Coastal and Marine Science Activities Self-Study

I. Overview of the University

History of ECSU

Elizabeth City State University (ECSU) has been a growing, coeducational, undergraduate, public, state-assisted institution since its inception on March 3, 1891, when House Bill 383 was ratified. The bill to establish the institution was introduced in the N.C. General Assembly by Hugh Cale (1835–1910), a black Representative from Pasquotank County. The institution was initially created as a normal school for the specific purpose of "teaching and training teachers of the colored race to teach in the common schools of North Carolina." It began operating in 1892, with a budget of $900, two faculty members, and 23 students. Currently, ECSU offers 36 baccalaureate degrees, four master’s degrees and a doctor of pharmacy degree in collaboration with the UNC Eshelman School of Pharmacy. It has an enrollment of approximately 2,900 students; 73% of those students are underrepresented minorities.

Activities Included

The three activities included in this self study are:

i. The Marine Environmental Science Program
ii. Undergraduate Research Experience in Ocean, Marine and Polar Science
iii. Center for Remote Sensing of Ice sheets (CReSIS)

These three activities are included in the Self Study because they directly relate to the field of marine sciences. The first activity, the Marine Environmental Science program, is housed in the Department of Biology and Marine Environmental Science; it advises and educates students seeking the BS Marine Environmental Science degree and conducts research in the marine sciences.

The other two activities are within the Department of Mathematical and Computer Sciences. The Undergraduate Research Experience in Ocean, Marine and Polar Science is designed to promote the professional development of minority undergraduate students. The Center for Remote Sensing of Ice
sheets aims to develop technologies and computer models to measure and predict the response of sea level change to the mass balance of ice sheets in Greenland and Antarctica.

**Relation to the University's Mission**

Elizabeth City State University, a constituent institution of the University of North Carolina, offers baccalaureate, graduate, and professional programs for a diverse student body. The institution's rich heritage provides a firm foundation for its educational endeavors, as well as its role in serving the needs and aspirations of individuals and society.

Through teaching, research, and community engagement, Elizabeth City State University provides a student-centered environment, delivered in a manner that enhances student learning, while preparing its graduates for leadership roles and lifelong learning. The university is also a leader in facilitating sustainable economic growth, while safeguarding the unique culture and natural resources of the region.

A key component of Elizabeth City State University’s mission is to *facilitate sustainable economic growth while safeguarding the unique culture and natural resources of the region*. The institution’s coastal and marine science activities help attain this mission through their commitment to enhancing the university’s and community’s capabilities in studying natural resource, researching environmental issues (e.g., water quality and habitat conservation), serving as a knowledge base for northeastern North Carolina, and supporting efforts to promote “green” economic development and the university's Office of Sustainability.

The institution’s marine science activities are engaged in educating students to receive BS degrees, researching regional environmental issues (e.g., water quality) and conducting outreach in the community. Thereby these activities address several goals described in the 2009 – 2014 strategic plan including:

**Global Readiness:** ECSU will offer high-quality degree programs in a student-centered environment and will deliver them in a manner that enhances student learning and prepares graduates to be globally competitive leaders in the 21st century.

**Our Environment:** ECSU will be proactive in collaborating with its community partners to improve the quality of life for current and future generations in northeastern North Carolina by addressing climate change, sea-level rise, and other environmental issues critical to the region.

**Our University’s Outreach and Engagement:** ECSU will integrate outreach and engagement into its academic and support services to enrich the students, faculty, staff, and citizens of northeastern North Carolina.
Future Directions from the Perspective of the University

Elizabeth City State University (ECSU) is committed to the Marine Environmental Science Program (MESP) which is housed in the School of Mathematics, Science and Technology (MST). The northeastern coastal community that is served by the MESP benefits from the expertise it provides. Faculty from the program have served on regional science committees, for example, the Science and Technical Advisory Committee for the Albemarle National Estuary Program. They have provided expert advice in the area of habitat conservation and conducted research in estuarine systems. Through Port Discover the program has provided hands-on experiences for students (K-6) and participated in science fairs in the school system. The continued success of this program is predicated upon three major factors: 1) qualified faculty, 2) student support and 3) external funding. In order to address these factors, several initiatives are being planned for the Marine Environmental Science Program that will assist in its growth and future direction.

1. **Qualified Faculty:** Dr. Maurice Crawford is the only full-time faculty currently teaching in the Marine Environmental Science Program. Dr. Leon Pringle has served as an adjunct faculty for several years. The current plan is to relocate Dr. Jinchun Yuan from the Department of Chemistry, Geology and Physics to the Department of Biology and Marine Environmental Science. Dr. Yuan received his Ph.D. in Marine Science from The University of Southern Mississippi. He also has a M.S. in Oceanography from the University of Hawaii at Manoa. He will be an asset to the Marine Environmental Science Program.

2. **Student Support:** A major initiative of the Program is to increase student support by encouraging all second year Marine Environmental Science majors to apply for various fellowships offered by the Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA) offices of education. In addition to external financial support, the Program will continue to provide students with field research opportunities not only at ECSU but in partnership with other major institutions.

3. **External Funding:** The budget cuts at the state level have posed some challenges for programs at the University, especially in the STEM (science, technology, engineering and mathematics) disciplines. Dr. Crawford has been successful in acquiring external funds from local, state and federal sources; however, there is a need for additional funding. The University is in full support of having the Office of Sponsored Programs work on identifying specific funding opportunities for the Marine Environmental Science Program.
II. Coastal and Marine Science Activities

A. Activity: Marine Environmental Science Program

B. Activity Narrative

History and Mission

The Marine Environmental Science program began in 2000 as part of the Department of Geology, Environmental and Marine Sciences (GEMS). In 2007, that department was dissolved and the BS Marine Environmental Science degree was joined with the Biology Department and the BS Geology degree joined with Chemistry and Physics. At that time one faculty member was moved from GEMS to the Biology Department and in 2012 the department was renamed the Hermann Glenn Cooke Department of Biology and Marine Environmental Science.

