NOAA CENTER FOR COASTAL AND MARINE ECOSYSTEMS (CCME)

Semi-Annual Performance Report for
Award Number NA16SEC4810009
Reporting Period: March 1, 2018 – August 31, 2018

Lead Institution - Florida A&M University
1601 Martin Luther King Jr. Blvd, Suite 400,
Tallahassee, FL 32307

Dr. Larry Robinson
Director and Principal Investigator

Partner Institutions

Bethune-Cookman University – Dr. Hyun Jung Cho
(Institutional PI)
California State University Monterey Bay – Dr. Corey Garza
(Institutional PI)
Jackson State University – Dr. Timothy Turner (Institutional PI)
Texas A&M University, Corpus Christi – Dr. Richard McLaughlin
(Institutional PI)
University of Texas, Rio Grande Valley – Dr. David Hicks
(Institutional PI)

List of Tables

Appendix

Acronyms and Abbreviations

FAMU: Florida A&M University

B-CU: Bethune-Cookman University

CSUMB: California State University Monterey Bay

JSU: Jackson State University

TAMUCC: Texas A&M University-Corpus Christi

UTRGV: University of Texas at Rio Grande Valley

CCME: Center for Coastal Marine Ecosystems

CMT: Center Management Team

CSC: Cooperative Science Center

CMT: Center Management Team

CWCC: Center Wide Core Competency

EPP: Educational Partnership Program

HBCU: Historically Black Colleges and Universities

MSI: Minority Serving Institution

NERTO: NOAA Experiential Research & Training Opportunities

NOAA: National Oceanic and Atmospheric Administration

NOS: NOAA's National Ocean Service

OAR: Oceanic and Atmospheric Research

NMFS: National Marine Fisheries Service

Degree Level: T:Transfer, B: First Time in College (FTIC), M: Master's, D: Doctoral

NOAA Cooperative Science Center Project Performance Report

I. Executive Summary

This report covers the accomplishments for the reporting period March 1 - August 31, 2018 for the National Oceanic and Atmospheric Administration's Center for Coastal and Marine Ecosystems (NOAA CCME). During this reporting period NOAA CCME directly supported a total of 68 students, 88% from underrepresented minority communities, across three cohorts.

Snapshot of 2017-2018 CCME Accomplishments

CCME Objective 1. Education and Training (*Specific Objectives 1a and 1d, Special Award Condition V,*)

- CCME has graduated our first five students (1 Transfer, 3 B.S. and 1 M.S.), including a B.S. graduate who has rejoined the program as a Master's student, and a M.S. graduate who has entered the STEM workforce at the National Geospatial-Intelligence Agency.
- CCME currently has a total of 62 active graduate and undergraduate scholars (4 community college transfers, 23 first time in college undergraduates, 24 Master's students, and 11 PhD students).
- One CCME Scholar successfully competed to participate in R/V Okeanos Explorer training opportunities (July 2018).
- One CCME Scholar was awarded a slot on the Gulf of Maine Harmful Algal Bloom Cyst Cruise (August 2018).
- Five CCME Graduate Scholar NERTOs have been completed with NOAA researchers at NMFS, OCM, and a National Marine Sanctuary (Summer 2018).
- One CCME Graduate Scholar has completed the National Water Center Innovators Program Summer Institute 2018 in preparation of her NERTO to take place in the Summer of 2019.
- One CCME Graduate Scholar has completed training with NOAA researchers at NWS.
- Eight CCME Scholars attended CHOW with support provided by NOS and OAR from June 5-7, 2018.

CCME Objective 2. Scientific Research (*Specific Objectives 2a-2c*)

- CCME Research focuses on the areas of Coastal Resilience, Coastal Intelligence and Place-Based Conservation. Examples of completed NERTOs in these three focal areas include:
    - Coastal Resilience – NERTO Completed: CCME Scholar Cristina Madrid, *Resilient Communities: Local Disaster Coordination in the Rio Grande Valley*

NERTO mentor: Kim Penn, OCM and Dr. Melissa Kenney, University of Maryland ESSIC/NOAA CICS

    - Coastal Intelligence – NERTO Completed: CCME Scholar Nigel Lascelles, *Chemical Characterization of Microplastics Polymers for CSC Graduate Student*

NERTO mentor: Dr. Ashok Deshpande, Sandy Hook, NMFS/Northeast Fisheries Science Center

    - Place-Based Conservation – NERTO Completed: CCME Scholar Anthony Lima, *Inter-agency Cooperation, Policy, and Management of the Gulf of Mexico Fishery*

NERTO mentor: Dr. Scott Large, NMFS/ Northeast Fisheries Science Center

CCME Objective 3. CSC Administration

- NOAA CCME Center Director Dr. Larry Robinson appointed to Federal STEM Education Advisory Panel formed by the National Science Foundation (NSF), in consultation with the Department of Education, NASA and the National Oceanic and Atmospheric Administration (NOAA) to encourage U.S. scientific and technological innovations in education.
- CCME engaged with NOAA personnel, including NOS Deputy Assistant Administrator Nicole Le Boeuf and the Director of the Southeast Fisheries Science Center (SEFSC) Dr. Clay Porch, at the second Annual Meeting jointly held at the Atlantic Oceanographic and Meteorological Laboratory and SEFSC in Miami, FL.
- CCME held its inaugural Science Advisory Council meeting, August 29, 2018.
- CCME held its second Community Stakeholder Advisory Board committee meeting conference call, August 1, 2018.
- The CCME external evaluator developed an evaluation plan template that will be utilized across all four NOAA Cooperative Science Centers (***Special Award Condition II, VI***).
- CCME also hosted a center-wide student orientation teleconference call on August 29, 2018 for the start of the 2018-2019 academic year in preparation of Year 3 CCME activities.
- NOAA CCME conducted a site visit of CCME Partner Institution UTRGV on July 16, 2018

Looking to Year 3

CCME Objective 1. Recruitment (See Specific Objective 1a)

In order to meet the established Year 3 recruitment goals NOAA CCME will recruit 9 Community College Transfer students, 18 Master's students, and 2 PhD students – applications are currently under review.

CCME Objective 1. Student Training (See Specific Objectives 1a, 1c and 1d)

- NOAA CCME Expects the completion of 17 additional NERTOs by the end of Year 3.

- The second CCME CWCC will take place from May 19-24, 2019 in Brownsville and South Padre Island, TX.
- 19 CCME Scholars are expected to graduate within Year 3

CCME Objective 2. Research

- CCME faculty and staff will participate in two CSC Special Sessions titled *Linking Natural and Social Science to Understand Societal Impacts of Research* and *A STEM learning Community of Practice Network* as part of the American Meteorological Society (AMS) Meeting to be held in January of 2019.
- CCME faculty and staff will submit a plan for a CSC Special Session titled *Education Partnerships in Coastal and Marine Science* as part of the Coastal and Estuarine Research Federation (CERF) Conference to be held in November of 2019.
- 16 CCME Graduate Scholars are expected to complete their NERTO requirements by the end of Year 3.

CCME Objective 3. CSC Administration

- NOAA CCME Plans to hold its third annual meeting at the Southwest Fisheries Science Center in La Jolla, CA from April 10-12, 2019.
- NOAA CCME began design of CWCC to occur at San Padre Island, TX May 19-24, 2019.

Key Personnel

- The NOAA CCME Distinguished Research Scientist has now joined the team. Dr. Steven Morey joins us from Florida State University where he served as the Senior Research Scientist for the Center for Ocean – Atmospheric Prediction Studies.
- The second NOAA CCME Postdoctoral Research Assistant, Dr. Emily Jones, has also been hired (*Special Award Condition V)*.
- The duties of the Data, Communication, and Information Manager are currently being fulfilled by the Center Management Team. NOAA CCME is advertising the Data, Information, and Communication Manager position through the State University System of Florida and utilizing contacts among the NOAA CCME Co-Principal Investigators and various professional societies, particularly those that include computer science related professionals.

NOAA CCME Focal Area Participants

Leadership
Center Director: Larry Robinson, Ph.D.
Associate Director: Michael Abazinge, Ph.D.
Assistant Director: Sharmini Pitter, Ph.D.

Institutional Principal Investigators
CCME B-CU: J. Cho, Ph.D.
CCME CSUMB: Corey Garza, Ph.D.
CCME JSU: Tim Turner, Ph.D.
CCME TAMUCC: Richard McLaughlin, Ph.D.
CCME UTRGV: David Hicks, Ph.D.

Committee Leadership
Education Expert: Bernadette Kelley, Ph.D.
Social Science Lead: Phyllis Gray-Ray, Ph.D.
Coastal Intelligence Co-Chairs: Richard Long, Ph.D.; Paul Montagna, Ph.D.
Coastal Resilience Co-Chairs: Owen Temby, Ph.D.; David Yoskowitz, Ph.D.
Place-Based Conservation Co-Chairs: J. Cho, Ph.D.; Corey Garza, Ph.D.

Focal Area Participants – Faculty
Coastal Intelligence:
Elijah Johnson, Ph.D., Florida A&M University
Michael Abazinge, Ph.D., Florida A&M University
James C. Gibeaut, Ph.D., Texas A&M University at Corpus Christi
Hongmei Chi, Ph.D., Florida A&M University
J. Cho, Ph.D., Bethune-Cookman University
Timothy Turner, Ph.D., Jackson State University
Paul Tchounwou, Ph.D., Jackson State University
Charles Jagoe, Ph.D., Florida A&M University
Corey Garza, Ph.D., California State University-Monterey Bay
Phyllis Gray-Ray, Ph.D., Florida A&M University

Coastal Resilience:
Richard McLaughlin, Ph.D., Texas A&M University at Corpus Christi
Phyllis Gray-Ray, Ph.D., Florida A&M University
J. Cho, Ph.D., Bethune-Cookman University
Hongmei Chi Ph.D., Florida A&M University
Elijah Johnson, Ph.D., Florida A&M University

Place-Based Conservation:
David Hicks, Ph.D., University of Texas Rio Grande Valley
Charles Jagoe, Ph.D., Florida A&M University
Phyllis Gray-Ray, Ph.D., Florida A&M University
Michael Abazinge, Ph.D., Florida A&M University

Carlos Cintra, Ph.D., University of Texas Rio Grande Valley
Alejandra Fierro-Cabo, Ph.D., University of Texas Rio Grande Valley
Erin Easton, Ph.D., University of Texas Rio Grande Valley
Richard McLaughlin, Ph.D., Texas A&M University at Corpus Christi
Paul Montagna, Ph.D., Texas A&M University Corpus Christi
Dr. Greg Stunz, Ph.D., Texas A&M University Corpus Christi
Dr. David Yoskowitz, Ph.D., Texas A&M University Corpus Christi
Brent Thoma, Ph.D., Jackson State University
Timothy Turner, Ph.D., Jackson State University
Ranjani Kulawardhana, Ph.D., Jackson State University

Focal Area Participants – Students (See Appendix Table 2)

I. Accomplishments

Major Activities:

NOAA CCME Center Director Selected to Serve on National STEM Advisory Panel
http://ccme.famu.edu/news-events

Engagement with NOAA

9th Biennial NOAA EPP Education and Science Forum March 18-21, 2018
Hosted by NCAS-M, Howard University, Washington, D.C.
A total of 20 NOAA CCME Faculty and 39 students (both ECSC/CCME supported and non-CSC supported students from NOAA CCME partner institutions) attended the NOAA EPP Education and Science Forum with 22 poster, 8 CCME faculty and postdoctoral presentations and panel discussions, and 7 CCME student oral presentations.

NOAA CCME Annual Meeting April 12-13, 2018
The second NOAA CCME Annual Meeting was hosted at the Atlantic Oceanographic and Meteorological Laboratory (AOML) and the Southeast Fisheries Science Center (SEFSC). NOAA CCME met with AOML/PHOD Deputy Director Dr. Molly Baringer, SEFSC Deputy Director Dr. Theo Brainerd and SEFSC Director Dr. Clay Porch. Subsequent communication between NOAA CCME and several NOAA attendees of this meeting appears likely to result in several NERTOs for NOAA CCME Scholars along with other opportunities for future engagement.

Specific Objectives:

1. Recruit, train, and graduate students, particularly from underrepresented minority groups, with the competencies and skills that support NOAA's Education Strategic Plan, workforce goals and strategic objectives.

1a) *Provide financial support, education and training experiences for undergraduate students, graduate students, and postdoctoral fellows through teaching and mentoring provided by CCME faculty.*

1b) *Leverage new and existing partnerships with community colleges to recruit and prepare students for NOAA-relevant degree programs at CCME institutions.*

Tallahassee Community College March 7, 2018
NOAA CCME Assistant Director Dr. Sharmini Pitter and NOAA CCME Faculty Dr. Richard Long coordinated an effort with the Florida A&M University Transfer Coordinator to meet with the TCC STEM Center Director and students to recruit transfer students to the NOAA CCME. One student was successfully recruited.

