPS coastal stations.
- 3) HF-radar continues without change (3 sites, one in collaboration with Mote/Rutgers). Equipment was purchased (on a separate grant) for a fourth site at Cedar Keys. However, due to siting considerations and various equipment failures elsewhere, requiring spares, we have not deployed a fourth site. Our intention now is to maintain three sites, perhaps adding a fourth within the exiting footprint for redundancy to increase data return reliability.
- 4) Two were deployed (Sarasota and Pass-a-Grille) as planned. These were recovered for repair and upgrade and will be redeployed. We are using a Coast Guard tower at Pass-a-Grille and a buoy at Sarasota. The Sarasota buoy remains deployed and we are collaborating with Mote Marine Lab on red-tide optical measurements.
- 5) With separate funding we engaged in BSOP deployments in summer 2005 and we acquired a Webb electric glider. Spring-fall BSOP deployments are presently in planning along with initial glider tests. We anticipate joint BSOP/glider work if other funding sources are available. A paper is in preparation on the 2005 BSOP deployments. Observed was anomalous stratification, which facilitated, along with bottom confined red-tide organisms, a large-scale, benthos die-off.
- 6) Dr. Yonggang Liu successfully defended his PhD dissertation and will graduate in May 2006. Several data analyses topics were included, most recently an analysis on the relationship between coastal sea level variations and the contributions made thereto by along shelf barotropic currents, along shelf baroclinic currents and across shelf wind stress.
- 7) These were reported in the modeling section. Recently, the SSH-geoV Lagrangian trajectory simulations were employed by Congressman Jim Davis at a town hall meeting regarding offshore oil and gas drilling.

*Satellite Remote Sensing -- co-S.I. Frank Muller-Karger, USF (This is part of the Observational subprogram, but as a new addition in Year 3 it is being listed separately).*

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	% COMPLETE
▪ Produce high temporal and spatial resolution sea surface temperature fields from MODIS and AVHRR to be served by SEACOOS;	85%

*Status:* Algorithm development has been completed and algorithms are being tested. SST derived data products from both MODIS and AVHRR are being provided to SEACOOS on a routine basis. We are currently focusing on daily operational and quality control issues which are ongoing and will always need to be addressed.

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	% COMPLETE
▪ Produce ocean color data from MODIS and SeaWiFS (the latter one in a protected mode available to researchers and educators) in a format compatible for SEACOOS access and in a manner similar to that for the SST products;	85%

*Status:* IMaRS is currently providing ERGB, CRGB and Chlorophyll-a ocean color data derived from MODIS daily to SEACOOS. We have added a chlorophyll fluorescence imagery data stream. We are currently focusing on daily operational and quality control issues which are ongoing and will always need to be addressed.

NASA and OrbImage failed to reach an agreement on the scientific use of high resolution SeaWiFS data. Even password protected near real-time data access is not currently an option, so we are unable to provide access to SeaWiFS data – this is completely out of our control as it is an arrangement between a Federal agency and a private company that owns the satellite.

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	% COMPLETE
▪ Plan for delivery mechanisms of other relevant satellite data including altimetry and scatterometer observations (sea surface height and winds, respectively)	80%

*Status:* We continue to make progress in providing intellectual and scientific guidance to SEACOOS on how to import these data from national microwave satellite processing centers and scatterometer/altimeter databases located at the Jet Propulsion Lab. The SEACOOS portal continues to offer prototype wind and sea surface height products developed with our input.

**UNIVERSITY OF SOUTH CAROLINA**

**SC NEAR SHORE MONITORING STATIONS – S.I. GEORGE VOULGARIS, USC**

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- **Near-shore Stations** - Continue to operate and maintain two established near-shore monitoring stations, providing real-time directional wave and current data to the general public via the SEACOOS internet site and the NOAA-NOS site (Springmaid Pier Station, SC). Emphasis is placed on improving robustness and reliability of the sites minimizing down time. 60%

The two nearshore stations (Springmaid Pier and Folly Island) continued to be maintained. Springmaid station stopped operating on January 05, 2006. Operation was re-established on January 11<sup>th</sup>, 2006. Folly beach has been non-operational since August 12, 2005 due to burial in response to a beach nourishment project that took place in the vicinity of the station. Attempt to recover the station in August 2005 failed due to low visibility and due to burial of the sensor. A recovery operation was re-attempted on April 3, 2006 using an hydraulic dredge but due to problems with the vessel (davit failure) the operations were abandoned. The station is expected to be operational again in April 2006 and in time for the summer period. This will assist the mission of the Charleston NWS/WFO for nearshore hazard predictions.

Additionally, the Springmaid station has been updated with a Hydrolab Salinity / DO sensor in support of hypoxia studies by the SC Department of Natural Resources. The instrument and data transmission is using the SEACOOS established hardware/software backbone.

A high-resolution tilted head rotating sonar (2MHz) has been acquired and data-logging software was developed for its remote operation. The system is planned to be installed on the SABSOON towers to facilitate monitoring of sea bed morphology in an attempt of continuously monitoring benthic exchange fluxes as these might be affected by wave-induced ripples.

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- **Wave Modeling for the Vicinity of the Measurement Locations** – Initiate the development, calibration and utilization of a small region, high-resolution wave model to extrapolate the point measurements into various locations along the coastline. 40%

The computer hardware was purchased and has been installed. Most of the effort has focused on testing the systems and setting up a new Fortran compiler (Portland Group) for use with this activity. The SWAN model has been installed and trial runs have been performed to study speed and compatibility of computer systems. Furthermore, wave directional data from a parallel study funded by the US Geological Survey (Coastal Erosion Study) were collected at two additional locations north of the Springmaid station. These data are currently analyzed to be used to calibrate the model for its ability to accurately predict the spatial variability of the wave conditions along the coastline of Long Bay.

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- **Data Analysis** – Continue the generation of data for improving the near-shore directional wave climate for the coast of South Carolina for the two locations. 50%

The real-time data analysis software developed as part of this program and currently used in the SC Nearshore Monitoring systems has been disseminated to researchers from the UNC Wilmington and UNC-Chapel Hill (Marine Institute) for use with their systems. Support to their efforts has been provided through email and meetings.

*HF Radar – P.I., Richard Styles, USC*

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	% COMPLETE
▪ Deploy a long-range HF Radar (CODAR) system in coordination with SKIO partners in the central South Atlantic Bight.	95

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*Status:* At present we have made the following progress toward completing our Year 4 goals.

1) We have received FAA permission to operate 1 long-range WERA Radar system at 4.3, 6.35, (8.35 operating) MHz on Pritchards Island, SC.

2) We have purchased and received delivery of all components for 1 long-range WERA.

3) We have installed 1 long-range WERA at Pritchards Island. The system is providing realtime radial current vector data to a server in Columbia. This data is also being received at SKIO for creating vector maps for the SEACOOS website.

**SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES**

*Fisheries Management Video Systems, Charles Barans and George Sedberry, co-S.I.s*

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|-------------------|------------|
| <b>% COMPLETE</b> | <b>40%</b> |
|-------------------|------------|
- **SABSOON Microwave System** - Continue to maintain and upgrade the present (6 camera) fisheries video system and it's microwave transmission capabilities.

*Status:* Newly replaced main transmission cable broken and waiting divers and weather for repair.

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|-------------------|------------|
| <b>% COMPLETE</b> | <b>80%</b> |
|-------------------|------------|
- **Autonomous Video Systems** - Provide more complete regional fisheries information by continuing to deploy visual data loggers at an expanded number of sampling sites.

*Status:* Collaborative efforts to deploy video data loggers in regional habitats have been initiated with CORMP, GRNMS and NURC/UNCW-Aquarius.

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|-------------------|------------|
| <b>% COMPLETE</b> | <b>80%</b> |
|-------------------|------------|
- **Data Analyses** - Continue to obtain quantitative fisheries data from observations of video images at all research sites to correlate fishes with oceanographic conditions for application to future predictive models.

*Status:* Published paper on methods used in primary system and have manuscript in preparation for publications of results through 2004.

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|-------------------|------------|
| <b>% COMPLETE</b> | <b>50%</b> |
|-------------------|------------|
- **Automatic Annotation** - Improve the efficiency of the present video annotation process by incorporation of computerized automatic evaluation of each data set through technology transfer from MBARI.

*Status:* Attended workshop on MBARI auto annotation and archiving system. Application of software to our system needs to be negotiated.

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| <b>% COMPLETE</b> | <b>80%</b> |
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- **Outreach and Education** – Educational materials will continue to be enhanced for students, teachers and the general public at the Fish Watch internet web site to supplement the present searchable video data base and provide access to the results of video data analyses on fishes observed at the research site.

*Status:* Collaborating with the IT staff of the SC Aquarium in the development of further

meeting in November 2005. A presentation that included Fish Watch materials was also presented project at South Atlantic Fishery Management Council Ecosystem Workshop in November 2005, and to marine biology clubs at Wando and James Island High Schools (Charleston County) in October and December 2005.