After the program had been moved to Biology the curriculum focused more on the biological sciences and the first two years of the Marine Environmental Science curriculum replicates the first two years of the Biology curriculum. Thus the program serves as a career option for students the Biology program.

The mission of the Marine Environmental Science program is to prepare a diverse pool of students for responsible participation and leadership in the marine sciences through teaching, research and service.

Uniqueness of the program

The Marine Environmental Science program is in a position to assist in increasing the numbers of underrepresented minorities (URM) in the geosciences. Historically there have been few URMs in the sciences and numerous workshops, conferences, and programs have tried to address this issue. The overall results, after years of efforts, have been dismal. The national trends in low representation of minorities in the sciences continue but these trends are especially disappointing in the earth, ocean and atmospheric sciences (the geosciences)\(^1\). Because of the future demand for skilled workers and the nation’s changing demography, increasing the numbers of minority science graduates has become a national concern\(^2\).

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Significant Impacts

The Marine Environmental Science program has developed a partnership with Hampton University and the Virginia Institute of Marine Sciences to educate URMs in the marine sciences. The collaboration has been funded through two grants from the National Science Foundation. The first grant, Diversity in Research in Environmental and Marine Sciences (DREAMS) ([https://sites.google.com/site/vimsdreams/](https://sites.google.com/site/vimsdreams/)) was aimed increasing the participation of underrepresented minority students in environmental and marine sciences. The second grant, Educational Partnership in Climate Change and Sustainability (EPICCS), is designed to improve infrastructure at the two HBCUs and education students on issues related to climate change and sustainability.

In 2012, Elizabeth City State University established a 2+2 agreement with the College of the Albemarle to attract more students to the university. The Marine Environmental Science program was included in that agreement that will ease the transition from the community college to ECSU and allow students to pursue a four year degree in Marine Environmental Science.

The Marine Environmental Science program has been successful in enrolling students in summer internship programs at research universities and marine labs; for example we have had students conduct internships at Woods Hole, Duke University Marine Lab, University of Hawaii, US Fish and Wildlife Service and the NC Division of Marine Fisheries. Since fall 2009 eight of the ten graduates have participated in an internship program.

Dr. Maurice Crawford served on the advisory panel that identified Strategic Habitat Areas (Region I) in North Carolina. Strategic Habitat Areas are defined as specific locations of individual fish habitat or systems of habitat that have been identified to provide critical habitat functions or that are particularly at risk due to imminent threats, vulnerability, or rarity. Region 1 SHAs (Albemarle Sound and tributaries) and supporting data are used in conservation planning (at the DENR level) and as information for the Coastal Habitat Protection Plan update.

Challenges and Future Directions

The Marine Environmental Sciences Program has three major goals:

**Goal 1:** Establish an environment that will foster teaching excellence, promote an atmosphere of learning and elevate students to their highest ability.

**Goal 2:** Conduct research that addresses priority coastal resource issues, engages students and facilitates sustainable economic growth.

**Goal 3:** Enhance the community’s stewardship capabilities and facilitate sustainable economic growth while safeguarding the unique culture and natural resources of the region.

We seek to provide our students with a strong foundation in the marine sciences that will allow them to pursue employment and/or graduate school admission upon graduation. We achieve this by having PhD
credentialed faculty who can teach a broad range of courses in the marine and environmental sciences and by having our students involved in research and internships.

Challenges within the next year

The continuing and main challenge to the program (in the short and long term) is the low enrollment of students and how to increase that enrollment to the point where we would have between 10 and 20 incoming freshmen. The 2+2 agreement has attracted more students but the next step is to lay the groundwork for establishing a scholarship fund to attract students.

Find funding to maintain equipment in the program (e.g., replacing portions of the deck on the R/V Hawk).

Challenges within five years

Implementing ideas from the Vision and Change initiative aimed at transforming undergraduate education which may include changes in the curriculum. The Department of Biology and Marine Environmental Science is slowly moving in this direction.

Create ways of making the program more distinctive within the UNC system which might be done by focusing more on management, economic and policy issues as opposed to the biological sciences. This may be done by working with the faculty in business and political science to identify appropriate courses.

Identify ways to maintain our successes in grant writing in a time of increasing competitiveness for grants and increasing workloads at the university.

C. Resources

1. Personnel

   a.) List and provide information on faculty and key staff involved with the Activity (include current faculty searches that are underway or expected).

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and department/college</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maurice Crawford</td>
<td>Biology and Marine Environmental Science</td>
<td>Associate Professor and Program Coordinator</td>
</tr>
<tr>
<td>Leon Pringle</td>
<td>Biology and Marine Environmental Science</td>
<td>Adjunct Professor</td>
</tr>
<tr>
<td>Jinchun Yuan</td>
<td>Chemistry, Geology and Physics</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Thomas Rossbach</td>
<td>Chemistry, Geology and Physics</td>
<td>Professor</td>
</tr>
</tbody>
</table>
b.) Provide current number and general description of undergraduate students, graduate students, and post-docs involved with the Activity. Do not list individual students or post-docs.

There are eight undergraduate students (3 African Americans and 50% female) plus one student studying for a minor in Marine Environmental Science.

2. **Funding**

Provide accurate financial information for the Activity capturing the previous three fiscal years of revenues and expenses, as well as the current fiscal year and projections for FY14. For the purposes of this table, “fiscal year” corresponds to the university fiscal year. For example FY12 is July 1, 2011 – June 30, 2012.