Valencia College Visit to CCME FAMU January 26, 2018
(*not previously reported)

NOAA CCME Assistant Director Dr. Sharmini Pitter and NOAA CCME Faculty Dr. Richard Long hosted a group of 6 students from Valencia College to tour the Florida A&M University Campus and learn about opportunities provided by NOAA CCME.

1c) *Utilize the Center-Wide Competency Course (CWCC) to ensure student proficiency in CCME focus areas.*

The initial planning and development of the 2019 CWCC curriculum began during the reporting period. The 2019 CWCC will be held in Brownsville and South Padre Island, TX during the next reporting period and will be hosted by NOAA CCME Partner institution University of Texas Rio Grande Valley. Each focal area and cross-cutting team will work to create a curriculum to address the NOAA CCME student competencies.

1d) *Expose students to broader research and experiential learning opportunities such as Student Scholarship Internship Opportunities (SSIO) and NERTO, as well as through partnerships with NOAA and other scientists.*

Established SSIOs and NERTOs are shared with NOAA CCME Scholars. In addition, NERTOs have been created for NOAA CCME students through identified NERTO mentors. During the reporting period five CCME Graduate Scholar NERTOs have been completed with NOAA researchers at NMFS, OCM, and a National Marine Sanctuary (Summer 2018).

2. Conduct research leading to the development of management and communication tools that can be utilized to enhance the resilience of coastal communities and economies.

At the time of reporting several student project proposals have been assessed which will address the development of management and communication tools to enhance the resilience of coastal communities and economies. (See *Current tools in development*)

2a) *Assess coastal risks and vulnerabilities*

2b) *Identify solutions to reduce risks and vulnerability*

2c) *Utilize engagement to empower coastal communities.*

3. Develop competency and skills in the utilization of new and existing "Big Data" archives in decision support tools that promotes the vibrancy of coastal and marine ecosystems.

3a) *Develop and implement a "Big Data Analytics Boot Camp".*

The Big Data Analytics Boot Camp was not scheduled for the current reporting period. During the current period NOAA CCME Faculty shared Big Data resources with students and planned future Big Data activities. The Big Data Bootcamp will include instruction for R programming language and additional big data tools.

3b) *Conduct research utilizing "Big Data" sets related to coastal and marine ecosystems.*

Coastal Intelligence Projects will utilize large data sets related to coastal and marine ecosystems. Students in this focal area have been encouraged to explore incorporating existing NOAA data sets and/or contributing to existing public data sets as part of their research projects. Students are also

trained to be familiar with NOAA datasets and learn to use R and other computer software to analyze large, complex datasets.

3c) *Develop tools such as communication and mitigation strategies associated with threats to coastal and marine ecosystems and coastal communities.*

Significant Results: See Executive Summary

Key outcomes or other achievements: See Executive Summary

NOAA CCME Areas of Focus

Coastal Resilience Summary

The NOAA CCME Coastal Resilience (CR) consists of nine NOAA CCME faculty members who meet monthly via conference calls to advance the NOAA CCME Coastal Resilience objectives and to discuss student research proposals. CR discussions and activities remained closely linked to the Social Science Committee (SSC) and other focal area committees as members continued to serve on multiple committees, fostering cross-group communication, cross-pollination of approaches, and familiarity with NOAA CCME research. The CR continued to conduct its monthly meetings as a combined call with the Place-based Conservation (PBC) and Social Science Committees. Dr. Temby volunteered to take over leadership of the CR during the period and now serves as Chair again.

During this period, the number of NOAA CCME scholars associated with this focal area increased to four. NOAA CCME student Miya Pavlock McAuliffe presented to the CR on her research proposal synopsis March 26, 2018, gaining focal area approval. One additional student was being recruited to this focal area in fulfillment of a CR recruitment goal, but that student decided in the end to accept an offer outside of the CCME. TAMUCC recruited another student, Mariana León Pérez, in Summer 2018 who will likely join the CR. The group has planned recruiting activities for Year 3 of the award that will involve the entire Center and the other NOAA Cooperative Science Centers.

NOAA CCME Scholars who attended the 9th Biennial NOAA EPP Education and Science Forum were exposed to essential information in incorporating social science perspectives and analysis into their research. Specifically, NOAA CCME Graduate Scholar Miya Pavlock McAuliffe outlined a couple of options for incorporating human dimensions into her thesis that she learned while attending the 9th Annual NOAA EPP Forum in March. Based on that collaboration, she is exploring the use of crowd-sourced bathymetry data that boat users are collecting and, alternatively, working with the Monterey Bay Aquarium on public communication.

NOAA CCME Coastal Resilience students made excellent progress with planning their NERTO internships, with two of them completing their NERTOs during the reporting period. Specifically, NOAA CCME Graduate Scholar Mallory Brooks has completed a 12-week NERTO at the NOAA's St. Pete Regional Office (May through Aug 2018). Following a meeting with the Caribbean Fishery Management Council, Dr. Bill Arnold and Miguel Rolon offered Mallory

Brooks a 3-year position with the Council. She would be completing similar tasks that were started during her internship, including fisheries research, data analysis, and GIS mapping as the Caribbean Branch moves from species-based fisheries management to island based Fisheries Ecosystem Plans. The position is based out of NOAA's St. Pete Regional Office, but travel to the Caribbean would occur as needed and covered by the Council.

NOAA CCME Graduate Scholar Cristina Madrid completed her NERTO at the NOAA Office for Coastal Management in Maryland, which she and Dr. Temby found through an undergraduate SSIO that they were able to convert to a graduate NERTO. Through the project, entitled "Gray, Green, and Cultural Infrastructure Solutions to Enhance Coastal Resilience", Cristina helped implement a stakeholder engagement approach via a week-long workshop on the Eastern Shore of Maryland with a focus on helping communities become more resilient to coastal hazards and climate change impacts, including sea level rise and salt water intrusion. She provided research and coordination support for the workshop, co-authored a comprehensive report, and built out a Sustainable Adaptive Gradients in the Coastal Environment (SAGE) coastal resilience case study on Virginia Beach.

NOAA CCME Graduate Scholar Samuel Mwenda will complete his NERTO at the same location in spring 2019. The internship will involve developing and refining an impoundment inventory for the purposes of prioritizing future salt marsh restoration opportunities along the South Atlantic coast.
NOAA CCME Graduate Scholar Miya Pavlock McAuliffe chose a NERTO project focused around geospatial data collection and visualization to aid in communication between MBNMS and regional partners. This will include collecting geospatial data within MBNMS, enhancing existing geospatial visualization tools of MBNMS in the coastal environment and offshore, and finally to improve and encourage communication and understanding between academic research and resource management efforts.

In the prior period, the CR finalized and adopted four coastal resilience core competencies that were based on the objectives established for this focal area in the NOAA CCME award – objectives that themselves are based on NOAA coastal resilience priorities. This ensured alignment of the coastal resilience education and training activities, which will be designed to build student knowledge and understanding of the identified competencies with the award and NOAA priorities.

During this reporting period, the group reviewed two new social science core competencies that were drafted by Dr. Kelley, CCME Education Expert, and Dr. Howse, External Evaluator, for CCME (Appendix Table 3). By design, this distribution of the social science competencies across the focal areas will foster the social science/human dimensions integration that CCME seeks to achieve. With the focal area committees each accepting co-responsibility with the Social Science Committee for two of the six social science competencies, social science integration in education and training will be achieved across the Center. Coastal Resilience members recognized and agreed that coastal resilience and social science are closely related and inextricably linked. The CR group adopted the two social science core competencies and agreed to develop education and training for students that align with the competencies.

Coastal Resilience Core Competencies

CCME students will demonstrate knowledge and understanding of:

1. The natural and nature-based infrastructure that address the impact of extreme weather on coastal ecosystems and communities.
2. The community-based approaches for the preservation, fortification, and enhancement of natural and nature-based coastal infrastructure.
3. The models for community-based approaches for assessing the vulnerabilities and value of proposed solutions relating to the impact of extreme weather and sea-level rise on coastal ecosystems and communities.
4. The tools used to study natural and nature-based infrastructure that mitigate the impact of extreme weather and sea-level rise on coastal communities and ecosystems.
5. Integrating models and practices and other decision-making tools for ecosystem-based management.
6. Advocating for the accountability of social science in planning and budgeting to enhance coastal community projects.

With the core competency framework in hand, the CR commenced planning for the next Center-Wide Core Competency course (CWCC). The NOAA CCME Education Committee requested that online preparatory modules and materials be submitted by December 1, 2018 so students can begin working on them in preparation for the May 2019 CWCC. The CR discussed updating the recorded lectures from the 2017 CWCC, which introduced students to coastal law, ecosystem-based management, and environmental economics. Those modules were excellent but will need to be adapted to the new location and community problem students will explore at the CWCC. Members were asked to update their slides to fit the focus of the 2019 CWCC. Dr. Temby and his colleagues at UTRGV, hosts for the CCME CWCC, are working on overarching themes for the problem-based learning activity (PBLA) and will provide details by the September CR call. Then online materials can be modified to reflect the PBLA.

Members agreed that the 2017 modules addressed social science more than coastal resilience, and Dr. Temby proposed generating additional modules that are new and separate from social science. Additionally, NOAA EPP shared some excellent online resources from the NOAA Social Science Committee and the Office of Applied Research (OAR). CCME TAMUCC's Mikell Smith, who helps coordinate the CR, and Dr. Richard McLaughlin previewed the OAR webinars and Social Science Minicourse to help faculty evaluate them against the core competencies as a means to guide them in identifying the most appropriate materials to include. While the NOAA resources were developed to address social science priorities, CR members felt the modules would also have relevance for coastal resilience. Review and analysis bore out that assumption and served as a gap analysis for CWCC coverage of the core competencies. Additional NOAA resources were located for faculty to consider if needed for curriculum development. Faculty agreed to review the NOAA resources and provide feedback by the September 2018 CR conference call. That will assist with filling out the competencies coverage and ensure the group remains on schedule to finalize materials.

Moving forward, the CR will be looking to at ways to synergize the curriculum with the region where the course will be held.

Looking toward the third year of the CCME award, the group discussed goals and strategies at the CCME Annual Meeting, and later refined the language collaboratively via conference calls (see Accomplishments below). In keeping with the student recruitment goal, the group identified two excellent opportunities and commenced planning. One strategy was born out of an expressed a desire to get involved in the Coastal & Estuarine Research Federation (CERF) underserved, underrepresented effort for recruiting purposes. Dr. Garza shared that he is helping organize the CERF diversity program and suggested proposing a session and a booth. The next (CERF) conference will be in Mobile, AL in November 2019. Dr. Yoskowitz chairs the conference, several other CCME faculty are involved in planning, and the conference is well attended by NOAA scientists that CCME seeks to interact with. Session proposals are due September 20, 2018 so, in collaboration with Drs. Yoskowitz and Montagna, Dr. McLaughlin drafted a proposal for a half- to full-day session that would allow CCME students an opportunity to present their work. NOAA EPP provided valuable input to the proposal, which was expanded to include all four NOAA Cooperative Science Centers. CCME can also reserve a booth at the conference from which to base student recruitment efforts.

CCME also reserved a booth at the October 2018 Society for Advancement of Chicanos and Native American Students (SACNAS) in collaboration with NOAA and other NOAA mission aligned groups that will comprise a "Geoscience Zone" at this popular conference. Dr. Corey Garza, PBC Co-Chair, serves on the SACNAS Board and CR staff will work the booth.

Accomplishments this period:

1. *Monthly Meetings*: The CR met each month in the period in a combined call with the Place-based Conservation and Social Science Committees. Dr. Pitter, the CCME Assistant Director, and Dr. Howse, the External Evaluator, also participate in the calls. CR members also sit on other focal area committees and the and Education committees to facilitate collaboration across the Center for an integrated education and research strategy.