SKIDAWAY INSTITUTE OF OCEANOGRAPHY

*S.I. and Workgroup Co-Chair Jim Nelson, and S.I.s Rick Jahnke, Dana Savidge*

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	% COMPLETE
<ul style="list-style-type: none"><li>▪ <b>Offshore platforms</b> – Maintain the existing SABSOON observational system based at offshore Navy towers, and implement upgrades that target improved reliability of real time data acquisition (for power, communications and instrument package components) and facilitate maintenance and reduce operational costs.</li></ul>	40

*Status:* Meteorological packages have been operating at three towers (R2, M2R6, R8) fairly reliably. ADCP cable failures at M2R6 and R8 have required recovery of the units. The R8 cable had been obviously damaged, apparently due to snagging by a boat anchor. The M2R6 cable may have been punctured by a fish hook. The M2R6 ADCP/cable has been replaced, and the R8 replacement is scheduled for April, 2006. Some maintenance operations in winter 2006 had been delayed due to personnel commitments to site preparations and installations of the HF Radar systems (below). HF Radar installation commitments for SkIO Engineering have also delayed some system upgrade plans (new in-water package designs). Due to a significant rise in helicopter service charges (being negotiated), helicopter use has been reduced and more servicing trips are being done using the NOAA GRNMS vessels.

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	% COMPLETE
<ul style="list-style-type: none"><li>▪ <b>HF Radar deployment and operation</b> -- Continue the initial operation and validation of a long-range (150-200 km) HF Radar surface current mapping system in the central South Atlantic Bight. Coordinate this operation with USC partners. Initial installations are planned for Year 3; however, anticipated State funding for an additional site may not be available until the latter half of Year 3, thus some installation work may be continuing in the first part of Year 4.</li></ul>	80

*Status:* Final site preparations for the Georgia WERA installation at St. Catherine's Island were completed in the winter (power to beach site, installation of a climate-controlled shed, establishing DSL communications, site selection for transmit and receive antennas), along with initial range and frequency tests with the WERA engineers. The St. Catherine's Island managers have been very cooperative and have provided considerable support for the installation (boat transport and vehicle transport for the shed, trenching for power, brush clearing for cable runs). SkIO engineering personnel also assisted in some of the Pritchard Island, SC preparations. Final

installation was delayed until March due to the need to extend the cable run for receive antennas on St. Catherine's Island, and scheduling conflicts for the WERA engineers. Installation was completed in mid-March, 2006. The initial coverage looks quite promising, extending beyond the Gulf Stream front.

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% COMPLETE

- **HF Radar product validation** - Initial validation of surface current measurements will employ current meters in the SkIO/GIT partner inventory (internally recording, non-real time). If surface waves are a product option, planning for a wave product verification experiment in the SAB will be initiated, based on the analyses obtained from the Year 3 experiment in the WERA domain on the East Florida Shelf.

5

*Status:* The initial WERA radar information is presently being compiled, but analyses are just beginning. SkIO personnel will be examining the initial vector current data and evaluating data quality and system performance over the next several months. Bottom-mounted ADCP data is presently available from two SABSOON deployments in the WERA vector current "footprint", with a third (R8 tower) to be reinstalled in early spring.

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% COMPLETE

- **Documentation** - Continued documentation of mechanical and electrical systems will be emphasized, along with cost/personnel requirements for operation of various components of the observing system. This information will contribute to Regional Association planning and is of interest to SEACOOS Affiliates for IOOS planning purposes.

50

*Status:* The SkIO Engineering "document tree" for mechanical and electrical systems continues to be updated. This will be expanded to include support systems for the HF Radar installation. Personnel requirements

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% COMPLETE

- **Data analyses** - An area of emphasis in Year 4 will also be analyses of the existing time series on the sub-regional level, and in coordination with SEACOOS partners, on the regional scale.

40

*Status:* Collaboration with UNC for analysis of data from the 2003 "cold water event" (prolonged summer upwelling/intrusion) resulted in a paper (in press) which is being followed up by additional hindcast modeling and analysis (coordinated by A. Aretxabaleta, UNC). Preliminary analysis of offshore wind data has been pursued in collaboration with a academia/industry partnership that is exploring the potential for wind power generation on the Georgia continental shelf. Further analyses by J. Blanton and D. Savidge of SkIO are being supported by the wind power group. The time series observations are also being utilized in several NSF and NASA supported projects.

- **Logistical support for UNC and SC DNR operations** - SkIO will coordinate with UNC partners to support tower observations and autonomous vehicle (glider) deployments, and with our SC DNR partner to maintain the UW camera system deployed near one of the Navy towers.

25

*Status:* The UNC glider has required some modifications by the manufacturer and the UNC tower package has had some design modifications. We plan to coordinate logistics with UNC personnel for further work at the R4 (SE) platform in late spring, 2006. Replacement of the cable from the tower to the SC DNR UW camera unit is also planned for spring, 2006.

- **Near-shore directional wave measurements** - SkIO personnel will coordinate with our GIT partner to maintain near-shore directional wave buoy off Tybee Island, Georgia (including ship, small boat and diving support).

30

*Status:* The GIT wave buoy stopped reporting and will be replaced in early spring, using the R/V Savannah from SkIO. Given recent proposals at the State and Federal level for renewed beach nourishment operations at Tybee Beach, we feel it is important to continue to collect data to define the inshore wave climate off Tybee.

## Georgia Institute of Technology – Subcontract through SkIO

*Real-Time Wave Measurements, Coastal Georgia, P.A. Work, S.I., School of Civil and Environmental Engineering, GIT, Savannah Campus. (See Nelson Update)*

### WORK STATEMENTS

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- **Tybee Roads Directional Wave Buoy Measurements** - maintain the existing installation at Tybee Roads. This requires periodic diver inspections and replacement of the mooring system and buoy servicing at six-month intervals.

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- **Data distribution** - continue to enhance the presentation and accessibility of the data on the web. Data are now updated hourly and posted to the web; the next issues are to improve graphical displays and integrate into the SEACOOS data stream. We will also continue to notify potential users of the resource.

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- **Process data from two Year 3 experiments** - 1) side-by-side deployments of a bottom-mounted ADCP and the directional buoy, and 2) deployment of the buoy within a WERA array in South Florida.

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- Perform pilot study to investigate suitability of video techniques for measurement of directional wave energy spectra at SABSOON towers - Of the options considered, this appears to be one of the more intriguing, but the approach is not, to the author's knowledge, being used operationally anywhere in the world. This pilot study will utilize two data sources: 1) existing stereo video imagery collected within well-surveyed domain at Tybee Island, GA, 10/04, and 2) new imagery acquired from one of the SABSOON towers during SEACOOS Year 4.

*Budget Justification:* P. Work (1 month) will oversee all aspects of the project; R. Abler (1 week) will assist with data dissemination; a graduate research assistant will be supported at a 1/2-time level for one year to assist with data collection, instrument deployment, servicing, and data processing. The remainder of the budget includes funds for supplies related for data collection. Travel funds have been included for SEACOOS-related meetings and for a conference. Standard Georgia Institute of Technology rates for fringe benefits (24.3%), graduate student tuition (\$444/month), and indirect costs (51.2%) have also been applied. Total budget of \$83,102 included in total for SkIO.

University of Miami, RSMAS Radar Test Bed for the East Florida Shelf (EFS) and Mini-Waves Experiment - S.I., Lynn K. Shay MPO, RSMAS

WORK STATEMENTS

▪ <b>Analyses</b> – Analyze radar-derived surface currents and waves by comparing data to moored ADCP, AWAC, and Tri-Axys data over the East Florida Shelf from the ~2-month deployment in March-April 2005 in collaboration with SEACOOS colleagues.	40%
▪ <b>RTB operations</b> - Maintain three surface current radar sites along the EFS, establishing a radar test-bed (RTB) in a regime with large gradients that occur over short-time scales. Compare the radar surface current estimates to available <i>in situ</i> velocity measurements.	65%
▪ <b>Real time data</b> - Provide hourly estimates of surface current maps and significant wave heights via the Web.	100%

*Budget Justification:* Salary support is requested for Drs. L.K. Shay (3 months) and B. Haus (3 months), Tom Cook (8 months), and Jorge Martinez (12 months). Shay will oversee and manage the project, lead the analysis of the surface and subsurface data. Haus will process wave data from the WERA data. Cook is responsible for processing the surface current data posting on the Web. He will assist Haus in the *in situ* wave data comparisons to the WERA-derived wave data. Martinez and Cook will also assist in the surface and subsurface current analysis, and maintain HF radar sites. All personnel will be involved in the day-to-day HF-radar operations on the EFS. Direct costs include permits, telephone lines and electricity at the sites, travel to and from the sites, expendable supplies; such as, disks/CDs to store data, computing services (i.e., Internet connections at the sites such as DSL, cell phone technology), and publications. Fringe benefits are approximately 26% and 30% for senior and support personnel. The UM indirect cost recovery is 51%. The budget includes \$4.5K for spare antennae coils and cables for the WERA.