### Table C2: Revenue

<table>
<thead>
<tr>
<th>Source</th>
<th>FY10 ($)</th>
<th>FY11 ($)</th>
<th>FY12 ($)</th>
<th>FY13 ($)</th>
<th>FY14 ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>$13,237</td>
<td>$18,866</td>
<td>$30,402</td>
<td>$29,027</td>
<td>$28,821</td>
</tr>
<tr>
<td>State (not including university)</td>
<td>$39,907</td>
<td>$42,817</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institution (e.g. University)</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Foundation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$15,237</td>
<td>$20,866</td>
<td>$72,309</td>
<td>$73,844</td>
<td>$30,821</td>
</tr>
</tbody>
</table>

* Provide a brief description of the Revenue table: The revenue table is based upon grants awarded to Drs. Yuan and Crawford. The institution provides funds to pay the slip fees for R/V Hawk.

### Table C3: Expenses

<table>
<thead>
<tr>
<th>Source</th>
<th>FY10 ($)</th>
<th>FY11 ($)</th>
<th>FY12 ($)</th>
<th>FY13 ($)</th>
<th>FY14 ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$8,815</td>
<td>$9,709</td>
<td>$6,975</td>
<td>$19,632</td>
<td>$10,000</td>
</tr>
<tr>
<td>Programmatic</td>
<td>$2,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical infrastructure</td>
<td></td>
<td></td>
<td>$4,995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance and operation</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,615</td>
<td>$2,000</td>
</tr>
<tr>
<td>Equipment (&gt;5,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$9,866</td>
</tr>
<tr>
<td>Other Direct Costs*</td>
<td>$5,842</td>
<td>$5,737</td>
<td>$10,679</td>
<td>$2,636</td>
<td>$10,000</td>
</tr>
<tr>
<td>Indirect Costs</td>
<td></td>
<td></td>
<td>$1,046</td>
<td>$1,742</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$18,657</td>
<td>$17,466</td>
<td>$25,695</td>
<td>$26,625</td>
<td>$31,866</td>
</tr>
</tbody>
</table>

* Provide a brief description of the Expenses table. In the Physical Infrastructure section, include cost for purchase/lease of land and cost of facility construction and on-going debt service.
The above table mostly reflects expenses charged to the grants managed by Drs. Yuan and Crawford. The physical infrastructure and equipment lines are for a Light/Temperature incubator a quote for a Smartboard. A recurring expense is the slip fee for the R/V Hawk (~$2,000/yr) paid by MS&T funds. Indirect costs were provided by ECSU’s Contracts and Grants Office.

1. **Physical infrastructure**

Describe the key physical infrastructure that supports your Activity. Include buildings, boats, specialized equipment, land, core facilities, and any other unique capability. Include pending infrastructure additions. Please indicate who owns the physical infrastructure and whether it is a shared resource. If shared, by whom?

The Biology and Marine Environmental Science Department is housed in the Jenkins Science Center, a 50,000 sq. ft. building devoted to classrooms, laboratories and research facilities. This building also houses the Chemistry, Geology and Physics department. Within the department there are three teaching laboratories, research labs and a computer lab. The department has laminar flows hoods, growth chambers, a flow cytometer and several thermocyclers. The Jenkins Science Center houses a video-classroom for 24. The university also owns a 29 ft research vessel, YSI sondes, light/temperature incubators and a LiCOR PAR sensor.

### D. Research, Teaching, Public and Professional Service

1. **Research**

In the below table, list currently funded research projects (extramural and intramural). Include title, investigators, dollar amount, and time frame. You may reference information in the REACH NC Appendix in response to this question.

**Table D1. Research**

<table>
<thead>
<tr>
<th>Project title</th>
<th>PI/CoPIs – include institution</th>
<th>Sponsor</th>
<th>Amount</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHS Scientific Award: Young Faculty Exchange and student Mentoring in Coastal Hazards and Maritime Environment Security at ECSU</td>
<td>Jinchun Yuan, Mohammad Hasan and Yolanda McMillian (ECSU)</td>
<td>Department of Homeland Security (DHS)</td>
<td>$749,984</td>
<td>2012-2018</td>
</tr>
<tr>
<td>Educational Partnership in Climate Change and Sustainability</td>
<td>Andrij Horodysky, Deidre Gibson and Ben Cuker (Hampton University) Kam Tang (Virginia Inst. of Marine Sci.)</td>
<td>National Science Foundation</td>
<td>$88,240</td>
<td>2011-2014</td>
</tr>
</tbody>
</table>
2. **Teaching and Instruction (if applicable)**

a.) Identify courses taught for degree credit that are directly related to the Activity.