2. *Research*: To date, the CR has received and approved four student research proposal synopses for the Coastal Resilience focal area and adopted one other.

a. Mallory Brooks, Master's Student, Bethune-Cookman University, "Evaluating the effectiveness of restored shorelines in mitigating non-point source pollution and climate impacts in the Mosquito Lagoon, Florida, USA," Advisor: Hung Jung (J.) Cho (approved)
b. Cristina Madrid, Master's Student, UTRGV, "Local Disaster Coordination in the Rio Grande Valley", Advisor: Owen Temby (approved)
c. Samuel Mwenda, Master's Student, Bethune-Cookman University, "Assessing Treatment Wetland Efficacy and Public Education in Stormwater Treatment Utilizing Native Plants", Advisor: Hung Jung (J.) Cho (approved)
d. Miya Pavlock McAuliffe, Master's Student, California State University Monterey Bay, "Quantifying Sediment Transport Along a Rocky Embayed Coastline: The Southern Monterey Bay, CA", Advisors: Rikk Kvitek (CSUMB) & Ivano Aiello (MLML) (approved)
e. Diana Del Angel, Ph.D. student, TAMUCC, "Assessment of Salt Marsh Ecosystem Services in the US Gulf of Mexico", Advisor: David Yoskowitz (dual focus approved by PBC)

3. *NERTOs*: Two SSIOs have been completed and the remaining two have been drafted.

4. *Leveraged Funding*: New grants/projects for CCME CR faculty:
a. Dr. Yoskowitz's proposal entitled "Ecological Effects of Sea Level Rise (EESLR) Program", funded in the amount of $120,000, will provide outputs that student Diana Del Angel will use for her dissertation.
b. Richard McLaughlin received a National Academy of Science award in the amount of $164,336 entitled "Gulf of Mexico Student Workshop on International Marine Management". The grant funds U.S./Mexican/Cuban students to study and train together on a coastal resiliency topic in Cuba. CCME student Diana Del Angel will participate in the workshop.

5. *Core Competencies*: See Appendix Table 3
a. The CR added two of the social science core competencies that were developed during the reporting period to their list.
b. The CR determined to ensure that modules for the CWCC are developed in alignment with the core competencies.

6. *2019 CWCC Development*:
a. The CR identified faculty lectures to update and provide.
b. Additional NOAA resources were identified and reviewed.
c. Leadership set a timeline and made assignments for online module curation and development.

7. Outreach and Recruitment:
a. CR members drafted a session proposal for the Coastal and Estuarine Research Federation (CERF) conference that will allow CCME and other CSC scholars to showcase their work. The conference will be in Mobile, AL in November 2019 but session proposals are due September 20, 2018.
b. CCME reserved a booth to be co-located with NOAA at the October 2018 SACNAS conference in San Antonio. CR staff and students will help staff the booth.

8. The CR developed *Year 3 goals and strategies* (appended below).

CCME Coastal Resilience (CR) Year 3 Goals and Strategies

Goal 1.
Recruit 3 more students (CCME Goal 1, Year 3 Milestones)
Strategies:
A. Work with the Coastal & Estuarine Research Federation (CERF) and their biennial conference to recruit underserved, underrepresented students.
- Promote CCME through participation in their existing underserved, underrepresented initiative.
- Leverage opportunities presented by the fact that NOAA generally provides funding for the conference and NOAA scientists we need to connect with participate significantly.

- Conduct CCME recruitment activities at CERF since their biennial conferences run during the intervening years between NOAA EPP Biennial Forums.

B. Determine which CCME institutions may have existing and future openings that could be filled by potential CR students.

- Ask FAMU to provide a running inventory of available student openings at each consortium institution.

C. Promote graduate fellowships to CCME undergraduate students

- Work with partner institutions to place qualified undergraduate students into available CR graduate positions.

Goal 2.
Facilitate student progress toward NERTO completions (CCME Goals 1, 2, 3)
Strategies:

A. Work with CR students and faculty to identify/schedule NERTOs.
B. Work with FAMU and EPP to monitor student progress and assist, where appropriate.
C. Assist with proposal synopsis approval process to obtain NOAA assistance securing mentors and NERTOs.
D. Circulate potential NERTO opportunities that achieve CR Objectives.
E. Circulate CR Core Competencies and encourage NERTO alignment with them.

Goal 3.
Facilitate student training opportunities and ensure alignment with CR core competencies (CCME Goals 1, 2, 3)
Strategies:

A. Develop the 2019 CWCC course based on CR core competencies.
B. Map training curriculum, including CWCC, webinar, and online courses, to CR core competencies and provide that information to CCME PIs.
C. PIs and faculty advisors monitor and ensure student attainment of CR core competencies.

Coastal Intelligence Summary

In the current reporting period, CI has a total of 18 active CCME Scholars (4 Ph.D., 6 M.Sc. and 8 B.Sc.) and is pursuing additional students, including a community college transfer student (Appendix Table 2). This includes one new Ph.D. and two new B.Sc. students; one undergraduate is no longer affiliated with the CCME. One CCME graduate student presented and had her synopsis approved by the CI this reporting period. In total, CI has approved six (2 Ph.D. and 4 M.Sc.) student proposal synopses (Appendix Table 2). Eight (of the ten) CCME CI Graduate Scholars have identified NOAA and NOAA NERTO mentors (Appendix Table 2). One additional Scholar completed their NERTO during this period, for total of three NERTOs completed. One Scholar participated in a pre-NERTO internship with plans to conduct the NERTO next summer. One additional Scholar completed the SSIO paperwork for the their NERTO.

Dr. Emily Jones, the second CCME Postdoctoral Researcher, joined the CCME and CI this June at FAMU. She is developing her research plan with a focus upon mangroves in North Florida; connections with the Apalachicola NERR and other potential research site have been initiated.

There was conference call with Dr. Chris Kelble at AOML in Miami to identify potential NOAA mentors and to develop the project for her NERTO. Two CCME PCB Scholars and their mentors also participated. Dr. Jones and one CCME CI Scholar will be traveling to AOML for a face-to-face meeting this October to discuss NERTOs and NOAA mentors.

There are 15 CI faculty mentors at the six institutions, with a subgroup that meets for monthly CCME CI conference calls. Also participating in the calls are NOAA representatives, the CCME Assistant and Associate Directors, the Education Lead, the Social Science Lead, the Distinguished Research Scientist, and the Postdoctoral Researcher. CI faculty members also serve as advisors and supervise student projects submitted to other focal areas in the realms of Place-Based Conservation and Coastal Resilience, as many of the student projects cross-cut the focal areas.

The CI focal area developed and approved the Year 3 CI goals and strategies and CI student core competencies, with input from the CCME Education Team and External Evaluator (Appendix Table 3). The CI has developed a webinar to provide training in the core competencies. The CI faculty are revising and developing 2019 CWCC material aligning with the CI competencies. CCME students and faculty continue to engage in numerous research/outreach/education/community events and activities aligning with CI at the campus, local, regional, and national scales. A key activity was the participation of two CCME CI Scholars, along with other CCME Scholars, in the Capitol Hill Ocean Week (CHOW) June 5-7, 2018.

Coastal Intelligence Goals: To recruit, train and graduate CCME Scholars to generate and use existing data stream and decision-support tools for 1) ecosystem assessment and restoration and 2) to address coastal stressors and hazards. CCME Scholar research products should extend Coastal Intelligence to support Place Based Conservation and Coastal Resilience efforts of various groups, including policy maker and stakeholders.

The following is the list of specific objectives over the 5 funding years:

- Improve sea-level rise impact projections by enhancing the SLR observation network
- Improve understanding of ecosystem health through investigations focused on the influence of stressors on ecosystem processes
- Improve understanding of ecosystem dynamics using archived, existing, and new data streams
- Develop database and decision support tools to address coastal hazards
- Identify/develop best practices for ecosystem restoration and assessment

Report of Year 2 CCME CI Goals:

Target Goals for Year 2

- Incorporate Coastal Intelligence research and classroom activities to increase student engagement and understanding of coastal intelligence and its tools.
- Have each partner institution identify, reach out to, and engage with at least one key stakeholder for their current resource-use practices, demands, and needs in Coastal Intelligence.

- Increase student competency in scientific communication, outreach and stakeholder engagement.
- Engage Community Stakeholder Advisory Board members in our monthly conference calls.
- Increase the number of student presentations during the calls.
- Increase student exposure to technological tools for coastal intelligence.
- Expand student concepts of coastal intelligence to include socioeconomic networks.

CCME Scholar CI Competencies: See Appendix Table 3

Progress and expectations
CCME CI faculty and students have been engaged in research centered on the employment of interdisciplinary approaches to further their objectives related to marine and coastal ecosystem characterization in response to stressors, modeling and tool development with the context of relevant human dimensions.

Progress towards achieving the Year 2 Objectives and Scholar Competencies

- The CI educational subcommittee made an inventory of CI research and classroom activities (e.g. capstone courses) which can be leveraged to increase student engagement and understanding of coastal intelligence, including tools and technology employed for assessment.
- CCME CI received input from the External Evaluator on CI competencies; these are listed above. In response, CI has developed an online workshop/seminars series incorporating NOAA scientists, CCME scientists and online resources to facilitate the above competencies.
- OneNOAA Science Seminars announcements relevant to CI have been circulated to the scholars. CI has interacted with NOAA scientists, accessed the NOS Roadmap, received input from NOAA technical monitors, the Community Stakeholders Advisory Board, and the NOAA CCME Advisory Council as we move to developing CCME Scholars.
- CI presented an overview of the focal area's Scholars and research to the CCME Community Stakeholder Advisory Board on August 1, 2018, in attempt to increase their involvement in monthly calls.

Accomplishments this reporting period:

1. Status of Scholars (Appendix Table 2):
    a. The CI focal area has a total of 18 students from the six CCME institutions: 4 Ph.D., 6 M.Sc., and 8 B.Sc. scholars, including one 1 community college transfer.
    b. The demographic of the Scholars:
        - 7 African American/Black; 2 Asian/Asian American; 1 Caucasian; 5 Hispanic; 2 Mixed and 1 Pacific Islander (94% ethnic minority)
        - 13 females and 5 males.
    c. Three new Scholars (1 Ph.D. and 2 B.Sc.) were recruited during this period (included in a & b).
2. Student synopses submitted to and approved by CI (Appendix Table 2)
    a. One new student synopsis was presented and approved.

b. A total of six synopses have been presented and approved at the focal area (one Scholar graduated in a previous reporting period and is not included in Appendix Table 2).
c. In addition to their written synopsis, Scholars are now required to provide an oral presentation of their synopsis to the focal area during the monthly calls.

3. Student NERTO updates (Appendix Table 2)
a. Eight of the graduate Scholars have identified NOAA research mentors and/or NERTO mentors. One graduate Scholar completed his NERTO during summer 2018.
b. One graduate CI Scholar is attending a meeting with Dr. Chris Kelble and others at AOML in Miami to identify a NERTO mentor in the first week of October.

4. Postdoctoral update
a. Dr. Emily Jones joined the CCME and CI this reporting period. She has been networking with local stakeholders and managers in preparation for her research, as she develops her Post-Doctoral Research Plan and Career Roadmap to submit in the near future. Discussions with Dr. Chris Kelble at AOML in Miami are underway to identify a NERTO mentor. An in-person meeting is scheduled for the first week of October.

5. Recruiting Events
a. Drs. Long and Pitter, and Ms. Crystal Flowers (FAMU transfer coordinator) spoke to the Tallahassee Community College STEM Club, March 7th, 2018.

6. *Leveraged Funding:* New grants/projects for CCME CI faculty:
a. 2018-2019 Montagna, P., TAMUCC, "Using Comparative Long-term Benthic Data for Adaptive Management of Freshwater Inflow to Three Basins," Texas Water Development Board. $135,000 *Supports data collection for doctoral student studies, and advances focus on coastal intelligence.
b. 2018-2019 Wetz, M.S., TAMUCC**,** "Influence of freshwater inflow gradients on estuarine nutrient-phytoplankton dynamics", *awarded* by Texas Water Development Board. $100,000 *Supports data collections that will be used by CCME CI student Lily Walker in her dissertation
c. 2018-2021 Wetz, M.S., TAMUCC**,** "Baffin Bay water quality study", *awarded* by Celanese Corporation. $150,000 *Supports data collections that will be used by CCME CI student Lily Walker in her dissertation

Place-based Conservation Summary

The Place-Based Conservation Focal Area (PBC) has a total of 27 students from the six CCME institutions: 3 Ph.D., 11 M.S., and 11 B.S level, and 2 transferred students. Among the 14 graduate students, 10 presented their research synopses to the focal area faculty (Appendix Table 2). The presented synopses were reviewed, edited, and approved at the PBC level and submitted to the CCME Management Team. Eight of the graduate students have identified NOAA research mentors and/or NERTO mentors (Appendix Table 2). Two graduate students completed their NERTO during summer 2018; two have been approved for the spring 2019 NERTO. Postdoctoral researcher, Dr. Easton has been approved for her 6-month NERTO tenure at the NOAA's Deep-Sea Coral Ecology laboratory at NCCOS in Charleston, South Carolina. Currently, the focal area consists of 16 regular faculty members and conducts monthly conference calls in conjunction with the CR and the Social Science team. PBC core

competencies have been reviewed and approved. In order to facilitate assessment, a competency matrix chart is being completed through inputs from the CCME institutions of their degree programs' curricula and required activities for students. The PBC is developing and revising CWCC on-line modules aligning with the competencies to meet the deadline of December 1st, 2018. CCME students and faculty are actively engaged with numerous research/outreach/education/community events and activities aligning with PBC at the campus, local, regional, and national scales.