**Comments:**

**There was no wave-rider buoy (removed from budget), rather it was a mini-waves experiment in 05 in collaboration with several SEA-COOS institutions. We have delayed procurement of directional wave software until we know what the 06-07 budget will be.**

**Tom Cook left in Oct (05) and was replaced by Jodi Brewster in Nov (05) and we are supporting a student (Brad Parks) involved in the analysis of the *in situ* ADCP mooring data and radar-derived surface currents as part of his MS Thesis.**

**We are awaiting delivery on new coils and antennae for the WERA given the wear and tear over the past two years. They will be installed upon receipt.**

*Real-time Oceanographic Profiling Stations Along the East Florida Shelf, S.I. Bill Johns, MPO/RSMAS*

**WORK STATEMENTS**

% complete

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|---|--------|
| <ul style="list-style-type: none"> <li>▪ <b>Development and testing</b> - Continue development and testing of operational real-time oceanographic profiling systems within the HF Radar Domain on the East Florida Shelf. The systems, referred to as SWAMP (Shallow Water Autonomous Moored Profiler), contain an upward-looking ADCP and a buoyant CTD probe (APV) that is periodically released to the surface and winched back to the bottom. The entire unit is housed in an acoustically recoverable, trawl-resistant bottom platform. The purpose of these units is to provide a capability for acquiring and transmitting velocity and water property (e.g., temperature and salinity) profile data from shallow environments (&lt;100 m) without the need for vulnerable and maintenance-intensive surface buoys.</li> </ul> | 90.00% |
| <ul style="list-style-type: none"> <li>▪ <b>Deployments</b> - Conduct long-term SWAMP deployment (ca. 3 months) with real-time data delivery by Iridium.</li> </ul>   | 0.00%  |
| <ul style="list-style-type: none"> <li>▪ <b>Operations</b> - Commence operational deployments of two SWAMP systems in the EFS HF-Radar Domain, nominally off Carysfort Reef in the Florida Keys and off the northern end of Elliott Key. Both units would be deployed in ~35 m depth. The data will be transmitted to RSMAS and incorporated into the EFS Radar Testbed, EFSIS evaluation, and the SEACOOS real-time data stream. In operational mode, we anticipate collecting hourly velocity (current) profiles and 4-hourly CTD profiles that are transmitted 6 times per day.</li> </ul>   | 0.00%  |

**Status:** Testing of the SWAMP system is continuing in South Florida waters with HF radio data transmission. Two major problems with development of a fully operational system persist: (1) development of a functional Iridium telemetry capability, and (2) integration of “smart” data transfer between the APV and ADCP internal components. Progress on these issues has reached a standstill and according to our commercial partner (Oceansensors, Inc.) this will require significant board-level modifications to the APV system and the communications protocol between the AVP and ADCP to solve. Given the tight funding situation in SEA-COOS it is not feasible to proceed with these developments at this time. Therefore our goal for the remainder of the current fiscal year is to fully test the physical performance of the system (winch functionality and durability, CTD operation, data telemetry in a range of surface conditions, etc.) via a long term test (~ 3 mo., April-June 2006).

*Observations from Explorer of the Seas and Associated Data Systems, Edward Kearns, S.I., MPO/RSMAS*

**WORK STATEMENTS**

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- **Real time data** - The Explorer of the Seas will continue to provide daily real-time data from the Straits of Florida and the northern Caribbean Sea. These observations include:
    - ADCP,
    - Bulk and skin SST,
    - Sea surface chemistry,
    - Standard meteorological measurements,
    - Incoming radiation, aerosol characterizations,
    - Upper air wind profiles,
    - Radiosonde profiles, pCO<sub>2</sub>, and
    - Manual water samples.
- 

- **Test bed activities** - The Explorer will continue to serve as a test bed automated VOS technology and for instruments from both the oceanographic and meteorological communities. The focus for Year 4 will be on the proper establishment and refinement of the real-time ADCP data flow.
- 

- **Public outreach** - Personnel will continue to pursue public outreach opportunities to educate and inform passengers about oceanography in general and the SEACOOS program in particular.

*Budget Justification:* Base support is provided for the daily Explorer observations; the largest portion of these expenditures is salary (6 months each) for 24/7 at-sea tech support (Maxwell/Cucchiara). Other lesser salary expenditures are for the shore-side support personnel (Williams 0.5 months, McKinnley 2.0 months and a graduate student 6.0 months). Funds for necessary supplies and hardware to calibrate instruments and maintain the on-board data network are budgeted but at less-than-ideal levels as are limited travel funds for SEACOOS DM and RS subcommittee interactions..

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

*Observational subprogram for SABSOON and NC, Harvey Seim, SI and SEACOOS Chief Operating Officer*

WORK STATEMENTS	% complete
▪ <i>Fixed platforms:</i> deploy/maintain/harden tower deployments off Oregon Inlet and at SABSOON. Support buoy electronics as needed. Focus on assessing if systems are viable. Build up additional systems as possible.	33%
▪ <i>Moving platforms:</i> focus significant effort on autonomous salinity and temperature mapping with glider.	25%
▪ <i>HF radar:</i> continue operation and evaluation of existing HF radar. Continue work on formatting, exchange of radials, and formation of total vectors along eastern seaboard. Continue planning for an additional HF radar to go near Cape Lookout.	50%

*Fixed platforms:* have not gone well – Lookout buoy knocked out by Ophelia, significant re-engineering undertaken. To be re-deployed in April '06. Anticipate 2<sup>nd</sup> buoy delivery and build-out before end of fiscal year. SABSOON tower R4 offline, un-diagnosed serial bus issues causing trouble. OI deployments still self-contained.

*Moving platforms:* have also gone poorly – 4 failed glider deployment attempts over summer and fall of 2005. Major upgrades/revisions now implemented, anticipate more testing this spring/summer in collaboration with UNCW and SkIO.

HF radar: considerable progress in documenting and understanding nature of errant velocities produced by system. Gave talk at Ocean Sciences in HI, continue to work with CODAR on solutions. Also involved with MAB HF radar consortium on sharing of radials.

## Lookout Shoals research buoy, R. Luettich, S.I.

### WORK STATEMENTS

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- Lookout Shoals Research Buoy statement of work:

Assess sensor integration and improve data logging and transmission capabilities as appropriate.

Buoy maintenance to include:

- 6 - month buoy turn around and refurbishment
  - 2-3 month turn around of associated bottom tripod and in water buoy sensors
  - as needed sensor replacement
- 

- Demonstrate buoy configuration robustness as quantified by # of down sensor days
- 

- Initial analysis of data returning from buoy

*Budget justification:* includes salary support for Luettich (1 month) and Whipple (6 months). Other Charges include transportation support includes 12 days on the R/V Capricorn (\$9600) and 12 small vessel days (\$1800). Supplies charges of \$10,162 include electronics and shop charges, and computer supplies. Travel is budgeted at \$3,000.

*Status:* 2 buoys were ordered from GOMOOS in December 2003 and delivered in the summer of 2005. An uninstrumented buoy was deployed at the Lookout Shoales site in January of 2005. It broke from its mooring and was lost at sea approximately 1 month after deployment. A replacement buoy has been ordered from GOMOOS, although this has not yet been received. The mooring attachment was redesigned and a fully instrumented buoy was deployed in June of 2005 along with a companion bottom tripod containing an ADCP and CTD. This buoy functioned with data displayed at the NCCOOS web site, until early September 2005 when it was severely damaged by the passage of Hurricane Ophelia. The bottom tripod functioned through the hurricane and provided wave and current data on the conditions throughout the time period. The buoy utilized an Iridium communication system to transmit meteorological and other surface measured data to shore which functioned well. It also utilized a cell phone communication system to transmit data received via acoustic modem from the bottom tripod. The cell phone was not reliable from the deployment location and has since been replaced with a free wave radio system. The buoy and tripod were recovered in October 2006. The tripod was re-deployed in January 2006 without the buoy and recovered on March 31, 2006. The buoy has now been re-instrumented and further modifications to the mooring system have been made with the hope of reducing damage to the buoy instrument systems during extreme weather. The buoy and tripod are presently scheduled for re-deployment at the end of April 2006.

In addition the Army Corps of Engineers has provided funding for the deployment of a bottom mounted ADCP 2000 ft off the beach near the west end of Bogue Banks. This instrument was deployed in mid-March 2006 and a cable laid to shore. Real time data is currently being

collected from this system and we are working to make it available in real time via the NCCOOS web site.