<table>
<thead>
<tr>
<th>Course title, number, and level</th>
<th>Dates offered</th>
<th>Instructor(s) and affiliation(s)</th>
<th>Brief description of course (one sentence)</th>
<th>Enrollment Figures Total/on-site/distance education</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS 111 Introduction to marine science</td>
<td>Spring semesters</td>
<td>M. Crawford (ECSU)</td>
<td>Introduction to marine science</td>
<td>5 students per academic year</td>
</tr>
<tr>
<td>MAS 226 Beach and Island Environments</td>
<td>Spring semesters</td>
<td>M. Crawford (ECSU)</td>
<td>Barrier islands and development</td>
<td>5 students per academic year</td>
</tr>
<tr>
<td>MAS 330 Marine Geology</td>
<td>Spring semesters</td>
<td>T. Rossbach (Chem., Geol. &amp; Physics)</td>
<td>Formation and evolution of world’s oceans focused on their geological setting</td>
<td>2 students per academic year</td>
</tr>
<tr>
<td>MAS 331 Marine Biology</td>
<td>Fall semesters</td>
<td>M. Crawford (ECSU)</td>
<td>Barrier islands and development</td>
<td>5 students per academic year</td>
</tr>
<tr>
<td>MAS 333 Wetland and Ocean Chemistry</td>
<td>Spring</td>
<td>Jinchun Yuan (Chem., Geol. &amp; Physics)</td>
<td>Undergraduate introduction to Marine Chemistry</td>
<td>4 students each year.</td>
</tr>
<tr>
<td>MAS 340 Field Internship</td>
<td>Summer</td>
<td>M. Crawford and Leon Pringle</td>
<td>Summer research experience</td>
<td>2 students per academic year</td>
</tr>
<tr>
<td>MAS 401 Global Geochemical Cycles</td>
<td>Fall semesters</td>
<td>M. Crawford (ECSU)</td>
<td>Geochemical cycling and climate change</td>
<td>4 students per academic year</td>
</tr>
<tr>
<td>MAS 402 Physical</td>
<td>Fall semesters</td>
<td>M. Crawford (ECSU)</td>
<td>Physical processes of the oceans (e.g., waves, tides, and currents)</td>
<td>4 students per academic year</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Semester</td>
<td>Instructor</td>
<td>Course Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAS 420</td>
<td>Marine Vertebrates</td>
<td>Spring</td>
<td>M. Crawford (ECSU)</td>
<td>The diversity of marine vertebrates and ecology</td>
</tr>
<tr>
<td>MAS 421</td>
<td>Marine Invertebrates</td>
<td>Fall</td>
<td>L. Pringle (ECSU)</td>
<td>Structure, function, and development of marine invertebrates</td>
</tr>
<tr>
<td>MAS 422</td>
<td>Marine Microbiology</td>
<td>Spring</td>
<td>L. Pringle (ECSU)</td>
<td>Morphology, reproduction, life history, and environment for the growth of benthic and planktonic marine life</td>
</tr>
<tr>
<td>MAS 425</td>
<td>Independent Study</td>
<td>Fall</td>
<td>M. Crawford (ECSU)</td>
<td>Closely supervised opportunity to delve into a subject area</td>
</tr>
<tr>
<td>MAS 443</td>
<td>Coastal and Marine Conservation</td>
<td>Spring</td>
<td>M. Crawford (ECSU)</td>
<td>Natural resource management in coastal and marine systems</td>
</tr>
<tr>
<td>MAS 450</td>
<td>Research in Marine Science I</td>
<td>Spring</td>
<td>M. Crawford (ECSU)</td>
<td>Directed research in marine science</td>
</tr>
<tr>
<td>MAS 451</td>
<td>Research in Marine Science II</td>
<td>Fall</td>
<td>M. Crawford (ECSU)</td>
<td>Directed research in marine science</td>
</tr>
<tr>
<td>MAS 452</td>
<td>Seminar in Marine and Environmental Science</td>
<td>Spring</td>
<td>M. Crawford (ECSU)</td>
<td>Seminar in marine science</td>
</tr>
</tbody>
</table>

*If courses are known to enroll a high number of on-site or distance education students from other universities, please discuss these instances along with number and affiliations of distance education enrollees.*
b.) Identify workshops, continuing education, or other non-credit bearing instruction to community that are directly related to the Activity.

Table D3: Non-Degree Credit Instruction

<table>
<thead>
<tr>
<th>Workshop/Instruction title</th>
<th>Dates offered</th>
<th>Instructor(s) and Affiliation(s)</th>
<th>Brief description of instruction (1 sentence)</th>
<th>Enrollment Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Skills Workshop</td>
<td>February 2009 &amp; March 2012</td>
<td>M. Crawford (ECSU)</td>
<td>Overview of computer security, Excel and PowerPoint software</td>
<td>12</td>
</tr>
<tr>
<td>Remote Sensing and Geographical Information Systems</td>
<td>April 2011</td>
<td>Dr. Don Field (NOAA)</td>
<td>Introduce students to some of the technologies and techniques that are used to remotely sense the marine environment.</td>
<td>6</td>
</tr>
<tr>
<td>Survival Skills for Junior Scientists</td>
<td>March 2011</td>
<td>Dr. Dionne Hoskins (Forest River Company)</td>
<td>The workshop focused on professional communication skills, career planning, teambuilding skills, and conflict resolution.</td>
<td>15</td>
</tr>
<tr>
<td>Creative Writing Workshop</td>
<td>October 2009</td>
<td>J. Lisowski (ECSU)</td>
<td>Creative writing workshop that developed “Dream the Ocean Clean”</td>
<td>8</td>
</tr>
<tr>
<td>Geosciences Summer Camp</td>
<td>May 2009</td>
<td>M. Crawford, D. Gibson (HU) and K. Tang (VIMS)</td>
<td>A combination of in-door and out-door activities: lectures and discussions, boat trip, sample collection, hands-on research and student presentations</td>
<td>8</td>
</tr>
<tr>
<td>Marine Instrumentation Workshop</td>
<td>April 2009</td>
<td>M. Crawford, D. Gibson (HU) and K. Tang (VIMS)</td>
<td>How to operate different marine instruments (e.g., YSI meters, Light meters, microscopes)</td>
<td>8</td>
</tr>
</tbody>
</table>
c.) Public Service, Outreach and Community Engagement
Identify faculty outreach and community engagement that directly relate to the Activity. Professional Service will be captured in a different section, so please constrain this list to those examples that serve to broaden the impact of the Activity through societal engagements, such as science cafes and K-12 initiatives. Please limit this list to the most relevant and significant 20 examples.