PBC Goals: Develop place-based knowledge and comprehensive ecosystem service assessment tools that improve "Coastal Intelligence" and enhance "Coastal Resilience"; Work with stakeholders and communities to put these tools into action; and Train the next generation of environmental professionals is a key part of our strategy. Particularly, our education, research, and outreach goals are designed to strengthen conservation and restoration at given locations and situations through involvement of local community in planning, developing, implementing, and evaluating ecosystem service assessment tools.
The following is the list of specific objectives over the 5 funding years.

1. Develop outreach, policy, and decision-making tools
2. Link natural and applied science, social sciences, and policy-making to increase management capacity
3. Engage and involve local communities for balanced conservation that addresses demands for coastal resource use and economic development
4. Enhance community engagement by emphasizing the unique opportunities and issues connected with special places of concern
5. Provide comprehensive ecosystem service valuation tools and place-based knowledge
6. Develop and implement ecosystem service assessment tools that balance conservation with the demands for coastal resource utilization and economic development

Report of CCME PBC Competencies: The PBC worked with External Evaluator to finalize six competencies for the PBC students to achieve prior to their completion of the CCME program (Appendix Table 2). In order to facilitate assessment of the students meeting the required competencies, a competency matrix chart is being completed through inputs from the CCME institutions of their degree programs' curricula and required activities for students. New PBC CWCC online modules are being designed to ensure the exercises and information will enable the students to gain the competencies if successfully completing the modules.

Accomplishments this reporting period:

7. Status of Students (Appendix Table 2):
    a. The PBC focal area has a total of active 27 students from the six CCME institutions: 3 Ph.D.; 11 M.S.; and 11 B.S level and 2 transferred students.
        - Additional 17 students were added to the focal area since March 2018 (11 B.S., 4 M.S., and 1 Ph.D. students)
    b. The demographic of the students
        - 10 African American; 11 Hispanic; and 6 Caucasian
        - 10 male and 17 female students
8. Student synopses submitted to and approved by PBC (Appendix Table 2)
    a. One new student synopsis was presented and approved.

b. Three of the previously presented synopses were approved during the reporting period and submitted to the CCME Management Team through Taskstream.
c. Total of 10 synopses have been presented and approved at the focal area.

9. Student NERTO updates (Appendix Table 2)
a. Eight of the graduate students have identified NOAA research mentors and/or NERTO mentors. Two graduate students completed their NERTO during summer 2018; two have been approved for the spring 2019 NERTO.
b. Anthony Lima and Rebekah Hernandez, of CCME UTRGV had their NERTOs in summer 2018.

10. Postdoctoral NERTO application submitted and approved
a. Dr. Erin Easton received the approval for a 6-month NOAA tenure at Charleston, SC in the Deep Coral Ecology Laboratory of Peter Etnoyer. Her NERTO will start in March 2019. She will be working on a *Hypnogorgia* and/or *Swiftia* genetic project. Dates and details will be settled at a meeting in December.

11. Leveraged Research/Training/Outreach Activities
a. Outreach Events
- Dr. Cristina V. Torres and Elizabeth Murphy (CCME graduate student) Memorial Astronomical Observatory Inauguration Event, Marine Debris Education, Resaca de la Palma State Park, May 5th 2018 (CCME UTRGV)
- Carlos E. Cintra Buenrostro (CCME faculty) led the floating classroom and lower Laguna Madre (Spring 2018) activities targeted to increase the student body in the STEM fields, particularly Geosciences, students were presented with marine debris activities, floating classroom cruise and marine specimen collection/identification/discussion. Students involved 20-25 (CCME UTRGV)
- The Earth Day Activity hosted by CCME TAMUCC had over 800 participants.
- Several summer science teaching and event were conducted by CCME faculty and hosted on partnering institutions
- Public education and outreach activities such as Shark Week Premiere and multiple other workshops and events by CCME TAMUCC attracted >1,000 participants.
- CCME B-CU hosted a native plant planting at one of the research sites (treatment wetland converted from a dump site owned by a city) and had >25 local volunteers participating in the planting in August 2018.
- CCME B-CU students hosted a workshop on use of native plants in stormwater management projects to the Florida Native Plant Society.
- CCME B-CU students mentored a high school student CCME B-CU students have been mentoring a local high school student on his project conducted through the CCME B-CU laboratory and in the field over the summer. The high school intern started the study in June 1st, 2018 and continuing his samplings of water quality.

12. *Leveraged Funding:* New grants/projects for CCME PBC faculty:

There are no new leveraged project acquired during the reporting period. However, several leveraged projects are ongoing:

a. Commercial Launch Site Species Monitoring Survey (Construction Phase: 2017-2018); SpaceX, D.W. Hicks (CCME UTRGV),
b. The South Texas Banks Ecosystem: Oceanography, Biodiversity and Genetics. Texas Sea Grant Program, 2015-2017. $179,027. Diego Figueroa and David Hicks (CCME UTRGV). Includes collaborative works with The Flower Garden Banks National Marine Sanctuary and NOAA's Deep Sea Coral Research and Technology Program's Southeast Deep Coral Initiative (SEDCI). Includes CI related activities such as multibeam bathymetry, multibeam fisheries assessments, water quality, and ROV surveys of fish and invertebrate populations.
c. Mesophotic Reef Anchoring Impact Study. NOAA CR Funding. To begin in 2018, David Hicks (CCME UTRGV)
d. Implementing and Evaluating Living-Shorelines as Controls for Nonpoint-Source Pollution and as a Tool for Public Education. The Scientific Research Disaster Recovery Grants of the Gulf Research Program. The National Academies of Sciences, Engineering, and Medicine, $46,000. 2018-2019 (CCME B-CU) - Supports data collection and sampling processing fees for CCME student
e. Tree Fund for Reed Canal Basin Stormwater Improvement through Treatment Wetland Construction in South Daytona, FL, Volusia County, 2018. $20,000, (CCME B-CU) - Construction of treatment wetland for CCME students
f. Wetland plant grant from Volusia County. Volusia County, 2018. $5,000 (CCME B-CU) - Construction of treatment wetland for CCME students
g. Reed Canal Basin Stormwater Improvement through Treatment Wetland Construction in South Daytona, FL, Indian River Lagoon National Estuary Program, $181,148, 10/1/2017-09/30/2019 (CCME B-CU) - Construction of treatment wetland and sampling processing fees for CCME students
h. Implementing and evaluating the effectiveness of native vegetative buffers at controlling nonpoint source pollution and as a tool for public education along the Indian River Lagoon, FL Department of Environmental Protection and EPA. $494,693 (CCME B-CU) - Supports data collection and sampling processing fees for CCME student
i. Estimating absolute abundance of Red Snapper in the Gulf of Mexico, Sea Grant/NOAA/USM, $9,500,000, Greg Stunz (CCME TAMUCC).
j. NFWF-Connecting Youth to Coastal Habitat Restoration in Texas, National Fish & Wildlife Foundation, $249,293, Jennifer Pollack, (CCME TAMUCC).

II. Products of Award

Degrees Awarded: Award Total: *4 B.S., 1 M.S.*

Student Publications in Journals: No student publications were completed during the current reporting period.

Faculty Publications in Journals:

Table 1: Faculty Publications

	Faculty Member Name	Title	Journal/Proceedings
1	Alejandro Fierro, Ph.D.	Biological assessment of dune restoration in south Texas	*Ocean and Coastal Management 163:466-477*
2	David Hicks, Ph.D.	Biological assessment of dune restoration in south Texas	*Ocean and Coastal Management 163:466-478*
3	Michael Wetz, Ph.D.	Phytoplankton spatial variability in the river-dominated estuary, Apalachicola Bay, Florida	Estuaries and Coasts
4	Michael Wetz, Ph.D.	Moving forward in a reverse estuary: movement and habitat use of Black Drum (Pogonias cromis) under distinct hydrological regimes in Baffin Bay, Texas	Estuaries and Coasts
5	Michael Wetz, Ph.D.	Biogeochemistry of a river-dominated estuary (Apalachicola Bay, Florida) influenced by drought and storms	Estuaries and Coasts
6	Paul Montagna, Ph.D.	Blomberg, B.N., J. Beseres Pollack, P.A. Montagna and D.W. Yoskowitz. 2018. Evaluating the U.S. Estuary Restoration Act to inform restoration policy implementation: A case study focusing on oyster reef projects	Marine Policy 91: 161–166.
7	Paul Montagna, Ph.D.	Montagna, P.A., X. Hu, T.A. Palmer, and M. Wetz. 2018. Effect of hydrological variability on the biogeochemistry of estuaries across a regional climatic gradient.	Limnology and Oceanography doi: 10.1002/lno.10953
8	Paul Montagna, Ph.D.	Blomberg, B.N., T.A. Palmer, P.A. Montagna, and J.B. Pollack. 2018. Habitat assessment of a restored oyster reef in South Texas.	Ecological Engineering 122: 48-61. doi: 10.1016/j.ecoleng.2018.07.012
9	Paul Montagna, Ph.D.	Middleton, B.A., and P.A. Montagna. 2018. Turning on the faucet to a healthy coast.	The Solutions Journal 9(3) https://www.thesolutionsjournal.com/article/turning-faucet-healthy-coast/
10	Paul Montagna, Ph.D.	Del Rosario, E.A., and P.A. Montagna. 2018. Effects of the Rincon Bayou	Texas Water Journal 9:30-49. https://twj.media/rincon-bayou-pipeline/

	Faculty Member Name	Title	Journal/Proceedings
		Pipeline on salinity in the upper Nueces Delta.	
11	Richard McLaughlin, Ph.D.	Managing Areas Beyond National Jurisdiction in the Gulf of Mexico: Current and Developing Legal Authority and Future Challenges	9 Sea Grant Law and Policy Journal, 16-40 (2018)
12	Richard McLaughlin, Ph.D.	Sea-level Rise Policy Analysis for Texas	9 Sea Grant Law and Policy Journal, 41-70 (2018)
13	Richard McLaughlin, Ph.D.	Improving Cooperation in U.S./Mexican Marine Science to Better Manage Offshore Hydrocarbon Activities in the Gulf of Mexico	Proceedings: The Gulf of Mexico – Workshop on International Research. New Orleans (LA): U.S. Dept. of Interior, Bureau of Ocean Energy Management. OCS Study BOEM 20xx-xxx 239 pp.
14	Jennifer Pollack, Ph.D.	Habitat assessment of a restored oyster reef in South Texas	Ecological Engineering
15	Jennifer Pollack, Ph.D.	Evaluating the U.S. Estuary Restoration Act to inform restoration policy implementation: a case study focusing on oyster reef projects	Marine Policy
16	Jennifer Pollack, Ph.D.	Dietary composition of black drum (Pogonias cromis) in a hypersaline estuary reflects water quality and prey availability	Journal of Fish Biology
17	Jennifer Pollack, Ph.D.	Moving forward in a reverse estuary: habitat use and movement patterns of Black Drum (Pogonias cromis) under distinct hydrological regimes	Estuaries and Coasts
18	Greg Stunz, Ph.D.	2018 Moving Forward in a Reverse Estuary: Habitat Use and Movement Patterns of Black Drum (Pogonias cromis) Under Distinct Hydrological Regimes	Estuaries and Coasts
19	Greg Stunz, Ph.D.	Effects of a New Artificial Reef Complex on Red Snapper and the Associated Fish Community: an Evaluation Using a Before-After	Marine and Coastal Fisheries

	Faculty Member Name	Title	Journal/Proceedings
		Control-Impact Approach	
20	Hongmei Chi, Ph.D	Investigation of Florida Housing Prices using Predictive Time Series Model	In Proceedings of the Practice and Experience on Advanced Research Computing (PEARC '18). ACM, New York, NY, USA, Article 92,
21	Hongmei Chi, Ph.D	Integrating Travel and Epidemic Models for Vector Borne Disease Surveillance	7th International Conference on Innovations in Travel Modeling (ITIM). National Academies Transportation Research Board. 2018.

Editor of Special Journal Issues
Books:
Book Chapters:

Thesis/Dissertations: Philip Bellamy, (2017) *A GIS Tool for Determining the Potential Runoff Coefficient and Runoff Depth for the Indian River Lagoon, FL*. Master's thesis. Bethune-Cookman University, Daytona Beach, FL.