## INFORMATION MANAGEMENT

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University of South Carolina

*Information management and communications – S.I. and Workgroup Chair Madilyn Fletcher,  
S.I. Dwayne Porter*

### WORK STATEMENTS

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▪ Continued <b>development of web-based products</b> . These will include enhancements of current map-based, static tools, which have interactive features and aggregate real time data. Additional developments will incorporate web-based analytical tools that enable users to pull down data and information for distributed, in-house product development.	Ongoing
▪ Continued <b>participation in standards development</b> . This will include enhancement and build-out of data dictionary in coordination with national IOOS standards development, as well as development of QA/QC standards.	Ongoing
▪ <b>Maintenance of commonly used computing infrastructure</b> . This includes the maintenance of two data base servers, one applications server, and one aggregation server, as well as hosting the SEACOOS twicki, bulletin board, and listserve. We will work with other SEACOOS institutions to identify redundancy needs and help address where possible.	Ongoing
▪ <b>Continued metadata documentation</b> . Assistance with program metadata documentation for a broad range of information will be provided through implementation of Meta-Door.	Ongoing
▪ Establishment, organization, and documentation of <b>SEACOOS archives</b> . This will include not only establishment of SEACOOS' own archival needs, but also continued and enhanced transfer of data to national archives.	Deferred to 2 <sup>nd</sup> half of project year
▪ Provision of information and instruction on <b>information management processes and protocols to other regional and national IOOS systems</b> .	Ongoing

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*Budget Justification:* includes salary support for Fletcher (1 month), Porter (0.75 month), Purvis (12 months), and a programmer/developer (9 months). Travel is projected to be \$9000. Funds for supplies (\$10,000) include computers, computer peripherals, and computer supplies, while computer costs relate to USC computer support.

SKIDAWAY INSTITUTE OF OCEANOGRAPHY INFORMATION MANAGEMENT

*S.I.s Jim Nelson, Rick Jahnke, Dana Savidge*

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%COMPLETE

40

- Provide **near real-time data from SABSOON and the GIT wave buoy** to the SEACOOS modeling group and to NDBC and NWS. Update and maintain web sites for public access to tabular and graphic data.

*Status:* Communications system upgrades by the Navy has resulted in some interruptions of the data flow from the offshore towers, and recent intermittent breaks have required some troubleshooting of equipment at one of the shore microwave relay towers. Further upgrades of SkIO IT hardware and data processing scripts (below) should enhance the reliability of web delivery of the near real-time data.

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%COMPLETE

50

- Implement a **remote accessibility structure for the SkIO network** to facilitate joint work on processing and display scripts with UNC and other partners and to facilitate flexible sharing of large data files and analysis products using http and secure shell.

*Status:* All main data and processing servers can now be remotely and securely accessed with SSH protocols for log-in and transfer of data to SEACOOS partners. Significant hardware upgrades have been implemented by SkIO IT that will enhance system reliability. Migrating processing scripts to a dual server (main and backup) system is underway which should provide backup for processing and delivery of near real-time data from the offshore towers. A Linux server for acquiring and processing the WERA HF radar data has been installed.

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%COMPLETE

60

- **Update scripts** to parse data into a web accessible Postgres database for real time and historical data from SABSOON.

*Status:* The open source PostgreSQL relational database has been designed and fully implemented at SkIO for the historical and incoming SABSOON data. Extension of the database to include WERA surface current data is underway, and plans to link the tower database to maintenance records and a time series archive of regional ocean color satellite data is planned. Open source GIS applications are also being installed for layered mapped displays of various data types (tower, HF radar, satellite). Incorporation of data quality flagging is planned in coordination with the DMCC as QA/QC procedures for various data types are defined. Development of tables for "cleaned" data is underway.

- Coordinate with USC and other SEACOOS partners in the **processing and display of surface current information** from the joint SC/GA HF Radar deployments.

5

*Status:* With the start of WERA HF radar data acquisition in mid-March, 2006 this task is in its initial stages.

- Follow up on the initial **prototype testing of the USC Meta-Door tool** at SkIO and implement metadata strategies developed by the SEACOOS DMCC.

20

*Status:* The "Meta-door" tool is available, but is undergoing some updates. General FGDC-compliant records have been generated for the towers, but it is anticipated that these will require update in the second half of Year 4.

**UNIVERSITY OF SOUTH FLORIDA**

*SI Mark Luther*

**WORK STATEMENTS**

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- continue to collaborate with SEACOOS DMCC personnel on all SEACOOS data management plans for Year 4

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- continue to provide/add COMPS/NDBC monitoring sites data to the SEACOOS web site

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- enhance our QA/QC control practices and coordinate with SEACOOS on the overall QA/QC efforts

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- enhance our data management practices and metadata holdings; enhance USF COMPS web site to provide data in an Open Geospatial Consortium (OGC) compliant manner




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- add the USF HF Radar data stream on the USF OpeNDAP server

*Budget Justification:* Salary and benefits are budgeted for V. Subramanian (2 months), J. Donovan (8 months), and P. Smith (6 months). Subramanian is on a 9-month state-funded appointment. A new Dell Xeon server will be purchased under Capital Equipment. Other costs are for SEACOOS DMG travel, computer maintenance, computer related supplies (tapes, CD/DVDs, etc. required for back-up of critical data), and publication. USF fringe is @ 16.5%, plus 590/month health insurance, and indirect is @ 47%.

UNIVERSITY OF MIAMI

*Observations from Explorer of the Seas and Associated Data Systems, Rod Zika, P.I.,*  
**MAC/RSMAS Data Management**

<b>WORK STATEMENT</b>	
<ul style="list-style-type: none"> <li>▪  Continue to provide daily real-time data from the Explorer of the Seas.</li> </ul> <p>Status: The Explorer of the Seas continues to provide real-time data to the SEACOOS commons and on a OpenDAP/DODS server.</p>	100%
<b>WORK STATEMENT</b>	
<ul style="list-style-type: none"> <li>▪  <b>Refinement of the realtime ADCP data and estimation/minimization of the associated current velocity errors</b> through new processing techniques and improved navigational error analysis</li> </ul> <p>Status: All of the historical ADCP data to present is in the process of evaluation with software tools that have been recently developed for that purpose. The OS38kHz has been evaluated with this tool. Single-ping ensemble editing software is in development for this data set. Heading calibrations will be recalculated with the additional bottom tracking data available. Heading corrections which will be done for each ensemble will be incorporated into the new data processing utilizing the data from the installed 3-D GPS system onboard. The expectation is that the processing will be completed by year end.</p>	40%
<b>WORK STATEMENT</b>	
<ul style="list-style-type: none"> <li>▪  archival-quality database efforts will continue to develop, adopt and implement:             <ul style="list-style-type: none"> <li>- new SEACOOS and IOOS standards for data formats</li> <li>- QA/QC methodology (QARTOD I and II results)</li> <li>- accompanying metadata (e.g. MMI products)</li> </ul> </li> </ul> <p>Status: The QA/QC methodology has not yet been applied to the data processing. Software is in development, and is 50% completed to process the surface marine data (winds, salinity, water temperature). The current QA/QC will be implemented simultaneously with the processing software development for that data set. Metadata has been produced for an intermediate step towards a completed metadata database.</p>	30%

**WORK STATEMENT**

- The **infrastructure** that supports the shore-side data management system will continue to support the data streams from other Miami SEACOOS investigators.

100%

Status: both the University of Miami WERA and EFSIS data streams continue to be served up by our OpenDAP/DODS server.

**WORK STATEMENT**

- Support will be provided for SEACOOS-related remote sensing activities of the USF and RSMAS Remote Sensing\*\* (RS) laboratories (Terra-& Aqua-MODIS ocean color and SST, AVHRR SST, etc.) through new product development, operational redundancy, or data dissemination.

25%

*INFORMATION MANAGEMENT (CONT.)*

**UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**

*Central web site maintenance, S.I. Harvey Seim, UNC-CH*

WORK STATEMENTS

<ul style="list-style-type: none"> <li>▪ <b>Support of <a href="http://www.seacoos.org">www.seacoos.org</a></b> will include maintenance of the server suite (4 ) and regular backups and system monitoring.</li> </ul>	50%
<ul style="list-style-type: none"> <li>▪ <b>Ongoing changes to functionality and content of <a href="http://www.seacoos.org">www.seacoos.org</a>.</b> UNC-CH will control content structure and contribute to content. Principle responsibility for new content will rest with partners use of the Content Management System, which allows for distributed content additions and revisions.</li> </ul>	50%
<ul style="list-style-type: none"> <li>▪ <b>Programming &amp; technical inquiry</b> will be provided by staff to enhance existing and research developing technologies in support of the SEACOOS website.</li> </ul>	50%
<ul style="list-style-type: none"> <li>▪ <b>GIS support and development</b> to continue expansion of the website visualization suite.</li> </ul>	25%

Part 2: NCCOOS data management, P.I. Harvey Seim, UNC-CH

<ul style="list-style-type: none"> <li>▪ <b>Continued Data Integration:</b> Collaboration with SEACOOS data management personnel to implement processes to aggregate internal and external data streams for modeling and outreach products.</li> </ul>	50%
<ul style="list-style-type: none"> <li>▪ <b>Data Quality and Control:</b> We will implement QA/QC practices as identified by SEACOOS partners. This includes procedures for near, real-time observational data, as well as, after-the-fact.</li> </ul>	40%
<ul style="list-style-type: none"> <li>▪ <b>Establish metadata and data structure for NC observations:</b> We will assist in identifying SEACOOS minimums for data structure and metadata needs for HF radar and in-situ measurements. These will be made available in a manner that are consistent with those throughout SEACOOS.</li> </ul>	50%
<ul style="list-style-type: none"> <li>▪ <b>Operational data streams:</b> Maintain and update scripts and programs to automate the processes of converting, calibrating, and aggregating data as they are received from remote sites and pushed to data servers for Internet access. Work to incorporate need to access information about changes in calibrations and maintenance.</li> </ul>	50%
<ul style="list-style-type: none"> <li>▪ <b>Design relational equipment database:</b> Continue development of a relational database to hold information about field equipment and sensors, history of maintenance, calibration data and threshold standards. This database will be updated by field personnel and used by operational scripts and programs—a crucial step towards operational function.</li> </ul>	50%

*Part 1-* Calloway and Cleary have maintained and expanded the website as requested. Now have 4 servers running and are working on migration to these platforms, including efforts to provide some redundancy for the USC database and visualization.