Table D4. Public Service, Outreach and Community Engagement

<table>
<thead>
<tr>
<th>Public Service / Outreach/Engagement program name and brief description (one sentence)</th>
<th>Dates</th>
<th>Personnel Involved</th>
<th>Participants in program (e.g. K-12 teachers)</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earth Day Festival</td>
<td>April 2012</td>
<td>M. Crawford &amp; students</td>
<td>Pasquotank county and Elizabeth City community members</td>
<td>400</td>
</tr>
<tr>
<td>Cub Scout Troop 89</td>
<td>2010- present</td>
<td>Leon Pringle</td>
<td>Grades 1-5</td>
<td>7</td>
</tr>
<tr>
<td>Second Saturday Science – Port Discover</td>
<td>2008-2010</td>
<td>M. Crawford &amp; students</td>
<td>K – 6 children</td>
<td>60</td>
</tr>
<tr>
<td>Science Fair judge</td>
<td>2010- present</td>
<td>M. Crawford</td>
<td>Students from River Road and Elizabeth City Middle Schools</td>
<td>100</td>
</tr>
<tr>
<td>Virginia Beach Aquarium Overnight</td>
<td>September 2011</td>
<td>M. Crawford D. Gibson (HU) and Virginia Aquarium staff</td>
<td>Students from Northeastern High School, Elizabeth City NC and Booker T. Washington, Marine Science Magnet Middle School, Newport News VA</td>
<td>20</td>
</tr>
</tbody>
</table>


d.) Professional Service

Identify advisory, regulatory or other professional service that members of the Activity have provided to North Carolina or at the regional / national / international level. Include all North Carolina advisory or regulatory boards and groups; and significant national / international boards. Please limit this list to the most relevant and significant 20 examples.

Table D5. Professional Service

<table>
<thead>
<tr>
<th>Board or Group name</th>
<th>Dates</th>
<th>Activity member name and affiliation</th>
<th>Service provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing Symposium (IGARSS) 2012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session Co-Chair of IEEE International Geoscience and Remote Sensing Symposium,</td>
<td>2010</td>
<td>Jinchun Yuan</td>
<td>Co-Chair a Session of IGARSS meeting</td>
</tr>
<tr>
<td>July 25-30, 2010, Hawaii, USA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session Co-Chair of The 6th International Symposium on Digital Earth,</td>
<td>2009</td>
<td>Jinchun Yuan</td>
<td>Co-Chair a Session</td>
</tr>
<tr>
<td>September 11, 2009, Beijing, China</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposal Reviewer for National Science Foundation (NSF), Chemical Oceanography</td>
<td>2009</td>
<td>Jinchun Yuan</td>
<td>Reviewed proposals</td>
</tr>
<tr>
<td>Science and Technical Advisory Committee, Albemarle-Pamlico Estuary Program</td>
<td>2011-2014</td>
<td>M. Crawford</td>
<td>Expert advice</td>
</tr>
<tr>
<td>Maryland Sea Grant</td>
<td>2010</td>
<td>M. Crawford</td>
<td>Reviewed proposals</td>
</tr>
<tr>
<td>Strategic Habitat Areas (SHAs) Region I Committee, NC Division of Marine Fisheries</td>
<td>2007-2009</td>
<td>M. Crawford</td>
<td>Expert advice</td>
</tr>
<tr>
<td>Port Discover Hands-on Science Center</td>
<td>2011-present</td>
<td>M. Crawford</td>
<td>Board member</td>
</tr>
<tr>
<td>Centers For Ocean Sciences Education Excellence (COSEE) – Coastal Trends</td>
<td>2008-2010</td>
<td>M. Crawford</td>
<td>Advisory board</td>
</tr>
<tr>
<td>Savannah River Environmental Sciences Field Station</td>
<td>2008-present</td>
<td>M. Crawford</td>
<td>Board member</td>
</tr>
<tr>
<td>Submerged Aquatic Vegetation (SAV) Restoration Sub-Committee, SAV Partnership</td>
<td>2008-present</td>
<td>M. Crawford</td>
<td>Expert advice</td>
</tr>
<tr>
<td>Watershed Watch</td>
<td>2009-2011</td>
<td>M. Crawford</td>
<td>Advisory board</td>
</tr>
</tbody>
</table>
E. Outputs and Impacts

1. Publications
   a.) List refereed publications directly related to Activity. Please limit to the 20 most significant or representative publications for the period of January 1, 2008 – present. You may reference information in the REACH NC Appendix in response to this question.


   b.) List non-refereed publications such as journal articles, reviews, conference papers, books and book chapters directly related to Activity. Please limit to the 20 most significant or representative publications for the period of January 1, 2008 – present.


   Yuan, J. Multiple linear and non-linear regression of alkalinity and dissolved inorganic carbon to temperature and salinity in surface waters of the ocean, 2010 Ocean Sciences Meeting, 22-26 February 2010, Portland Oregon, USA


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³ ECSU undergraduate student
⁴ ECSU undergraduate student


Yuan, J. A Multiple Linear Regression of pCO₂ against Temperature, Salinity, and Chlorophyll a at Stations ALOHA and BATS and its Potential for Estimating sea surface pCO₂ from Satellite Data, The 6th International Symposium on Digital Earth, September 9-12, 2009, Beijing, China


2. Technical Outputs
List any technical outputs such as CDs, software programs, databases, algorithms, and/or measurement instruments. Include the key participants and their affiliation. There is no time limit on when these occurred.

ECSU Submerged Aquatic Vegetation Cooperative Habitat Mapping Program - shape files and maps of submerged aquatic vegetation in Albemarle and Currituck Sounds, NC. (http://www.ecsu.edu/academics/mathsciencetechnology/chemgeophys/sav/index.cfm)
ECSU collected water quality data at three stations in Currituck Sound in Currituck County, NC: 

USGS 02043410 Northwest River, NC  
USGS 02043415 Tull Creek, NC  
USGS 02043460 Currituck Sound near Jarvisburg, NC

**Commercialization and Technology Transfer**

List and describe commercialization or the transfer of technology to either the private or the governmental sector. Technology transfer can include a range of actions including patent applications, company formations, and/or licensing agreements. **There is no time limit on when these occurred.**

3. **Awards and Honors**

Please list and describe awards and honors conferred to faculty, staff and students as a result of their participation in the Activity. Please limit to the 20 most significant or representative publications for the period of January 1, 2008 – present.