Conference Papers, Posters and Presentations:
Student Presentations

Table 2: Student Presentations

	Student Name	Title	Conference/Meeting/Other
1	Lauren Parker	The ecology of organisms on the lost reefs of the Monterey Bay National Marine Sanctuary	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
2	Taylor Eddy	Multiscale habitat use and MPA effects on California Spiny lobster success	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
3	Miya Pavlock-McAuliffe	Lasers and Sonar: Integrating technology to research pocket beach dynamics in Monterey, CA	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
4	Emily Chui	Identification of mussel recruits from field collections	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.

	Student Name	Title	Conference/Meeting/Other
5	Olivia Boisen	Quantifying the cross-sensitivity of glass pH electrodes in high pH solutions	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
6	Melissa Meredith	Effects of ocean acidification and hypoxia on larval brown rockfish transcriptomes	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
7	Anthony Lima	Mapping and Measuring Interagency Communication throughout the Gulf of Mexico Fishery.	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
8	Ashley E. Murphy	Assessing and quantifying nitrogen transfer through Black Mangrove (Avicennia germinans) communities. Poster	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
9	Rebekah Hernandez	Southward expansion of Lionfish (Pterois spp.) across mesophotic coral ecosystems of the Texas Gulf of Mexico (Poster presentation). Poster	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
10	Ashley E. Murphy	Assessing and quantifying nitrogen transfer through a Black Mangrove (Avicennia germinans) community.	Thesis Proposal Defense- UTRGV
11	Mallory Brooks	Evaluating the Effectiveness of Living Shorelines in Mitigating Non-point source Pollution and Increasing Soil Carbon Storage in the Mosquito Lagoon Watershed	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
12	Abraham Dasilvio	Implementing Living Shorelines as Tools For Runoff Treatment & Public Education	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
13	Shan Guruvadoo	Investigating Causes of Changing Tidal Range and Timing in the US. Harbors	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
14	Harrison Watson	Effects of Tamoxifen on Reproductive Physiology in Xenopus laevis	UC Berkeley Research Symposium, Berkeley, CA
15	Harrison Watson	Understanding Infestation of Polydora websteri in Crassostrea virginica to Improve Oyster Farming Methods	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.

	Student Name	Title	Conference/Meeting/Other
16	Jessica Webb	The effects of seed mix diversity on the abundance and diversity of pollinators in restored prairies	Kellogg Biological Station Research Symposium
17	Diana Del Angel	Del Angel, D.C.*, D. Yoskowitz, S. Hagen, and M. Bilskie. Socio-Economic Impact of Storm Surge under Projected Sea Level Rise: Spatial Assessment of Communities at Risk	NOAA Educational Partnership Program with Minority Serving Institutions 9th Biennial Education and Science Forum, Howard University, Washington DC, March 18-21, 2018.
18	Diana Del Angel	Del Angel, D.C.*, D. Yoskowitz, S. Hagen, and M. Bilskie. Economic Impact Assessment: Storm Flooding Under Sea Level Rise	Gulf Sentinel Site NGOM+N2E2 MTAG Workshop. July 12, 2018, Grand Bay NERR. Moss Point, MS
19	Elizabeth Del Rosario	Del Rosario, E., R. McLaughlin, P. Montagna. Economic Valuation of Environmental Flows in Texas U.S.A.	World Environmental & Water Resources Congress, June 3-7, 2018, Minneapolis, MN.
20	Meghan J. Martinez	Martinez, M., Palmer, T., and Pollack, JB. 2018. Influence of Oyster Reef Restoration on Benthic Infauna and Reef-associated Macrofauna	Benthic Ecology Meeting
21	Lily Walker	The effects of Hurricane Harvey on south Texas water quality	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
22	Lily Walker	Dissolved oxygen dynamics in two south texas estuaries: San Antonio and Baffin Bay	NOAA site visit for Project NA15NOS4780185
23	Lily Walker	Hypoxia Dynamics in a Semiarid South Texas Estuary	Association for the Sciences of Limnology and Oceanography Summer meeting
24	Lily Walker	A tale of two storms: wind and rain impacts of Hurricane Harvey	Harvey Research Symposium - *coauthor
25	Lily Walker	Impact of Hurricane Harvey on benthos.	Harvey Research Symposium - *coauthor
26	Angelique Rosa-Marin	Implementation of the FORAM Index in coral reefs from Jobos Bay at Puerto Rico	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.

	Student Name	Title	Conference/Meeting/Other
27	Alexis Hamilton	Impact of Sulfamethoxazole upon Aquatic Bacterial Organic Matter Utilization and Ecosystem Service	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
28	Shaquila Rolle	Impact of Sulfamethoxazole upon Aquatic Bacterial Organic Matter Utilization and Ecosystem Service	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
29	Margarette Bayron-Arcelay	Morphological Response of Benthic Foraminifera to Sediment Composition: Applying Geometric Morphometric for Potential Bio-monitoring	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
30	Margarette Bayron-Arcelay	Contrasting the spatial distribution of dead and live foraminiferal assemblages: applying geostatistics. FORAMS 2018 International Meeting in Edinburgh, Scotland. POSTER	FORAMS 2018 International Meeting in Edinburgh, Scotland. POSTER
31	Nigel Lascelles	Oysters as sentinels of microplastic pollution in coastal waters	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
32	Prian Vidal	Nitrogen sequestration associated with oyster aquaculture at the Oyster Bay FL Aquaculture Use Zone, Wakulla County, Florida	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
33	Ra'Teema Etienne (Stanley)	Investigate Florida Tourism Trend via Big Data Techniques	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.

Faculty Conference Papers, Posters, and Presentations:

Table 3: Faculty Presentations

Faculty Member Name	Title	Conference/Meeting/Other
Corey Garza, Ph.D.	The twilight of a keystone interaction? A case study of the Panuliru-Mytilus interaction on Catalina Island	USC Wrigley Institute for Environmental Science summer seminar series.
Owen Temby, Ph.D.	Mapping and Measuring Interagency Communication throughout the Gulf of Mexico Fishery.	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.

Faculty Member Name	Title	Conference/Meeting/Other
Owen Temby, Ph.D.	Governing Transboundary Fisheries in the Great Lakes: Measuring, Mapping, and Quantifying the Effects of Multidimensional Trust on Interagency Influence within a Binational Network	Annual conference of the New England Political Science Association, Portsmouth, NH, April 20, 2018
John Breier, Ph.D.	Overcoming barriers in time and space: reimagining the possible with robotic oceanography.	Invited Speaker- Gordon Research Conference Marine Microbes
Carlos Cintra. Ph.D.	Assessing and quantifying nitrogen transfer through Black Mangrove (Avicennia germinans) communities. Poster	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
Alejandro Fierro, Ph.D.	Assessing and quantifying nitrogen transfer through Black Mangrove (Avicennia germinans) communities. Poster	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
David Hicks, Ph.D.	Southward expansion of Lionfish (Pterois spp.) across mesophotic coral ecosystems of the Texas Gulf of Mexico (Poster presentation). Poster	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
Erin Easton, Ph.D.	Southward expansion of Lionfish (Pterois spp.) across mesophotic coral ecosystems of the Texas Gulf of Mexico (Poster presentation). Poster	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
Erin Easton, Ph.D.	Assessing coral assemblages inhabiting relict coral banks off the south Texas coast.	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
David Hicks, Ph.D.	Assessing coral assemblages inhabiting relict coral banks off the south Texas coast.	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
David Hicks, Ph.D.	Evaluating responses of benthic macrofauna to artificial reef placement in the Gulf of Mexico. Poster	Benthic Ecology Meeting, March 27-30, 2018, Corpus Christi. Texas.
Erin Easton, Ph.D.	Evaluating responses of benthic macrofauna to artificial reef placement in the Gulf of Mexico. Poster	Benthic Ecology Meeting, March 27-30, 2018, Corpus Christi. Texas.
David Hicks, Ph.D.	A review of octocoral distribution in the Northwestern Gulf of Mexico. Poster	Benthic Ecology Meeting, March 27-30, 2018, Corpus Christi. Texas.
Alejandro Fierro, Ph.D.	Assessing and quantifying nitrogen transfer through a Black Mangrove (Avicennia germinans) community.	Thesis Proposal Defense- UTRGV
Carlos Cintra, Ph.D.	Assessing and quantifying nitrogen transfer through a Black Mangrove (Avicennia germinans) community.	Thesis Proposal Defense- UTRGV
Michael Wetz, Ph.D.	Impact of Hurricane Harvey on benthos.	Harvey Research Symposium -

Faculty Member Name	Title	Conference/Meeting/Other
		*coauthor
Paul Montagna, Ph.D.	Montagna, P. A. What have we learned from studies of offshore platforms, oil seeps, and oils spills?	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Ehrmann, H., Olsen, C., Montagna, P. A., Palmer, T. A., Turner, E. L.Do small volumes of freshwater inflow make a difference?	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Del Rosario, E., McLaughlin, R., Montagna, P. Managing for a "Sound Ecological Environment.	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Jacinto, K.E., Palmer, T. A., Montagna, P. A., Hyde, L. J., Sweet, S. T., Klein, A. G. "Localized anthropogenic effects on the marine environment at Palmer Station, Antarctica.	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Palmer, T. A., Montagna, P. A., Hyde, L. J., Sweet, S. T., et al. "Long-term changes in macrobenthic communities in contaminated sediments and epifauna bioaccumulation adjacent to McMurdo Station, Antarctica.	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Reuscher, M. G., Montagna, P. A. "Taxonomic sufficiency and unidentifiable species in multivariate biodiversity assessments of benthic polychaetes from the northern Gulf of Mexico.	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Rohal, M., Escobar-Briones, E., Montagna, P., Romero, I., et al. "How quickly will the deep sea ecosystem recover from the 2010 DWH oil spill? Lessons learned from the 1979 Ixtoc-1 oil well blowout event.	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Smith, J.K., P.A. Montagna. "Multiple stressor effects on macrobenthic communities in Southeastern Corpus Christi Bay, Texas, U.S.A.	Benthic Ecology Meeting
Paul Montagna, Ph.D.	Montagna, P. Effect of Freshwater Inflow on Biogeochemistry of Estuaries Across a Climatic Gradient	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
Paul Montagna, Ph.D.	Montagna, P.A., C. Chaloupka, E. DelRosario, A. Gordon, R. Kalke, T. Palmer, and E. Turner. Managing environmental flows and water resources.	Environmental Impact 2018

Faculty Member Name	Title	Conference/Meeting/Other
Paul Montagna, Ph.D.	Montagna, P.A., M. Hardegree. Long-term changes in estuarine benthos and fish are related to climate change.	Association for Science of Limnology and Oceanography Meeting
Paul Montagna, Ph.D.	Montagna, P.A., L. Hyde, R. Kalke, E. Morgan, L. Walker, M. Wetz. Impact of Hurricane Harvey on benthos.	Harvey Research Symposium
Richard McLaughlin, Ph.D.	Student Focused Development and Support Programs: CCME and SWIMM	Harte Charitable Foundation Meeting, Corpus Christi, TX
Richard McLaughlin, Ph.D.	Findings of a White Paper on Living with Sea Level Rise on the Upper Texas Coast	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
Richard McLaughlin, Ph.D.	CCME Lightning Round Presentation	NOAA EPP/MSI 9th Biennial Education and Science Forum, Washington D.C.
Richard McLaughlin, Ph.D.	International Legal Issues in Transnational Oil Spills	Florida Straits Conference, Fort Lauderdale, FL
Jennifer Pollack, Ph.D.	Oyster reef restoration effects on estuarine productivity in St. Charles Bay, Texas	Benthic Ecology Meeting
Jennifer Pollack, Ph.D.	Oyster reef restoration effects on estuarine macrobenthos in St. Charles Bay, Texas.	Benthic Ecology Meeting
Jennifer Pollack, Ph.D.	The effects of a restored oyster reef (Crassostrea virginica) on estuarine nekton and infauna.	Benthic Ecology Meeting
Jennifer Pollack, Ph.D.	Lessons learned from a decade of oyster reef restoration in the Gulf of Mexico	Benthic Ecology Meeting
Greg Stunz, Ph.D.	Rigs-to-Reefs in the Gulf of Mexico	Conference
Greg Stunz, Ph.D.	Estimating Discard Mortality in a Deep-Water Reef Fish; An Evolution in Fate Assignment Using Acoustic Telemetry	Meeting
Michael Martinez-Colon, PhD	Morphological descriptions of Turbellaria cocoons attached to numerous benthic foraminifers from Apalachicola Bay, Florida.	FORAMS 2018 International Meeting in Edinburgh, Scotland.
Michael Martinez-Colon, PhD	Exposure and toxicity of Potentially Toxic Elements in a tropical estuary: Is there a benthic foraminiferal response to bioavailability?	FORAMS 2018 International Meeting in Edinburgh, Scotland.