- **Coupling with HYCOM.** To include bathymetry matching, examine accuracy/compatibility of mass field and momentum fluxes, and exploration of techniques for merging fields. This includes using basin-scale estimates of offshore sea level as open-water boundary conditions for the regional NFS models. Initialization of both hindcast and forecast simulations will be pursued.

**Present state:** this system is now being tested in full and has given quite satisfactory results – 75% success.

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- **Data assimilation.** Explore implementation of techniques developed under SABLAM for assimilation of ADCP and sea level observations, testing of wind-convolution approaches, and examine methods for HR radar data assimilation.

**Present state:** the methods themselves have not been changed in the past year. As more data becomes available we will be able to construct new test-beds for their quasi-operational implementation.

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- **Baroclinic forecasting.** Implementation of baroclinic versions of the NFS will commence. This brings together the experience of the existing (barotropic) SEACOOS NFS, as well as the knowledge gained in exploring the above aspects.

**Present state:** related to the coupling with HYCOM (above) this activity has progressed satisfactorily, although the implementation still attention from a person, i.e., it does not yet run unattended – 60% success.

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- **Quantitative assessment of generated fields & skill assessment.** Continued work on quantitative skill assessment measures of the existing NFS will include velocity measurements. As a baroclinic version of the NFS emerges, this will involve additional ocean measurements such as remotely sensed SST as well as in situ 3D velocity, temperature, and salinity.

**Present state:** preliminary comparison with hindcast fields has shown good agreement of the general solutions. This serves as a test of the input fields from HYCOM as well as the shelf-scale model's ability to evolve the signal.

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- **Quantification of transport (along- and cross-shelf).** To include Lagrangian characterization of SAB, fisheries/MPA applications, and biogeochemical flux considerations.

**Present state:** applications to fisheries dispersal/retention questions has yielded interesting results. These have been presented at national meetings and have been accepted for publication in peer-reviewed journals.

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- **Write papers on the above for scientific publication.** Peer-reviewed publications will be written and will provide an objective measure of the quality of our findings.

**Present state:** two papers authored by K. Edwards et al. and one by A. Aretxabaleta et al. have been accepted for publication. One paper is in revision for re-submittal – 75% success.

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- **Baroclinic hindcasts.** These simulations will include hydrography, atmospheric fluxes, and river discharge. Blending of climatology and recent observations will be used to initialize the hydrography, as will ocean state estimates from basin-scale reanalyses from the GODAE/HYCOM modeling effort. The warming scenarios from the June 2003 time period will serve as hindcast periods to develop this aspect.

*Part 2* – the NCCOOS testbed for development continues to expand. Haines has led the SECOORA DM workshop efforts and will likely lead the QA/QC effort. Now have a database running locally that allows testing of systems migration from USC and permits ingestion of local datasets (e.g. Jennette’s Pier, Bogue Inlet Pier, Neuse River platform).

## MODELING

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### UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

*S.I. and Modeling Working Group Chair, Francisco Werner, UNC-CH*

*MODELING (CONT.)*

### *University of Miami*

*RSMAS East Florida Shelf Information System (EFSIS), S.I. Christopher N. K. Mooers, OPEL/RSMAS/UM.*

### WORK STATEMENTS

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- **Continue operating and testing the baroclinic EFSIS within the nowcast/forecast system**
  - *Status:* EFSIS operation continues; one EFS-POM model vs STACS validation ms and one EFSIS documentation ms published in 05; ms in preparation validating and verifying EFSIS vs ADCP current vertical profiles
- 

50%

<ul style="list-style-type: none"> <li>▪ <b>Utilize Global-NCOM fields from NAVOCEANO via NCDDC</b> as lateral open boundary conditions, and possibly as initial conditions., for the EFSIS nowcast/forecast system</li> </ul>	60%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> open boundary conditions from Global NCOM have been implemented in EFSIS in an automated fashion with daily updates out to 84 hrs</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <b>Contribute with baroclinic EFSIS</b> to a MODPROD Working Group publication on a collective baroclinic product</li> </ul>	0%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> no explicit progress while revising the ms for the barotropic product</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Based on a high-resolution, nested subdomain model corresponding to the WERA testbed, <b>conduct model validation studies with WERA data</b>, and explore data assimilation there</li> </ul>	40%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> EFSIS vs WERA validation ms in preparation</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <b>Complete a study of the sensitivity of EFSIS</b> response to wind-forcing of varying attributes</li> </ul>	25%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> have used monthly and synoptic wind-forcing; have preliminarily compared synoptic (NCEP NAM-eta) winds to NDBC and C-MAN winds with encouraging results</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <b>Initiate a daily synoptic surface product in support of EFS</b> interests in fisheries oceanography and emergency management (spills, SAR, etc.)</li> </ul>	0%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> too undermanned/underfunded to take on this activity without additional or alternative support</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <b>Nest a higher resolution “coastal strip”</b> (actually, covering the shelf and a few lagoons) in EFSIS</li> </ul>	25%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> as a test case, this has been done for Biscayne Bay; Indian River Lagoon will be another priority locale</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <b>Participate in CODAE</b>, especially downscaling and observing system design</li> </ul>	10%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> CODAE proposal was disqualified for funding because it was submitted ca.15 min late; however, planning discussions about Observing System Simulation Experiments (OSSEs) are underway with new AOML Director and others</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Further develop plans for <b>coupling EFSIS with wave and sediment transport models</b></li> </ul>	20%
<ul style="list-style-type: none"> <li>▪ <i>Status:</i> a specialized sediment transport model was developed and applied to Bear Cut (a tidal inlet between Key Biscayne and Virginia Key) in a process study; revised ms has been resubmitted; wave model options are still being weighed</li> </ul>	

- **Conduct a study of Coastally Trapped Waves** in the SEACOOS domain to further delineate Lateral Open Boundary Condition issues 80%
  - *Status*: a disclosure ms was published in 05 to illustrate the CTW response of the Straits of Florida/Florida Current to atmospheric cold front passages; a major ms that covers a full year is in preparation
- 
- **Continue studies with the NPZD model**, the Key Largo nested subdomain, and Lagrangian simulation studies, including the development of Lagrangian statistics to be validated versus drifters. 50%
  - *Status*: the Key Largo studies are progressing by leveraging other projects; a major ms has been submitted utilizing the NPZD model for the EFS domain over the course of a year; the potential for operationalizing it in EFSIS is recognized.