**Table E1. Awards and Honors**

<table>
<thead>
<tr>
<th>Award or Honor</th>
<th>Date</th>
<th>Name</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer Faculty Fellowship</td>
<td>2011</td>
<td>Jinchun Yuan</td>
<td>United States Air Force Research Laboratory, Summer Faculty Fellowship</td>
</tr>
<tr>
<td>Department Teacher of The Year Award</td>
<td>2011</td>
<td>Jinchun Yuan</td>
<td>Elizabeth City State University, Department Teacher of The Year Award</td>
</tr>
<tr>
<td>Summer Faculty Fellowship</td>
<td>2010</td>
<td>Jinchun Yuan</td>
<td>United States Department of Homeland Security (DHS) Summer Faculty Fellowship</td>
</tr>
<tr>
<td>Exceptional Accomplishments and Commitment</td>
<td>2008</td>
<td>Jinchun Yuan</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>to Research Award</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Place – Largest Number of Awards</td>
<td>2010</td>
<td>M. Crawford</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Second Place – Largest Number of Proposals</td>
<td>2010</td>
<td>M. Crawford</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Submitted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarly Award</td>
<td>2008</td>
<td>M. Crawford</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
</tbody>
</table>
F. Other

If there is other information that has not been requested above and is relevant, please include it here.
B. Activity: Undergraduate Research Experience in Ocean, Marine and Polar Science

Activity Narrative: The URE OMPS program objective is to promote the professional development of minority undergraduate students through their participation in ocean, marine and polar science research. The program consists of undergraduates, each student assigned to a specific research team, where they will work closely with the faculty. In addition, seminars, lunch meetings, and social functions are organized to facilitate undergraduate interaction. The project will be conducted for eight weeks during the summer with on-line mentoring and follow-up during academic year.

The most significant challenges faced by the URE program include positions that are unfilled including the Director of Research and the Director of Education/Outreach. There is also a need for increased IT support for the project. Maintenance support and site licenses are required including Matlab, Adobe, Cisco, and increased storage for data. The current 1 GB pipeline to ECSU is a restraining factor and the 5 year outlook is a need to increase the campus pipeline to 10 GB.

Activity: Center for Remote Sensing of Ice Sheets

Activity Narrative: The Elizabeth City State University Center for Remote Sensing Education and Research (CERSER) is partnering with several other institutions sponsored by the National Science Foundation (NSF) as part of a Science and Technology Center (STC) with the University of Kansas. This partnership is intended to develop models and technology to arrive at a better understanding of the mass balance of polar ice sheets. The Center for Remote Sensing of Ice Sheets (CReSIS) studies how this mass balance affects the rising sea level that glaciologists have observed.

A. Resources

2. Personnel
c.) List and provide information on faculty and key staff involved with the Activity (include current faculty searches that are underway or expected). Expand the below table as necessary.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and department/college</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Linda Hayden</td>
<td>Math &amp; CS/ SMST</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Dr. Malcolm LeCompte</td>
<td>CERSER, Math &amp; CS</td>
<td>Research Associate</td>
</tr>
<tr>
<td>Mr. Joal Hathaway</td>
<td>Math &amp; CS/ SMST</td>
<td>Administrative Assistant</td>
</tr>
<tr>
<td>Mr. Jeff Wood</td>
<td>Math &amp; CS/ SMST</td>
<td>Multimedia specialist</td>
</tr>
</tbody>
</table>

d.) Provide current number and general description of undergraduate students, graduate students, and post-docs involved with the Activity. Do not list individual students or post-docs.

Ten undergraduate students participate in the program each summer.
3. **Funding**
Provide accurate financial information for the Activity capturing the previous three fiscal years of revenues and expenses, as well as the current fiscal year and projections for FY14. For the purposes of this table, “fiscal year” corresponds to the university fiscal year. For example FY12 is July 1, 2011 – June 30, 2012.

**Table C2: Revenue**

<table>
<thead>
<tr>
<th>Source</th>
<th>FY10 ($)</th>
<th>FY11 ($)</th>
<th>FY12 ($)</th>
<th>FY13 ($) Current</th>
<th>FY14 ($) Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>209,266</td>
<td>211,466</td>
<td>214,052</td>
<td></td>
<td>326,717</td>
</tr>
<tr>
<td>State (not including university)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Institution (e.g. University)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Foundation</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>209,266</td>
<td>211,466</td>
<td>214,052</td>
<td></td>
<td>326,717</td>
</tr>
</tbody>
</table>

* Provide a brief description of the Revenue table:

Three year funding levels are shown for FY10 – FY12. The renewal proposal has been submitted for AY13-AY15. Funding primarily covers student participants, travel and research training expenses.

**Table C3: Expenses**

<table>
<thead>
<tr>
<th>Source</th>
<th>FY10 ($)</th>
<th>FY11 ($)</th>
<th>FY12 ($)</th>
<th>FY13 ($) Current</th>
<th>FY14 ($) Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>26,266</td>
<td>26,266</td>
<td>26,532</td>
<td></td>
<td>326,717</td>
</tr>
<tr>
<td>Programmatic</td>
<td>168,000</td>
<td>168,000</td>
<td>168,000</td>
<td></td>
<td>243,500</td>
</tr>
<tr>
<td>Physical infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance and operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment (&gt; $5,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Direct Costs*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect Costs</td>
<td>18,000</td>
<td>18,000</td>
<td>18,000</td>
<td></td>
<td>12,098</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>209,266</td>
<td>211,466</td>
<td>214,052</td>
<td></td>
<td>326,717</td>
</tr>
</tbody>
</table>

* Provide a brief description of the Expenses table. In the Physical Infrastructure section, include cost for purchase/lease of land and cost of facility construction and on-going debt service.
4. Physical infrastructure

Describe the key physical infrastructure that supports your Activity. Include buildings, boats, specialized equipment, land, core facilities, and any other unique capability. Include pending infrastructure additions. Please indicate who owns the physical infrastructure and whether it is a shared resource. If shared, by whom?