Technologies or Techniques: Nothing to report at this time.

Patents: Nothing to report at this time.

Inventions: Nothing to report at this time.

Licenses: Nothing to report at this time.

Websites:
NOAA CCME website: ccme.famu.edu
NOAA CCME CSUMB Information page: https://csumb.edu/cme/center-coastal-and-marine-ecosystems
NOAA CCME TAMUCC Information page: https://www.harteresearchinstitute.org/ccme

Other Products: Nothing to report at this time.

III. Participants in Award Performance

See Executive Summary and Appendix Table 2

Table 4: CCME Award Participants

Name	Most Senior Project Role	Project Hours Worked per Month
Larry Robinson, PhD	Director/Principal Investigator	10
Michael Abazinge, Ph.D.	Associate Director	10
Sharmini Pitter, Ph.D.	Assistant Director	160
Bernadette Kelley, Ph.D.	Education Expert	20
Tonnette Graham	CCME Coordinator	160
Emily Jones, Ph.D.	Postdoctoral Research Associate	160
Steve Morey, Ph.D.	Distinguished Research Scientist	160
Richard Long, Ph.D.	Co-PI, Coastal Intelligence Co-Lead	26
Phyllis Gray-Ray, Ph.D.	Social Science Lead	42
Charles Jagoe, Ph.D.	Faculty advisor	N/A, not budgeted under the award
Elijah Johnson, Ph.D.	Faculty advisor	N/A, not budgeted under the award
Michael Martinez-Colon, Ph.D.	Faculty advisor	N/A, not budgeted under the award
Hongmei Chi, Ph.D.	Big Data Lead	26
Richard McLaughlin, Ph.D.	Principal Investigator	29
David Yoskowitz, Ph.D.	Co-principal Investigator	21.7
Paul Montagna, Ph.D.	Co-principal Investigator	21.7
James Gibeaut, Ph.D.	Co-principal Investigator	21.7
Greg Stunz, Ph.D.	Co-principal Investigator	21.7
Jennifer Pollack, Ph.D.	Faculty advisor	N/A, not budgeted under the award
Michael Wetz, Ph.D.	Faculty advisor	N/A, not budgeted under the award
Mikell Smith	TAMUCC CCME Coordinator	139
J. Cho, Ph.D.	Co-principal Investigator	80 hrs/mo, one summer month budgeted, the rest is leveraged.
Corey Garza, Ph.D.	co-principal Investigator	40 hrs/mo, two weeks in summer, rest is leveraged.
Laura Good, Ph.D.	Education Liaison	20
Cheryl Logan, Ph.D.	CSUMB mentor	N/A, not budgeted under the award
Alison Haupt, Ph.D.	CSUMB mentor	N/A, not budgeted under the award
James Lindholm, Ph.D.	CSUMB mentor	N/A, not budgeted under the award
John Goeltz, Ph.D.	CSUMB mentor	N/A, not budgeted under the award
Ivano Aiello, Ph.D.	Moss Landing mentor	N/A, not budgeted under the award

Name	Most Senior Project Role	Project Hours Worked per Month
Tim Turner, Ph.D.	Principal Investigator	5
Paul Tchounwou, Ph.D.	Co-Principal Investigator	1
Paulette Bridges	Program Manager	24
Ibrahim Farah, Ph.D.	Co-Investigator	Funded during the summer months
Fenxiang Han, Ph.D.	Co-Investigator	Funded during the summer months
Ranjani Kulawardhana, Ph.D.	Co-Investigator	Funded during the summer months
Brent Thoma, Ph.D.	Co-Investigator	Funded during the summer months
Carlos Cintra, Ph.D.	Co-Investigator	50
Owen Temby, Ph.D.	Co-Investigator	50
Erin Easton Ph.D.	Postdoctoral Research Associate	50
David Hicks Ph.D.	Principal Investigator	50
John Breier Ph.D.	Co-Investigator	Leveraged, not budgeted during time frame
Alejandro Fierro Ph.D.	Co-Investigator	50
Leticia Contreras	Education Liaison	64

***** For each individual listed in this table, additional hours devoted to this award are charged to alternative leveraged funding sources.**

What other organizations have been involved as partners?

Table 5: Federal and State Collaborative Partners

Type of Partner Organization: Federal/State	Organization Name:	Location	Partner's Contribution to CCME
Federal	NOAA National MPA Center	Monterey, CA	NERTO Host
Federal	Monterey Bay National Marine Sanctuary Office	Monterey, CA	NERTO Host
State/Federal	Elkhorn Slough National Estuarine Research Reserve	Elkhorn, CA	Host for thesis research
Independent Nonprofit	Woods Hole Oceanographic Institute	WHOI/ UTRGV	Leveraged Training and Research Opportunities for CCME student
State	Texas A&M University Corpus Christi	UTRGV	Leveraged Training and Research Opportunities for CCME student
Federal	NASA	AMES/ UTRGV	Leveraged Training and Research Opportunities for CCME student
State	Texas Parks and Wildlife	UTRGV	Leveraged Training and Research Opportunities for CCME student
Federal	NOAA Southeast Regional Office	St. Petersburg, FL	NERTO Host
Federal	NOAA AOML	Miami, FL	NERTO Host
Federal	NGA	Springfield, VA	Provide research funding, internship and job for CCME student
Federal	EPA	DC	Funding for the current CCME students research
State	FDEP	Tallahassee, FL	Oversighting of funded research by CCME students
State	FWC	Tallahassee, FL	Providing in-kind services and boat hours for CCME students

Have other collaborators or contacts been involved? Yes

Table 6: External Collaborative Partners

External Partner	CCME Lead Partner(s)	Description of Partnerships	Partner's Contribution to CCME
Mak Saito, Woods Hole Oceanographic Institution / Rod Johnson, Bermuda Institute of Ocean Science	John Breier CCME UTRGV	Collaborative research: High resolution nitrogen transformation processes at the Bermuda Atlantic Time series	Leveraged Training and Research Opportunities for CCME student
Texas State University	John Breier CCME UTRGV	LLM-PEM: A Predictive Ecological Model for the Lower Laguna Madre	Leveraged Training and Research Opportunities for CCME student
Dana Yoerger, Woods Hole Oceanographic Institution	John Breier CCME UTRGV	NSF collaborative project Mesobot: a robot for investigating the ocean interior	Leveraged Training and Research Opportunities for CCME student
Mak Saito, Woods Hole Oceanographic Institution	John Breier CCME UTRGV	Collaborative research: High resolution nitrogen transformation processes at the Bermuda Atlantic Timeseries	Leveraged Training and Research Opportunities for CCME student
Darlene Lim, NASA AMES/ Chris German Woods Hole Oceanographic Research Institution	John Breier CCME UTRGV	Systematic Underwater Biogeochemical Science and Exploration Analog	Leveraged Training and Research Opportunities for CCME student
Texas Parks & Wildlife Department	John Breier CCME UTRGV	Establishing a harmful algal bloom and plankton community composition observing time-series in the Lower Laguna Madre at Brazos Santiago Pass	Leveraged Training, Research Opportunities, and Research Infrastructure for CCME student
Charles Jacoby, St. Johns River Water Management District	J. Cho CCME B-CU	Oversight and provide advice for CCME student research projects	Thesis committee members, communication and sharing of data with CCME students
Duane De Freese, Indian River Lagoon National Estuary Program	J. Cho CCME B-CU	Reviewing and executing external grants for CCME student research	Funding agency liaison and director of the NEP program that provides current research funding for CCME student research
Florida Department of Environmental Protection (FDEP)	J. Cho CCME B-CU	Funding, external collaborator, field guides for CCME students	Providing external partners of current funded projects; providing guides for field sites, design, and data. Providing funds

External Partner	CCME Lead Partner(s)	Description of Partnerships	Partner's Contribution to CCME
National Geospatial-Intelligence Agency	J. Cho CCME B-CU	Funding agency and provides internships to CCME students	Sponsored and hired CCME student's research, internship, and job
Cities of New Smyrna Beach, Edgewater, Oakhill, and South Daytona	J. Cho CCME B-CU	Collaborators and external partners on funded projects	Providing their properties (e.g. waterfront parks) for research, assist with outreach of the projects/workshops by CCME students
Ginger Adair, Volusia County Environmental Management	J. Cho CCME B-CU	Collaborators and external partners on funded projects	Providing in-kind fund and cash matches for projects by CCME students
Marine Discovery Center, Environmental Discovery Centers, and Marine Science Center	J. Cho CCME B-CU	Public education and outreach partners	Providing platforms for student engagement with the communities
Project H2O and Riverside Conservancy	J. Cho CCME B-CU	NGO consortia of varying organizations from local universities, governments, resource managers, public education, K-12 education	Providing volunteering hours/students
Annie Roddenberry, Florida Fish and Wildlife Conservation Commission (FWC)	J. Cho CCME B-CU	Collaborators and external partners on funded projects	Providing in-kind hours and boat times for projects by CCME students

Have NOAA collaborators or contacts been involved? Yes

Table 7: NOAA Collaborative Partners

NOAA Collaborator/Office/Program	CCME Faculty/Student Partner(s)	Description of Collaboration
Andrew DeVogelaere, Ph.D.	Miya Pavlock-McAuliffe	NERTO Mentor
Andrew DeVogelaere, Ph.D.	Lauren Parker	NERTO Mentor
Charles Wahle, Ph.D.	Taylor Eddy	NERTO Mentor
Michelle Johnston, Ph.D./ National Ocean Service/ Office of National Marine Sanctuaries: Flower Garden Banks National Marine Sanctuary	David Hicks, Ph.D./ Graduate Student Rebekah Hernandez	NERTO internship mentor
Scott Large, Ph.D./ National Marine Fisheries Service/ Fisheries Service Northeast Fisheries Science Center	Owen Temby Ph.D./ Graduate Student Anthony Lima	NERTO internship mentor
Kim Penn/ National Ocean Service/ Office for Coastal Management	Owen Temby Ph.D./ Graduate Student Cristina Madrid	NERTO internship mentor
Christopher Kelble, Ph.D.	J. Cho/Philip Bellamy	NERTO internship mentor/thesis committee

NOAA Collaborator/Office/Program	CCME Faculty/Student Partner(s)	Description of Collaboration
Gregory Dusek, Ph.D.	Craig Tinus/Shan Guruvadoo	NERTO internship mentor/thesis committee
Bill Arnold, Ph.D.	J. Cho/Mallory Brooks	NERTO internship mentor
Cheryl Woodley, Ph.D.	Michael Martinez-Colon/Grad Student Angelique Rosa-Marin	NERTO internship mentor
Cheryl Woodley, Ph.D.	Michael Martinez-Colon/Grad Student Margarette Bayron-Arcelay	NERTO internship mentor

V. Impacts of Award

What is the impact on the development of future workforce candidates for the principal discipline(s) of the award and NOAA mission-aligned support of the project?
A total of 69 students have been recruited to join NOAA CCME in a variety of disciplines including environmental science, technology, and policy, ocean, coastal and earth science, marine sciences, civil and environmental engineering, biology, computer science, and social sciences.

What is the impact on other disciplines and Program Level Outputs and Outcomes aligned with the 2016 FFO? What is the impact on the development of candidates for the NOAA mission future workforce?

The impact on candidate development is tracked and measured through the Individual Student Development Plan. Individual Student Development Plans were assessed with CCME Scholars at the end of the Spring 2018 semester (May 2018).

What is the impact of the Center activities to build institutional capacity in support of the objectives of the NOAA FY16 CSC award?

During the current reporting period the Center hired a Distinguished Research Scientist as part of the award.

What is the impact of the NOAA award on the Center's data and information resources? To whom and how is this information and the Center accomplishments communicated?
Qualified applicants for the Data Communication and Information Manager are currently in review. The communication and data management duties of the Data, Information, and Communication Manager are currently being fulfilled by a coordinator (supported by university

funds) assigned to NOAA CCME. Center Management (NOAA CCME Education Lead, Associate and Assistant Directors) also supports this function. NOAA CCME team members utilize sophisticated tracking tools to support data collection in keeping with the implementation of the award. Center Management and Institutional PIs also work closely with our external evaluator for quality assessment and quality control of more extensive data points associated with award activities to track how we are meeting our goals and objectives.

How has the Center successfully conducted transfer of research results and new technologies in support of NOAA mission-aligned R2X?

There are no research results or new technologies to report at this time.

What were the societal impacts of the Center research activities? How were or are the impact results communicated to the general public.

At this time research activity results are limited. The NOAA CCME website has been developed to feature research developments and disseminate research results within one year of data collection. As results become available they will also be published in research journals and shared in newsletters, presentations at professional conferences and disseminated through public meetings and to key stakeholders with input from the Community Stakeholder Advisory Board and Science Advisory Council.