**UNIVERSITY OF SOUTH FLORIDA, CMS**

*West Florida Shelf Modeling Subprogram- S.I. Robert Weisberg, CMS/USF*

WORK STATEMENTS

<ul style="list-style-type: none"> <li>▪ <b>Data fields in support of modeling</b> - Continue OI SST, Color, and SSH/geostrophic currents fields from year 3; compile historical and real time river inflow data; improve on surface winds and heat fluxes using available data; develop surface CODAR current fields for Eulerian and Lagrangian applications; use T/S data from all sources, including BSOP and potentially a glider, plus climatology for 3-D fields T/S fields. Further comparisons between observations and models.</li> </ul>	60%
<ul style="list-style-type: none"> <li>▪ <b>Nowcast/forecast</b> - work toward transitioning the barotropic N/F model using POM to a baroclinic N/F using ROMS, which entails several steps.</li> </ul>	75%
<ul style="list-style-type: none"> <li>▪ <b>Nesting the regional WFS with the global HYCOM</b> – continue joint NOPP work with NRL and RSMAS colleagues in linking deep-ocean and coastal models using appropriately designed model domains that may include our present WFS domain, our SEACOOS domain, or some variant thereof.</li> </ul>	75%
<ul style="list-style-type: none"> <li>▪ <b>Data assimilation</b> – experiment with sequential estimation and adjoint inverse techniques in data assimilative hindcasts with ROMS.</li> </ul>	35%
<ul style="list-style-type: none"> <li>▪ <b>Ecological modeling</b> –collaborate with J. Walsh and colleagues on primary productivity modeling; seek expanded collaborations on fisheries matters.</li> </ul>	60%
<ul style="list-style-type: none"> <li>▪ <b>Hindcast reanalyses</b> – with or without data assimilation, baroclinic hindcasts are important steps toward establishing model credibility and utility in addressing coastal ocean science questions. The 2001 red-tide may be a good case in point.</li> </ul>	35%
<ul style="list-style-type: none"> <li>▪ <b>Linking the estuaries with the shelf</b> – continue baroclinic hindcast applications of FVCOM for linking the Tampa Bay and Charlotte Harbor estuaries with the WFS, including 3-D Lagrangian particle trajectory experiments with fisheries, red-tide, SAR, and other societal applications. Also consider nested ROMS applications.</li> </ul>	60%
<ul style="list-style-type: none"> <li>▪ <b>Hurricane storm surge</b> – finish manuscripts on H. Charley simulation with USGS collaboration, consider H. Ivan, and write up completed Tampa Bay scenarios. Using FVCOM, consider a framework by which high resolution nests can be applied to any subregion for more general surge simulations.</li> </ul>	60%
<ul style="list-style-type: none"> <li>▪ <b>Estuarine modeling</b> – continue applications of model frameworks (ECOM3d-si and FVCOM, presently) to the estuarine physical oceanography of Tampa Bay, Charlotte Harbor, and other Florida estuaries as societal applications may suggest.</li> </ul>	60%

*Budget Justification.* Four PhD associates are presently engaged: Drs. Ruoying He (Assist. Scientist, WHOI), Lianyuan Zheng, Alexander Barth and Aida Azcarate (doctoral associates, USF). Three months are budgeted for R. He (subcontract); six months for L. Zheng; and three months each for A. Barth and A. Azcarate. Other salary support includes one month for the SI

and one month for a computer manager. Other costs are for travel, maintenance, supplies, and publication. USF fringe is @ 16.5%, plus 590/month health insurance, and indirect is @ 47%.

Narratives:

- 1) Regularly posted to the web (<http://ocgweb.marine.usf.edu>) are analyses of SST, color, SSH-geoV, and most recently Lagrangian trajectory simulations based on SSH-geoV. We are similarly maintaining our surface wind analyses for driving the numerical model simulations (N/F and hindcast). A tool for accessing T/S climatologies is nearing completion.
- 2) A baroclinic N/F model is operating and on the web (<http://ocgweb.marine.usf.edu>). This includes a Lagrangian tracking tool for selected locations. The model consists of a regional WFS ROMS nested in the 1/12<sup>th</sup> degree North Atlantic HYCOM.
- 3) As given in 2) above this is presently operating for the WFS. We are also experimenting with a larger SEACOOS domain ROMS nested in HYCOM. We are also experimenting with adding tides.
- 4) Preliminary work has been performed on correlation matrices for model output and on comparing model results with CODAR (and in-situ ADCPs).
- 5) We contributed to a manuscript in press on WFS red tides.
- 6) Hindcasts are presently underway for the 2005 red tide event using two approaches: the regional ROMS nested in HYCOM and the WFS FVCOM linking the estuaries with the coastal ocean.
- 7) This is in parallel with 6) above. We also developed a new higher resolution grid that will facilitate additional studies farther south. This grid has been tested for tides.
- 8) A paper on the H. Charlie simulation for the Charlotte Harbor estuary is in press and another on the Tampa Bay simulations is submitted. The what if scenario for H. Ivan hitting the Tampa Bay region is complete; we are working with USGS colleagues to add waves atop the surge; and we are working with MOSI to provide a display for their “disasterville” exhibit.
- 9) A Tampa Bay paper was published. We have support pending for a Rookery Bay application.

## SC SEA GRANT

*South Carolina Sea Grant Outreach – S.I. and Workgroup Chair, Robert Bacon, SCSGC*

### **S.C. Sea Grant SEACOOS Year 4 – Mid-Year Progress Report**

*NOTE: In late December 2005, Sandy Bernard-Eslinger left her position as the South Carolina Sea Grant coastal hazards specialist (supported by SEACOOS/SECOORA) for a position at the NOAA Coastal Services Center. Because of the uncertainty of funding for SEACOOS Yr-5, the need to stretch Yr-4 funding into Yr-5, and the limited time remaining in Yr-4 (given the time needed to recruit, hire and bring a replacement up to speed), the position has not been re-hired.*

1. Working with SEACOOS partners, affiliates, and collaborators, complete an inventory of existing and planned ocean observing and monitoring assets, variables, models, and forecasting products. Develop a geo-searchable database and distributed web-interface update capabilities.

*Progress – As discussed by Sandy and Jesse Cleary, prior to Sandy's departure this work task and its funding, should be transferred to Cleary at UNC for completion in SEACOOS project year 5. To date, Chris Simoniello has been gathering inventory items. 35% complete.*

2. Facilitate the development of a region-wide Ocean Hazards Observatory. Working with SEACOOS partners, affiliates, collaborators, and key targeted super users including local offices of National Weather Service and emergency management organizations, develop a joint weather/ocean conditions product. The product should be developed with the potential to add specific use-focused applications such as a hurricane tracker, rip currents tracker, oil spill tracker, etc.

*Progress: Due to the similarity of purpose, this work item has been merged into the joint Gulf and South Atlantic coastal inundation workshop planning process. No date has been set for this workshop, although it is expected to take place by late 2006 in SEACOOS project year 5. 10% complete.*

3. Facilitate the development of a region-wide Ecosystem Indicators Atlas. Working with SEACOOS partners, affiliates, collaborators, and key targeted super-users including the South Atlantic Fisheries Management Council, NMFS Fisheries Science Center, and South Carolina Department of Natural Resources, develop a joint fisheries habitat/ocean conditions product to demonstrate the connections between ocean observations and resource management issues. The product should be developed with the potential to add specific use-focused applications such as Harmful Algal Bloom (HAB) and Hypoxia applications, shellfish management, and aquaculture.

*Progress: This item has been revised slightly from an atlas to an “Ocean Observing Market Analysis”, a compendium of needs assessment documents, including potential components for the integrated maritime information system, and extensive tables of industry user applications and needs. This work was performed jointly with SECOORA and is cumulative in nature. 75% complete.*

4. Engage private sector partner to develop demonstration user-focused decision-support products using regional ocean observing data. These products will include 1) a port-focused hazards/weather product, and 2) an energy and insurance sector focused climatology product.

*Progress: Resources for this work item will be shifted to the expansion of the “Carolina’s Coast” SEACOOS/NWS WFO public sector collaboration throughout the SEACOOS domain and stretched into SEACOOS project year 5. 20% complete.*

**SOUTH CAROLINA SEA GRANT/SOUTHEAST COSEE**

SEACOOS Mid Year Report Year 4: September 2005-August 2006

Education Activities from COSEE SouthEast

This is a mid-fiscal year report on COSEE SE funding in relation to the grant award, submitted by PI: Lundie Spence, Ph.D., Director COSEE SouthEast.

A-C No personnel funds or Permanent Equipment

D. Expendable Supplies

\$2,000 for supplies for the workshop, Taking the Pulse of the Coastal Ocean, June 19-25

E. Travel

Marine Technology Society Conference September, DC (Spence) 1,000

AGU/ TOS/ASLO Conference Feb, HI (Spence, Rogers) 3,000

At MTS, a presentation on strategies for technology transfer, was invited to be submitted and was accepted to the Winter Issue of the MTS Journal.

At Ocean '06, a poster session was accepted.

During both scientific meetings, SEACOOS Education was presented at IOOS sessions.

Future Travels:

Elizabeth Rogers will represent COSEE SE and SEACOOS at the E.A.R.T.H. workshop sponsored by MBARI and hosted at Rutgers summer. This is a national workshop focusing on observational data.

L. Spence and Blondele Toliver will present at NMEA, July 15-21 on Long Island, NY.

G. Other Costs:

1. We are in the early design stage for the circulation poster and have not spent any funds yet. We hope to have this ready for distribution in late August in time for

the new school year with a supporting SEACOOS.org website. No funds spend yet. (\$15,000).

2. Katie Greganti from UGA MECA/MAREX is coordinating the workshop, "Taking the Pulse of our Coastal Ocean (TPOCO)" which is scheduled for June 19-25 at UGA MECA. We anticipate 15 teachers from SC, FL, GA and NC with a representative teacher from COSEE Great Lakes and COSEE MidAtlantic. Researchers from SkIO and other SEACOOS scientists will present to the teachers. Budget is \$20,000.
3. Twelve of the 15 SEPORTs are partially supported by SEACOOS funding. These will be completed by May (\$13,000)
4. Small scale, exploratory SEACOOS workshops have been conducted since September 2006. UGA MECA, coordinated by Venetia Butler with assistance from Al Hanke and Katie Greganti plus Jim Nelson and Margaret Olsen, instructed 15 teachers who learned about SEACOOS observing parameters, web access, and how to make simple observation instruments such as barometers and wind speed calculators. A distributed workshop from NCSU, coordinated by Carrie Thomas, developed sample lessons which applied SEACOOS information. Another workshop, at USC, coordinated by Bob Feller, is developing additional lessons.