PolarGrid Lab in Lane Hall http://cerser.ecsu.edu/polargrid/

The virtual classroom configuration consists of a Polycom 8000S system (H.232 and SIP) with 2 channels of 14-kHz audio, stand-alone audio conferencing phone interfaces and Global Management System collaborative communications. The PolarGrid Lab has 17 state-of-the-arts computer workstations and presentation machines. The workstations are iMac 2.33 GHz dual-core systems with 3Gb of RAM and 250Gb hard drives. The units are setup as dual boot systems with Macintosh OS 10.6, Microsoft Windows 7. The Ubuntu Linux platform is available via virtual machine on the Macintosh platform. The classroom is completed with a high-definition projector and surround sound speaker system to allow participation of faculty and students in various training events outside of the ECSU campus.

GRID Cluster in Wilkins Building

In addition, the PolarGrid project provides ECSU a top-ranked five teraflop MSI high performance computing system, building on its distance education and undergraduate laboratory infrastructure to create tremendous outreach capabilities. The 64-node, 512-core “Umfort” computing cluster is an IBM iDataplex cluster with blades that each house dual quad-core Intel Xeon 2.33GHz processors and 16Gb of RAM. The 64-nodes share a 24Tb shared network file system connected via fiber channel for storage. The cluster is managed through xCAT cluster software, and PBS/TORQUE job scheduler on a 64-bit version of CentOS Linux. Umfort also includes the Matlab Distributed Server, R, OpenMPI, Java and various other open-source compilers as available services to users. Internat and external users connect to the server through a 1Gb fiber connection that is then split to the various components of the cluster through a 10Gb switch. Environmental conditions are kept optimal via a Toshiba 9000 UPS power unit and Leiber computer room air-conditioning unit. Both units when installed were engineered to allow the cluster to grow up to 300% without need for redesign or replacement.

ECSU's (CSSV Center) http://cssvc.ecsu.edu/ The CSSV Center is a Scientific Resource Center, specializing in "an interdisciplinary approach to research, problem solving and visually displaying of data in the mathematical sciences, natural sciences and technological applications." The Center provides user friendly support services for students and faculty who are pursuing research or educational endeavors which make significant uses of computational mathematics-numerical methods, mathematical modeling, high performance computer programming, using specialized computer application packages, and/or computer visualization tools and techniques.

Center of Excellence in Remote Sensing Education and Research (CERSER) http://cerser.ecsu.edu The ECSU Center of Excellence in Remote Sensing Education and Research (CERSER) is the home of the IEEE-Geoscience and Remote Sensing Society Eastern North Carolina Chapter #03181. The goal of CERSER is to develop and implement innovative and relevant research collaboration focused on ice sheet, coastal,
ocean, and marine research. CERSER capability includes a SeaSpace TeraScan SeaWiFS and HRPT system composed of the following components: Polar Orbiting Tracking Antenna (1.2m); Global Positioning System (GPS) Antenna/Receiver; Telemetry Receive; SGP Interface Unit (SGPI). The CERSER Laboratory consists of eighteen computer workstations containing Linux, Mac OS X and Windows; remote storage areas of research information; servers including a local web server, file server, and an online course server. Also available is an undergraduate research lab consisting of sixteen PC/Macintosh workstations and several servers. The lecture room seats 65 and has projection and videoconferencing capabilities.

Research Vessel
The CERSER research vessel is a Sea Pro Model 210 Fiberglass boat and trailer with UHF Radio, Raytheon 300 GPS and Raytheon 365 Depth Finder. The vessel is used for support of ground truthing and water sample collection associated with many of the remote sensing research projects.

Sidescan Sonar
The Imagenex SportScan is a dual channel, high-resolution, digital sidescan sonar. The sonar/PC Features of the SportScan include an 8-bit, digital data over a full-duplex RS-232 link, 30 m depth rating, 23 m (75') tow cable included, up to 240 m (800') total coverage, GPS interface, speed correction, and height/length measurements.

Ground Penetrating Radar
The SIR-3000 by Geophysical Survey Systems, Inc. is the latest GPR data acquisition system and the industry’s number one choice for data accuracy and versatility. The SIR-3000 is a small, lightweight system designed for single user operation. The SIR-3000 incorporates advanced signal processing and display capability for ‘in-the-field’ 3D imaging. The high-performance, single-channel radar system is designed for professionals and includes RADAN 6 software package, GPR signal processing and interpretation software, 3D Quick Draw Analysis, and 3D Data interpretation software.

B. Research, Teaching, Public and Professional Service

3. Research
In the below table, list currently funded research projects (extramural and intramural). Include title, investigators, dollar amount, and time frame. You may reference information in the REACH NC Appendix in response to this question.

<table>
<thead>
<tr>
<th>Project title</th>
<th>PI/CoPIs – include institution</th>
<th>Sponsor</th>
<th>Amount</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Research Experience in Ocean, Marine and Polar Science</td>
<td>Dr. Linda Hayden</td>
<td>NSF/ONR</td>
<td>634,784</td>
<td>2/2010-2/2013</td>
</tr>
<tr>
<td>Center for Remote Sensing of Ice Sheets (CReSIS)</td>
<td>Dr. Prasad Gogineni, KU Dr. Linda Hayden, ECSU</td>
<td>NSF STC Program</td>
<td>$17,976,000</td>
<td>06/01/10 – 05/31/15</td>
</tr>
</tbody>
</table>
4. Teaching and Instruction (if applicable)
e.) Identify courses taught for degree credit that are directly related to the Activity.

Table D2. Teaching and Instruction for Degree Credit

<table>
<thead>
<tr>
<th>Course title, number, and level</th>
<th>Dates offered</th>
<th>Instructor(s) and affiliation(s)</th>
<th>Brief description of course (one sentence)</th>
<th>Enrollment Figures Total/on-site/distance education</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*If courses are known to enroll a high number of on-site or distance education students from other universities, please discuss these instances along with number and affiliations of distance education enrollees.

f.) Identify workshops, continuing education, or other non-credit bearing instruction to community that are directly related to the Activity.