NOAA CCME management has also had the opportunity to emphasize the importance of NOAA programs to Federal, State and Local officials through yearly visits to Capitol Hill and participation in events such as the FAMU Day at the Capitol.

VI. Changes / Challenges

Challenges in performance of the award objectives - approach and reason(s) for change:

Actual or anticipated problems or delays and actions or plans to resolve them:
No anticipated delays anticipated at this time.

Changes that have a significant impact on expenditures:
No changes with significant impact on expenditures anticipated at this time.

VII. Special Award Conditions

1. **EPP/MSI CSC Performance Progress Reports**

NOAA CCME has complied with the requirement that Performance Progress Reports will be provided no later than 30 days following the end of each 6-month period from the start date of the original award. The original submission of the current report occurred on September 28, 2018 in compliance with the special award conditions.

2. **Evaluation Plan for Coastal and Marine Ecosystems Cooperative Science Center**

See Appendix C

3. **Required Center Implementation Plan**

The Center Implementation Plan was submitted on March 16, 2017 and has since been reviewed. An Implementation Plan Addendum was submitted to Grants Online (File ID: 2676722) on June 30, 2017 to address further suggestions from EPP. During the reporting period an additional revised Implementation Plan that included the addendum was submitted to Grants Online (File ID: 2650452) was submitted on June 15, 2018.

4. **EPP/MSI CSC Substantial Involvement and Collaborative Engagement**
5. **EPP/MSI Direct Student Support, Post-Doctoral Program and Pre-Publication**

During the reporting period

Frequent engagement with NOAA EPP management team with communication and collaboration as NOAA CCME set up the Center under the FY16 NOAA award requirements. The EPP Supervisor Ms. Jacqueline Rousseau, EPP CSCs Program Manager Dr. Audrey Trotman, and co-Technical Monitors Dr. Steve Thur (NOS) and Dr. Chris Moses (OAR) participate in monthly NOAA CCME calls with the NOAA CCME Center Management Team and Co-PIs to discuss progress updates and upcoming events. The NOAA CCME Associate and Assistant Directors also meet with EPP each week via teleconference to further discuss progress towards award objectives. The co-Technical Monitors also engaged with NOAA CCME Scholars during the Capitol Hill Ocean Week (CHOW) held from June 5-7, 2018.

Participant Beneficiaries

Table 8: Direct Student Support

	Student Name	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-time research	Fringe
1	Patricia Cockett	TAMUCC	$1,244	$12,000	$3,979	$0	$213	$1,111
2	Diana Del Angel	TAMUCC	$1,339	$12,000	$3,824	$0	$208	$369
3	Elizabeth Del Rosario	TAMUCC	$1,244	$15,075	$2,048	$0	$264	$2,444
4	Mariana León Pérez	TAMUCC	$1,339	$6,000	$0	$0	$0	$353
5	Kelsey Martin	TAMUCC	$1,339	$12,000	$1,366	$0	$660	$934
6	Meghan Martinez	TAMUCC	$1,244	$8,400	$1,779	$0	$827	$1,097
7	Lily Walker	TAMUCC	$1,339	$10,200	$1,496	$0	$0	$39

	Student Name	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-time research	Fringe
8	Philip Bellamy	BCU	$7,200	$0	$0	$0	$0	$0
9	Shan Guruvadoo	BCU	$7,200	$7,350	$200	$0	$0	$0
10	Samuel Mwenda	BCU	$7,200	$9,000	$500	$0	$1,250	$0
11	Mallory Brooks	BCU	$7,200	$4,500	$500	$5,500	$1,480	$0
12	Abraham DaSilvio	BCU	$7,200	$9,000	$500		$1,250	$0
13	Taylor Eddy	CSUMB	$3,588	$9,996	$1,174	$0	$3,526	$0
14	Miya McAuliffe	CSUMB	$3,588	$0	$1,000	$0	$0	$0
15	Lauren Parker	CSUMB	$3,588	$9,996	$1,000	$0	$500	$0
16	Olivia Boisen	CSUMB	$3,000	$3,000	$1,645	$0	$0	$0
17	Emily Chui	CSUMB	$3,000	$3,000	$2,000	$0	$800	$0
18	Melissa Meredith	CSUMB	$3,000	$3,000	$1,000	$0	$0	$0
19	Devon Preyer	CSUMB	$500	$500	$0	$0	$0	$0
20	Caroline Rodriguez	CSUMB	$3,588	$1,666	$0	$0	$0	$0
21	Alexandra Thomsen	CSUMB	$3,588	$1,666	$0	$0	$0	$0
22	Natalie Vaughn	CSUMB	$500	$500	$0	$0	$0	$0
23	Riley Young	CSUMB	$500	$500	$0	$0	$0	$0
24	Geramy Perriman	JSU	$373	$3,498	$2,994	$0	$0	$0
25	Harrison R. Watson	JSU	$0	$1,749	$2,623	$0	$0	$0
26	Jada Grant	JSU	$0	$1,166	$1,842	$0	$0	$0
27	Jessica Webb	JSU	$0	$1,166	$2,223	$0	$0	$0
28	Jonathan Breaux	JSU	$373	$3,498	$2,994	$0	$0	$0

	Student Name	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-time research	Fringe
29	Julian Venable	JSU	$2,979	$13,500	$1,987	$0	$0	$0
30	Keenasha Minor	JSU	$2,979	$7,998	$2,037	$0	$0	$0
31	Kennedy Jones	JSU	$0	$1,749	$2,035	$0	$0	$0
32	Liyah Smith	JSU	$0	$1,166	$1,742	$0	$0	$0
33	Shelby Windham	JSU	$0	$1,166	$145	$0	$0	$0
34	Shirlay Alexander	JSU	$373	$2,332	$912	$0	$0	$0
35	Brianna Alanis	UTRGV	$3,708	$8,042	$0	$0	$468	$237
36	Rebekah Hernandez	UTRGV	$3,661	$7,863	$2,047	$3,756	$253	$232
37	Anthony Lima	UTRGV	$3,350	$8,042	$2,090	$3,372	$0	$222
38	Cristina Madrid	UTRGV	$3,329	$6,121	$0	$4,759	$0	$175
39	Ashley Murphy	UTRGV	$3,350	$6,186	$2,421	$0	$2,934	$220
40	Javier Navarro	UTRGV	$3,260	$7,424	$0	$0	$275	$174
41	Javier Garcia Jr.	UTRGV	$1,430	$1,560	$0	N/A	$0	$9
42	David Lecusay	UTRGV	$1,430	$3,754	$0	N/A	$0	$18
43	Jaime Lopez	UTRGV	$1,430	$1,733	$0	N/A	$0	$10
44	Cassandra Rodriguez	UTRGV	$1,430	$3,841	$0	N/A	$0	$87
45	Shelby Bauer	UTRGV	$0	$0	$0	N/A	$0	$0
46	Daniel Flores	UTRGV	$0	$2,455	$0	$0	$0	$107
47	Katia Sanchez	UTRGV	$0	$0	$0	$0	$0	$0
48	Victoria Salinas	UTRGV	$0	$0	$0	$0	$0	$0
49	Alexis Hamilton	FAMU	$3,000	$3,000	$183	$0	$0	$0

	Student Name	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-time research	Fringe
50	Alexis Shokere	FAMU	$3,000	$3,000	$0	$0	$0	$0
51	Andrea Pugh	FAMU	$0	$0	$0	$0	$0	$0
52	Angelique Rosa Marin	FAMU	$7,434	$12,885	$1,105	$0	$2,343	$0
53	Ariana Uwaibi	FAMU	$0	$0	$0	$0	$0	$0
54	Ayanna Kirby	FAMU	$3,000	$3,000	$0	$0	$0	$0
55	Benjamin Johnson	FAMU	$3,000	$3,000	$0	$0	$0	$0
56	Gabrielle Figueroa	FAMU	$0	$0	$0	$0	$0	$0
57	Jordan Roberts	FAMU	$3,000	$3,000	$0	$0	$0	$0
58	Kennedy Gullatte	FAMU	$3,000	$3,000	$0	$0	$0	$0
59	Margarette Bayron-Arcelay	FAMU	$8,083	$13,972	$183	$0	$0	$0
60	Nigel Lascelles	FAMU	$6,388	$12,885	$452	$5,000	$1,424	$0
61	Prian Vidal	FAMU	$6,388	$12,885	$183	$0	$0	$0
62	Queriah Simpson	FAMU	$0	$0	$0	$0	$0	$0
63	Ra'Teema (Stanley) Etienne	FAMU	$0	$0	$170	$0	$0	$0
64	Shaquilla Rolle	FAMU	$3,000	$3,000	$0	$0	$0	$0
65	Tayler McKinnon	FAMU	$3,000	$3,000	$0	$0	$0	$0
66	Terrius Bruce	FAMU	$0	$0	$0	$0	$0	$0
67	Walter Holmes	FAMU	$0	$3,000	$0	$0	$0	$0
68	Willis Lyons	FAMU	$6,300	$3,937	$0	$0	$0	$0
	Totals		**$165,576**	**$318,923**	**$54,380**	**$22,388**	**$18,673**	**$7,839**

Post-Doctoral Program -

NOAA CCME Postdoctoral Research Associate Dr. Emily Jones joined the team during the reporting period (July 2018) and has joined the CCME Coastal Intelligence group.

NERTO and Student Internships with NOAA – See Appendix Table 2

6. **EPP/MSI Center External Evaluator Support on Award Funds Special Award Condition**

For the current reporting period the Center External Evaluator has received $15,000 in support.

7. **NOAA Environmental Data and Information**

Currently, there is no collected data and information to report. Sharing of data collected through student research associated with the NOAA CCME will be shared with the public within two years of data collection as described in the CCME Data Management Plan of the award proposal.

8. **New Award Special Award Condition**

This award number NA16SEC4810009, to FLORIDA A&M UNIVERSITY, supports the work described in the Recipient's proposal entitled "NOAA Center for Coastal and Marine Ecosystems" dated March 30, 2016, and revisions dated July 27, 2016 and August 23,2016, which are incorporated into the award by reference. Where the terms of the award and proposal differ, the terms of the award shall prevail.

9. **Multi-Year Special Award Condition**

NOAA CCME recognizes that continued funding of the current award is contingent upon availability of funds. The funding period for this award is 09/01/2016 – 08/31/2019 and may be extended through 08/31/2021.

X. EPP MSI CSC Programmatic Special Award Conditions

CSC Programmatic Special Award Conditions

A. Provide FY16 Center award information for:

1. **Total Number of EPP-funded post-secondary students from underrepresented minority communities** who are trained 61 and graduate 4 in NOAA-mission sciences.
2. **Total number of EPP-funded post-secondary students** who are trained 69 and graduate 5 in NOAA-mission fields relevant to this announcement.

3. **Number of EPP-funded graduates who enter the NOAA mission workforce as hires** by NOAA 0, NOAA contractors 0, NOAA partners 0, resource management agencies 1, NGO community 0, academia 0 or as entrepreneurs 0.
4. **Number of EPP-funded graduates who participate in and complete NOAA agency mission-related postdoctoral level programs** 0.

In Year 3 CCME plans to recruit nine transfer, 18 Master's, and two PhD students.

5. **Total new funds leveraged with NOAA EPP award** (including post-secondary student support)

Total leveraged funding for reporting period: $669,336

B. Provide FY16 Center award information to demonstrate contribution to supporting CSC Desired Program level Outcomes and Outputs defined in FFO p. 7 - 10, for the current reporting period.

Please see Executive summary and Products of Award.

5.1 Education and Training

Outcome 1. Increased number, annually, of CSC post-secondary students, trained.

Outputs

- Increased quantitative and analytical skills;
- Increased competence in applying STEM to decision making, policy and management; and,
- Increased skills to use large data sets, geographical information systems (GIS) and statistical analysis, computer modeling, and algorithm development.

Outcome 2. Increased number of CSC post-secondary students educated and graduated annually.

Outputs

- The number of degrees earned annually in NOAA mission-related disciplines.
- The number of students (total and URM) who participated in professional development opportunities, to include at least one on-site experiential research and training opportunity at a NOAA lab, office, or facility with tangible training and research: (a) for a minimum duration of 4 consecutive weeks, and (b) resulted in a publication or an oral or poster presentation to experts, peers, and/or other stakeholders.

Outcome 3. Increased CSC capacity to train and graduate students.

Outputs

- Number of seminars, new courses, new programs, and new degrees offered to develop working skills and functional competencies to support the NOAA mission and workforce.