No indirect costs were requested in this proposal as it is administered through South Carolina Sea Grant Consortium

- **SEACOOS Regional Outreach Coordinator** – A full-time (12 month) coordinator, based in Florida to 1) assist the development, implementation and evaluation of SEACOOS extension programs in GA, FL, SC, and NC, 2) Build educational capacity of the individual Sea Grant Program extension in delivery of SEACOOS programs, and 3) Identify regional constituents for new products and services.
- 1) Major activity has been redesigning the SEACOOS Community and Classroom web pages. Project involves creating entirely new site maps for each component of the site. (Simoniello)
  - 2) Assist in development of posters and related virtual classroom activities, brochures and flyers for such programs as Gulf of Mexico COSEE online course, American Meteorological Society Conference, Institute of Marine Remote Sensing teacher workshops, COSEE and SEPORT workshops, Extension Professional Association of Florida annual conference, Florida Bay and Adjacent marine Systems Conference. (Simoniello)
  - 3) Serve on state, regional, and national committees associated with COOS projects (i.e. SEACOOS Executive Committee, Ocean.US External Review Planning Committee, SECOORA Steering Committee, FLCOOS Caucus Planning Committee). Invited to chair IOOS Session at The Coastal Society 20<sup>th</sup> Biennial Conference. Invited editor to Ocean.US IOOS education report and Marine Technology Society Special Edition on Ocean Education. (Simoniello)
  - 4) Assisted in coordinating a Florida Sea Grant-led regional asset inventory that has been requested and used by many state, federal and private groups interested in ocean observing systems. Project led to other collaborations with agencies seeking to build on our efforts (i.e. Florida DEP's Coastal Monitoring State Asset Inventory, FWRI's GAME (Geospatial Assessment of Marine Ecosystems). (Simoniello)
  - 5) Coordinated meeting with National Weather Service to bring adapt the "Carolina's Coast Project" to Florida. Attendees included SEACOOS researchers from North Carolina, and Florida, NWS Personnel, and faculty members from University of Florida/Florida Sea Grant and University of South Florida. (Simoniello)
  - 6) Provided presentation on SEACOOS at several major events, including the Marine Technology Society annual conference (September), the Extension Professional Association of Florida annual conference (September), the Gulf of Mexico COOS Board of Directors meeting (January) and the U. S. Global Coastal Ocean Observing System Steering Committee meeting (February). (Spranger)
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**FL SEA GRANT**

*Florida Sea Grant Outreach – S.I.s Mike Spranger Florida Sea Grant Outreach – S.I.s Mike Spranger*

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|---|-----|
| <ul style="list-style-type: none"><li>▪ <b>Recreational Boater Project</b> - Increase awareness and use of SEACOOS products and services to Florida’s marina industry, and fee-for-service recreational boating industry (i.e. charter boat operators). Secondary audience is recreational boaters. Tasks: 1) Presentations at marine industry association meetings. 2) Development of materials on “SEACOOS and recreational boating.” 3) Participation at major Florida boat shows (Miami, Ft. Lauderdale, Jacksonville) to present information and survey audience.</li></ul><br><ol style="list-style-type: none"><li>1) Attended two quarterly meetings of the Clean Boating Partnership, providing updates on SEACOOS and implications to marine industries and recreational boating. (Spranger, Jackson)</li><li>2) Coordinated meeting between FSG and University of Miami researchers to develop fact sheets that explain the utility of using WIRA (HF Radar) products for recreational boaters. Fact sheets and demonstration to be available at recreational boat shows. (Spranger, Jackson, Crane, Behringer)</li><li>3) Attended and presented at the Miami Boat Show, featuring SEACOOS objectives and “WIRA” for boaters (200 quality contacts, 8,000 casual contacts). (Jackson, Simoniello)</li><li>4) Produced a poster-size exhibit and fact sheets that will be used in future boat shows. (Jackson, Simoniello)</li></ol> | 50% |
|---|-----|
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- **SEPORT** (South East Portal to Ocean Research for Teachers) – South East Portal to Ocean Research for Teachers Project tasks are 1) Provide SEPORT materials and programs to formal educators and other youth educators, with special concentration on 4H Youth agents, and 2) Adapt materials so they are relevant to Florida coastal setting. 50%
- 1) Discussed implementation of workshops with Florida Sea Grant faculty. (Spranger)
  - 2) Handout materials on SEACOOS for teachers will be available at Florida Marine Science Educator Conference scheduled for April 2006. (Spranger)
  - 3) One SEPORT has been scheduled for July 2006 in Miami. Others are still being discussed and planned (Crane, Spranger)
  - 4) Ocean observing educational program will take place at Gulf of Mexico COSEE summer teacher institute scheduled for June 2006. (Spranger)

*Budget Justification:* Salary support for regional coordinator (Simoniello, 12 mos), recreational boater project (\$23, 500), SEPORT (\$15,500).

*Extension on the Explorer of the Seas, S.I. Marella Crane*

**WORK STATEMENT**

▪ <b>SEACOOS-specific publications for handouts</b> on the Explorer of the Seas	On-going
▪ <b>Travel</b> to Spring and Fall SEACOOS meetings, and one Florida Trip, and some smaller amount of travel for SEACOOS-related activities.	To be Determined
▪ <b>Ocean Awareness workshop for teachers</b> which focuses on the SEACOOS mission and would specifically include on the two topical areas covered by last year's Wave poster and next year's currents poster. We would include the wave data and currents measured from Explorer and an introduction to instrumentation involved in making those measurements. This would be a great venue for distributing the SEACOOS posters.	50% complete

*Budget Justification:* Includes salary support for the SI (1 mo.), travel in the amount of \$3,000, supplies and materials of \$8,000.

Handouts for Explore of the Seas are in development and will be delivered by year end.

Travel for the next SEACOOS workshop will be determined when workshop is announced.

Teacher workshop is scheduled for July 12, 2006. We have confirmed 50% of guest speakers for the workshop. Teacher workshop will focus on linking hurricane decision making into the classroom. Topics will include wave data and hurricane forecasts and using currents to support rescue operations.

OUTREACH & EDUCATION

**FL COSEE**

*Florida Sea Grant Education – Barbara Spector (USF)*

Several formats, time frames, and styles of interviews were tested during 2005 to determine the most effective interview protocol for eliciting information from SEACOOS scientists and engineers usable for constructing meaningful case studies consistent with the National Science Education Standards.

Interviews have varied from half an hour to an hour and a half. An interview protocol will be part of the template developed.

Research completed on case studies and their use in science teacher education combined with data accumulated from the test interviews suggest the template should include at least two distinct stories and related questions for each case scientist or engineer interviewed. At least one follow up contact with each respondent appears to be necessary to collect appropriate artifacts and clarify information. We anticipate pilot testing case studies based on the template developed with teachers during the fall of 2006. The test will include print case studies and multimedia case studies.

One SEACOOS presentation was made at the International Association for Science Technology Society in February 2006

Two SEPORTS were conducted in Florida in 2005 this far

## GEORGIA MARINE EXTENSION SERVICE

### *Georgia Extension and Education – S.I. Randy Walker*

- **Hire a full-time Marine Educator**, preferably with a strong background in the physical sciences, to organize and run a SEACOOS sponsored extension and outreach program in Georgia and to coordinate Georgia's efforts with South Carolina, North Carolina and Florida's programs. Once in place, this individual will attend a training workshop to learn the history, current operations and the future directions of the SEACOOS and IOOS Programs. The Training workshop will be performed by faculty members of the Skidaway Institute of Oceanography whom are directly involved in SEACOOS. Quarterly meeting will be will between the educator and scientists at the Skidaway Institute of Oceanography. This individual will be housed in an office in the Marine Education Center and Aquarium adjacent to the Skidaway Institute of Oceanography.

Ms Katie Greganti was hired and is working in corporation with SEACOOS education and extension personnel from North Carolina, South Carolina and Florida. A SEACOOS office was established within the University of Georgia's Marine Education Center and Aquarium. Dr. Jim Nelson from the Skidaway Institute of Oceanography has been working with Ms Greganti in developing SEACOOS related educational and extension projects.

**Develop and deliver a series of talks** for the general public, k-12 students, in-service teachers, local municipal officials and marine related businesses explaining the program and how the objectives of the program can affect local governments and business enterprises. The educator will also be responsible for developing visual displays explaining the goals of SEACOOS. The educator will also work to develop a kiosk which explains SEACOOS.