Table D3: Non-Degree Credit Instruction

<table>
<thead>
<tr>
<th>Workshop/Instruction title</th>
<th>Dates offered</th>
<th>Instructor(s) and affiliation(s)</th>
<th>Brief description of instruction (1 sentence)</th>
<th>Enrollment Figures Total/on-site/distance edu</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

g.) Public Service, Outreach and Community Engagement

Identify faculty outreach and community engagement that directly relate to the Activity. Professional Service will be captured in a different section, so please constrain this list to those examples that serve to broaden the impact of the Activity through societal engagements, such as science cafes and K-12 initiatives. Please limit this list to the most relevant and significant 20 examples.

Table D4. Public Service, Outreach and Community Engagement

<table>
<thead>
<tr>
<th>Public Service / Outreach/Engagement program name and brief description (one sentence)</th>
<th>Dates</th>
<th>Personnel Involved</th>
<th>Participants in program (e.g. K-12 teachers)</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE-GRSS Distinguished Lectures and chapter meetings.</td>
<td>3 times/year</td>
<td>Invited guest</td>
<td>Undergraduates, faculty and community members</td>
<td>60 participants</td>
</tr>
<tr>
<td>The Geoscience and Remote</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sensing Society seeks to advance geoscience and remote sensing science and technology through scientific, technical and educational activities. The Society strives to promote a high level of technical excellence among its members by exchange of information through conferences, meetings, workshops, publications, and through its committees to provide for the needs of its members.

Middle School Program
- 2 wks/year
- All staff
- Middle school students
- 12-15

h.) Professional Service
Identify advisory, regulatory or other professional service that members of the Activity have provided to North Carolina or at the regional / national / international level. Include all North Carolina advisory or regulatory boards and groups; and significant national / international boards. Please limit this list to the most relevant and significant 20 examples.

Table D5. Professional Service

<table>
<thead>
<tr>
<th>Board or Group name</th>
<th>Dates</th>
<th>Activity member name and affiliation</th>
<th>Service provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Outputs and Impacts

4. Publications
   c.) List refereed publications directly related to Activity. Please limit to the 20 most significant or representative publications for the period of January 1, 2008 – present. You may reference information in the REACH NC Appendix in response to this question.

   Julie E. Williams, Cameron Wake, Linda Hayden, Eleanor Abrams, George Hurtt, Barrett Rock, Karen Graham, William Porter, Ronald Blackmon, Malcolm LeCompte, Darnell Johnson 
d.) List non-refereed publications such as journal articles, reviews, conference papers, books and book chapters directly related to Activity. Please limit to the 20 most significant or representative publications for the period of January 1, 2008 – present.


5. **Technical Outputs**

List any technical outputs such as CDs, software programs, databases, algorithms, and/or measurement instruments. Include the key participants and their affiliation. There is no time limit on when these occurred.

None

6. **Commercialization and Technology Transfer**

List and describe commercialization or the transfer of technology to either the private or the governmental sector. Technology transfer can include a range of actions including patent applications, company formations, and/or licensing agreements. There is no time limit on when these occurred.

A group of students under the direction of Dr. Malcolm LeCompte at Elizabeth City State University (ECSU) conducted a research project to quantify ice margin changes in the Amundsen Sea region using LIMA as a benchmark. They discovered a small ice shelf that had gradually shrunk from 1972 to 2003 and has failed to reform.

The feature is a former ice shelf occupying an embayment along the southern side of Canisteo Peninsula 12.5 miles north of Suchland Islands and approximately 20 miles north northwest of Cranton Bay. The feature was named by US-Advisory Committee on Antarctic Names (ACAN) Board of Geographic Names (BGN) for Elizabeth State University in Elizabeth City, North Carolina.

The ACAN recommended Elizabeth City State University Bay for approval at its meeting on January 5, 2012 to the U.S. Board on Geographic Names. The name Elizabeth City State University Bay has been approved for use on maps and other products of the Federal government. The name was approved officially at the meeting of the U.S. Board on Geographic Names on April 17, 2012 and was entered into the Geographic Names Information System (GNIS), the nation's official geographic names repository on April 19, 2012.
7. **Awards and Honors**

Please list and describe awards and honors conferred to faculty, staff and students as a result of their participation in the Activity. Please limit to the 20 most significant or representative publications for the period of January 1, 2008 – present.

Table E1. **Awards and Honors**

<table>
<thead>
<tr>
<th>Award or Honor</th>
<th>Date</th>
<th>Name</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientist Spotlights</td>
<td>2010-2011</td>
<td>2011 History Makers</td>
<td>ScienceMakers Toolkit</td>
</tr>
<tr>
<td>Noble Laureate Award</td>
<td>2009</td>
<td>NAFEO</td>
<td>Faculty award for research and mentoring</td>
</tr>
<tr>
<td>Largest Number of Proposals Submitted (1st)</td>
<td>2012</td>
<td>Dr. Linda Hayden</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Largest Number of Funded Proposals (1st)</td>
<td>2012</td>
<td>Dr. Linda Hayden</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Largest Dollar Amount Funded (2nd)</td>
<td>2012</td>
<td>Dr. Linda Hayden</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Largest Number of Proposals Submitted (1st)</td>
<td>2010</td>
<td>Dr. Linda Hayden</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Largest Number of Funded Proposals (1st)</td>
<td>2010</td>
<td>Dr. Linda Hayden</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
<tr>
<td>Largest Dollar Amount Funded (1st)</td>
<td>2010</td>
<td>Dr. Linda Hayden</td>
<td>Elizabeth City State University, Office of Sponsored Programs</td>
</tr>
</tbody>
</table>