- Ms Greganti is currently establishing the SEACOOS web page for the education component, while Dr Chris Simoniello is producing the web page for extension programs.
- Ms Greganti has tailored a tutorial originally created by Dr. Chris Simoniello for commercial and recreational fishermen. The tutorial allows fishermen to link to SEACOOS real time and near real-time ocean and atmosphere data and produce a map showing offshore conditions at their favorite fishing sites. Ms Greganti introduced this tutorial to the fishing community during the recent nationwide Bass Pro Shops Spring Classic meeting held in Savannah, GA in March 2006.
- Three kiosks have been purchased for the SEACOOS program. Each kiosk had the North Carolina SEACOOS DVD installed and will be updated as new, more detailed DVDs are produced. A SEACOOS buoy with a display stand and educational material has been put on display within the Marine Education Center and Aquarium on Skidaway Island, Savannah, Georgia. Two additional buoys were purchased for two additional displays. These buoys were sent to University of South Florida in order for them to build displays stands. We are awaiting the display stands.

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Ms Greganti and Paul Christian of MAREX's Marine Advisory Service in Brunswick are

working together to extend SEACOOS to Georgia's marine businesses. Ms Greganti is scheduled to speak at the June 1, 2006 Georgia Marine Business Association (GAMBA) meeting and she will have opportunities to keep in contact with GAMBA meetings throughout the year.

Ms Greganti spoke to educators at the 2006 American Meteorological Society Meeting about using SEACOOS in the classroom. She is planning classroom visits with Savannah, GA schools and is leading a week-long educator workshop at UGA MAREX's Marine Education Center and Aquarium in June 2006.

- □ **Develop a display centered about the benefits of** using the newly developed **High Frequency Radar System** being deployed along the southeastern U.S. coastline. This program can benefit Search and Rescue Operations in Georgia by providing information on the direction and speed of surface currents, as well as, providing important information in the event of harmful algal blooms or toxic spills.

A new High Frequency Radar System is under construction on Jekyll Island, GA. Ms Greganti and Dr. Nelson are working on developing a display to illustrate the importance of this new technology to the public. Information on HF Radar (WERA) will also be included with the buoy/kiosk displays.

□ The Marine Extension Service will **instigate talks with both the new Georgia Aquarium and the new Gwinnett Co. Environmental and Heritage Center** (water-based theme center) in establishing SEACOOS displays and the kiosk at those facilities.

- The University of Georgia Marine Extension Service has made an agreement with the new Gwinnett Environmental and Heritage Center to place the SEACOOS buoy display at their new 59,000 square foot water theme education facility in Gwinnett Co., Metro-Atlanta. They are interested in obtaining real time oceanographic data and incorporating the data into their educational programs. They are also interested in utilizing the fish cameras to observe real time fish about the monitoring stations offshore. Georgia Aquarium is willing to talk about placing the display at their facility once we have something to show them. We are awaiting University of South Florida to build the needed stands.

*OUTREACH & EDUCATION (CONT.)*

NC SEA GRANT

**SEACOOS Year 4 – Mid-year report**

**Extension and Education**

**North Carolina Sea Grant**

## Work Statement

<p><i>Explain SEA-COOS capabilities to potential NC users.</i> Establish a rapport with coastal resource management groups, emergency management agencies, recreational boating associations, ports and harbors, recreational and commercial fishing associations, commercial shipping and barge operators. Attend scheduled meetings of probable user groups and present information about the system and its capabilities.</p>	<p>On-going</p>
<p><i>Determine Local Needs for CODAR information and products:</i> As HF radar system situated on the northern Outer Banks come on-line, work with local commercial fishermen and recreational boaters to identify useful products and methods of delivery.</p>	<p>On-going</p>
<p><i>Evaluate information delivery scheme for Cape Lookout buoy measurement system:</i> determine the information needs and delivery methods of a real-time wind and wave monitoring system that would improve the safety for recreational boaters, anglers, commercial fishermen, commercial and recreational underwater divers, and wind powered sailors in the central NC coastal region. Establish user preference for combinations of web-based, radio and telephone delivery methods.</p>	<p>On-going</p>
<p><i>Develop web-based information display:</i> Jesse Cleary, UNC-CH, will provide web development support for ocean weather/NC observing system displays. In particular he will work with staff at CSI on the Jennette's Pier project, and work to improve the display of information for NE NC (HF radar and sea surface temperature) and central NC (buoy-based observations) on the NCCOOS and SEACOOS website. He will interact with CSI and NCSG staff to identify the best method for displays but will likely use GIS-based mapped fields for a significant portion of the work. Funds for Mr. Cleary will be managed directly from UNC-CH.</p>	<p>50 percent completed</p>

*Budget Justification:* This budget includes 1 month salary support for Brian Efland, NC Sea Grant coastal business specialist, to assist with extension project for Lookout Shoals Buoy ocean weather information. Also in includes 2 months salary support for Sara Mirabilio, NC Sea Grant fisheries specialist to support extension product development for Jennette's pier observing system and ocean information products for fisheries managers. Travel funds total \$15,500 and will be used to gather information from user groups, work with other SEA-COOS partners and to

present findings at regional and national observing systems meetings. Supplies and materials in the amount of \$2,573 will be purchased for ocean weather displays at public meetings.

## MANAGEMENT

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### UNIVERSITY OF NORTH CAROLINA SYSTEM

*UNC Office of the President, Dr. Russ Lea, Managing SI*

*Grants Manager, Sarah Smith*

### WORK STATEMENT

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<b>Financial and Administrative Oversight</b> – UNC will provide financial and administrative oversight for the project including compliance monitoring, budget management, and project coordination for governance. UNC will work closely with Dr. Seim and the SEACOOS Board of Directors on development of the budget along programmatic lines as well as the annual review of carry over funds. The Contracts and Grants Manager will implement an audit plan for subrecipient invoices in Year 4.	80%
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<b>Biannual SEACOOS PI Conference</b> - UNC will coordinate SEACOOS support for the Biannual SEACOOS PI Conferences. As host sites are identified, UNC will provide supplementary funding for these activities. Locations will be determined by the SEACOOS Executive Committee and the SEACOOS Board of Directors.	50%
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<b>SEACOOS Board of Directors Support</b> – UNC will fund travel and meeting expenses for the SEACOOS Board of Directors, which meets biannually. Meeting locations are determined by the Board and UNC coordinates logistical support with the host site.	80%
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- UNC General Administration has conducted a review of audit reports for all subrecipients in accordance with OMB Circular A-133 guidance and is conducting a desk review of randomly selected invoices from each subrecipient. Results will be presented to the SEACOOS Board of Directors.

- UNC General Administration provided financial support for the SEACOOS Workshop held in Columbia, SC November 15-16. The University of South Carolina served as the host and over 70 people participated. The SEACOOS Board of Directors met immediately following the fall workshop, November 17-18 and met again January 24-25 at the University of Miami. Plans are being made to jointly host a summer workshop with SECOORA, building on the success of last years efforts.
- Through leveraged resources provided by SECOORA, via S.C. Sea Grant, the SEACOOS data management and communication group met with a broad group of data managers and public information stake holders November 14<sup>th</sup> in conjunction with the fall workshop and again March 9-10 in Chapel Hill.

*Budget Justification:* Dr. Lea and the Contracts and Grants Manager will each commit 15% annual FTE to SEACOOS (\$39,951). Fringe benefits are calculated at 23% of total salaries/wages (\$9,189). Travel funds support the Biannual SEACOOS PI Conferences, SEACOOS Board Travel and travel for project personnel (\$31,844). Materials and supplies are budgeted at (\$200), and other direct costs to support SEACOOS operations including communication and printing costs are budgeted at (\$6,960). Funds have been budgeted at the central level to cover the annual usage charge for iridium communication cards (\$30,000). F&A is calculated at 13.5% of salaries and fringe benefits (\$6,634).

(Management Cont.)

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

*Project Office Management - SI and C.O.O., Harvey Seim*

WORK STATEMENTS	
▪ Chief Operating Officer: provides oversight for the program; duties include coordinating Executive Committee activities; communications with the Board of Directors; handling day-to-day management of SEACOOS; representing the program at regional and national functions; and managing the project website.	50%
▪ Scientific Project Manager: duties include expediting project-level goals and specific tasks; handling day-to-day management details for the SEACOOS COO; represent SEACOOS at regional and national functions as needed.	40%
▪ Project associate: coordinate conferences and meetings; facilitating partner communications; gathering information and creating status reports; and managing day-to-day office tasks (filing, answering/making calls, etc.).	n/a

Seim continues in role as COO; this year is proving challenging due to funding situation. New project manager, Capt. Parker Lumpkin, brought onboard Dec 1, 2005. Parker has come up to speed quickly on the project and is contributing significantly to improved communications. Attempts to hire a project associate have been stymied by rapid turnover at UNC-CH; 2 different hires (Jeremy Heuts, Allison Blaire) were very effective but short-lived. Currently without a PA and expect to remain this way due to funding issues.