- Total numbers of students supported by the CSCs and degrees awarded that reflect the changing demographics of the nation (Census Bureau 2014 National Projections, http://go.usa.gov/c2VfP).

Outcome 4. Reduce the attainment gap for URMs in NOAA mission-relevant fields

Outputs

- Increased number of URM students in student development activities that will lead them to the attainment of degrees and/or employment in NOAA mission fields.

- Increased number of URM students who select to pursue higher education in NOAA mission fields.

5.2 Scientific Research

Outcome 1. Increased NOAA mission-relevant research capacity at MSIs.

Outputs

- Number of research collaborations with NOAA and CSC faculty, staff and students.
- Number of NOAA scientists serving as mentors and advisors for student research.
- Number of intra-institutional collaborative partnerships established and maintained in support of NOAA's mission.
- Number of uses of NOAA data in research and tool development.
- Number of inter-institutional collaborative partnerships established and maintained in support of NOAA's mission.

Outcome 2. CSC-supported faculty, staff and students' research directly aligned with NOAA's mission and strategic priorities.

Outputs

- Number of peer reviewed publications, presentations, and tools developed by faculty, staff, and students.
- Use of CSC research results and tools by NOAA and other stakeholders.
- Number of instances CSC publications are cited.
- Number of CSC students, staff or faculty recognized nationally for CSC research.

5.3 CSC Administration

Outcome 1. Increased CSC capacity to support and sustain education and research in NOAA mission areas.

Output

- Amount of funds leveraged with CSC award to support NOAA mission in education and research.

Outcome 2. Increased engagement by CSCs with the URM communities to enhance the mission workforce pipeline.

Outputs

- Number of structured activities to recruit and retain students, particularly from URM communities, in NOAA mission-relevant higher education programs.
- Number of MSI inter-institutional collaborative partnerships established and maintained in support of NOAA's mission.

Outcome 3. To increase communication of CSC accomplishments and capacity

Outputs

- Number of CSC products used by stakeholders.
- Number of featured articles in print or digital media referencing the NOAA CSC.

Outcome 4. Increased use of post-secondary education evaluation methodologies
Outputs

- Number of best practices that are measurable, scalable and transferrable.
- Consistent use of established evaluation practices, including higher education practices, to measure effectiveness of each component of the award.

NOAA CCME will continue development to address all Education and Training Outcomes and Outputs. The Center Faculty and Staff are committed to achieving the goals set forth for the FY16 award to:

Goal 1: Increase the number of well-trained and highly qualified scientists and managers, particularly from under-represented minority groups, entering the NOAA and NOAA-related workforce;

- Goal 2: Enhance the scientific understanding of human interactions with the coastal environment in support of NOAA's place-based management specifically as it relates to the response of coastal and marine ecosystems to natural and human induced stressors;

- Goal 3: Improve the scientific basis for coastal resource management by developing tools and research products to characterize, evaluate, and forecast coastal and marine ecosystem responses to natural and human induced stressors; and

- Goal 4: Facilitate community education and outreach relating to the function and relevance of coastal ecosystems and the services they provide to society.

Current tools in development:

Angelique Rosa Marin, NOAA CCME Graduate Scholar FAMU and her advisor, Michael Colon-Martinez are working on a bioindicator index which may be implemented by resources managers at the JBNERR.

NOAA CCME UTRGV faculty member Dr. Chip Breier, and collaborators are currently developing and testing AUV and ROV based biochemical and 'omic' sampling tools. We will be reporting on the status of these tools this year and pathways for making use of them

NOAA CCME Distinguished Research Scientist Dr. Steve Morey, and collaborators are developing new global coastal upwelling index databases from satellite-derived winds. This is on-going NASA-funded work, and website is functional now (http://coaps.fsu.edu/products-services/data/upwelling), but will be updated with ongoing modifications. I will also be working on new methodologies for upwelling indices (using multiple variables), and these data products will be served through the website as they are developed.

Appendix A: Summary Tables

Appendix Table 1: Number of Funded Students - August 2018

Institution	Transfer	Undergraduate	Master's	Doctoral	TOTALS
Cohort 1					
FAMU	0	7	3	0	10
B-CU	-	-	3	-	3
CSUMB	-	3	3	-	6
JSU	1	5	1	1	8
TAMU-CC	-	-	1	4	5
UTRGV	-	2	4	-	6
Cohort 2					
FAMU	2	-	1	4	7
B-CU	-	-	1	-	1
CSUMB	-	-	-	-	0
JSU	1	-	-	-	1
TAMU-CC	-	-	-	2	2
UTRGV	-	0	2	-	2
Cohort 3					
FAMU	0	-	1	0	1
B-CU	-	-	-	-	0
CSUMB	-	3	3	-	6
JSU	0	1	0	-	1
TAMU-CC	-	-	0	-	0
UTRGV	-	2	1	-	3
TOTAL Active	4	23	24	11	**62**
Graduated	1	3	1	-	5

Appendix Table 2: NOAA CCME Scholars

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
1	Abraham DaSilvio	M	2	J. Cho	In development – water quality	Y	PBC	Fall 2019/Spring 2020	Seeking - NOAA engagement needed	To be developed
2	Alexandra Shien-li Thomsen	M	3	Arlene Haffa	In development - Salt Marsh Restoration	N	PBC	Fall 2019	Seeking - NOAA engagement needed	To be developed
3	Alexis Hamilton	B	1	Richard Long	Impact of Pharmaceuticals and Personal Care Products (PPCPS) on Estuarine Microbes and their Ecosystem Service	–	CI	–	–	–
4	Alexis Shokere	B	1	Michael Abazinge	–	–	–	–	–	–
5	Andrea Pugh	D	2	Steve Morey	In development	N	CI	Summer 2019	Seeking - In discussion with Dr. Jesse Feyen, GLERL	To be developed
6	Angelique Rosa-Marin	M	1	Michael Martinez-Colon	Implementation of the FORAM Index (FI) in coral reefs from Jobos Bay at Puerto Rico	Y	CI	Summer 2019	Dr. Cheryl Woodley, Research Microbiologist, National Ocean Service	Exploring the use of foraminifera as a bioassay organism for coral reef environments for CSC Student
7	Anthony Lima	M	1	Owen Temby	Inter-agency Cooperation, Policy, and Management of the Gulf of Mexico Fishery	N	PBC	COMPLETED: June 4th - August, Summer 2018	Dr. Scott Large, Northeast Fisheries Science Center, NMFS	Evaluating indicators of regulatory complexity to understand the cost of compliance
8	Ariana Uwaibi	D	2	Richard Long	To be developed	N	CI	Spring 2020	Seeking - CCME will reach out to potential contacts	To be developed
9	Benjamin Johnson	B	1	Michael Abazinge	–	–	–	–	–	–

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
10	Brianna Alanis	M	2	John Breier	Using primary productivity proxies as ecosystem health metrics	Y	CI	Spring 2019	Seeking - In discussion with Dr. Chris Kelble, AOML	To be developed
11	Caroline Rodriguez	M	3	Cheryl Logan	In development – population genetics	N	CI	Fall 2019	Seeking - NOAA engagement needed	To be developed
12	Cassandra Rodriguez	B	1	David Hicks	_	_	PBC	_	_	_
13	Cristina Madrid	M	1	Owen Temby	Local Disaster Coordination in the Rio Grande Valley	Y	CR	COMPLETED: June 4 - August 31, Summer 2018	Kim Penn, OCM and Dr. Melissa Kenney, University of Maryland ESSIC/NOAA CICS	Gray, Green, and Cultural Infrastructure Solutions to Enhance Coastal Resilience For CSC Student
14	Daniel Flores	B	3	Alejandro Fierro Cabo	_	_	PBC	_	_	_
15	David Lecusay	B	1	Carlos Cintra	_	_	PBC	_	_	_
16	Devon Preyer	B	3	Steve Moore	_	_	CI	_	_	_
17	Diana Del Angel	D	1	David Yoskowitz	Assessment of Salt Marsh Ecosystem Services in the US Gulf of Mexico	Y	PBC	Spring 2019	Seeking - with guidance from NOAA mentors Dr. Mary Culver and Dr. Rebecca Allee	To be developed

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
18	Elizabeth del Rosario	D	1	Richard McLaughlin	Environmental Flows Management Strategy for the Coastal Zone in Texas	Y	PBC	Summer training June 10 - July 28, 2018; NERTO Summer 2019	Dr. Trey Flowers, P.E. Director, Analysis and Prediction Division NOAA/NWS/NWC/Office of Water Prediction	To be developed
19	Elizabeth Murphy	M	1	Carlos Cintra	Tracking nitrogen transfer through Black Mangrove (*Avicennia germinans*) communities	Y	PBC	Spring 2019	Seeking - Dr. Chris Kelble, AOML and Leslie Craig, Southeast Region NOAA Restoration Center are assisting	To be developed
20	Emily Chui	B	1	Alison Haupt	Patterns of mussel recruitment in Monterey, Bay	_	CI	_	_	_
21	Gabrielle Figueroa	T	2	Richard Long	_	_	_	_	_	_
22	Geramy Perriman	B	1	Brent Thoma	_	_	PBC	_	_	_
23	Harrison R. Watson	B	1	Brent Thoma	_	_	PBC	_	_	_
24	Jada Grant	B	1	Brent Thoma	_	_	PBC	_	_	_
25	Javier Navarro	M	1	Alejandro Fierro Cabo	Analysis of the facilitative relationship between Batis maritima and Avicennia germinans seedlings as mangrove restoration strategy	Y	PBC	Spring 2019	Seeking - Dr. Chris Kelble, AOML and Leslie Craig, Southeast Region NOAA Restoration Center are assisting	To be developed
26	Jessica Webb	B	1	Brent Thoma	_	_	PBC	_	_	_
27	Jonathan Breaux	T	1	Brent Thoma	_	_	PBC	_	_	_

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
28	Jordan Roberts	B	1	Michael Abazinge	–	–	–	–	–	–
29	Julian Venable	M	1	Ibrahim Farah/Brent Thoma	Densities and potential impacts of microplastics in Grand Bay National Estuarine Research Reserve	N	PBC	Summer 2019	Potential mentor - To be discussed with Dr. Ashok Deshpande, NMFS	To be developed
30	Katia Sanchez	B	3	Owen Temby	–	–	–	–	–	–
31	Keenasha Minor	M	1	Fengxiang Han	Analysis of Naturally Occurring Radionuclides in the Northern Gulf of Mexico	N	PBC	Spring 2019	NOAA mentor: Kate Rose, NCEI, NESDIS	To be developed
32	Kelsey Martin	D	2	Greg Stunz	In development	N	PBC	Fall 2019	Seeking - NOAA engagement needed	To be developed
33	Kennedy Jones	B	2	Ranjani Kulawardhana	Developing geospatial datasets for evaluating LULC and climate variability of coastal MS	–	CI	–	–	–
34	Lauren Parker	M	1	James Lindholm	The ecology of organisms on the “lost reefs” of the MBNMS: diver-held video surveys from 20-40 m water depth.	Y	PBC	Fall 2018 – In Progress	Dr. Andrew Devogelaere, Research Coordinator, Monterey Bay NMS	Meso-photic reefs of the Monterey Bay National Marine Sanctuary

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
35	Lily Walker	D	1	Michael Wetz	Dissolved Oxygen Dynamics in Texas Estuaries	Y	CI	Spring or Summer 2019	Dr. Suzanne Bricker, Physical Scientist and Manager of NOAA's National Estuarine Eutrophication Assessment, National Centers for Coastal Ocean Science, Cooperative Oxford Laboratory	To be developed
36	Liyah Smith	T	1	Brent Thoma	–	–	PBC	_	_	_
37	Mallory Brooks	M	1	J. Cho	Evaluating the effectiveness of restored shorelines in mitigating non-point source pollution and climate impacts in the Mosquito Lagoon, Florida, USA.	Y	CR	COMPLETED: May 7 - July 30, Summer 2018	Dr. Bill Arnold, NOAA Fisheries Southeast Regional Office	Implementing Ecosystem-based Management in the U.S. Caribbean
38	Margarette Bayron-Arcelay	D	2	Michael Martinez-Colon	It takes two to tango: protist and bacteria as bioindicators of estuarine health in FL and TX	N	CI	Summer 2019	Dr. Cheryl Woodley, Research Microbiologist, National Ocean Service	In Development (on water quality)
39	Mariana León Pérez	D	2	Jim Gibeaut	In development	N	CR	Summer 2020	Seeking - NOAA engagement needed	To be developed
40	Meghan Martinez	M	1	Jennifer Pollack	Influence of oyster reef restoration on benthic infauna and reef-associated macrofauna	Y	PBC	Summer 2019	Seeking with guidance from NOAA mentor Dr. Dionne Hoskins-Brown	To be developed

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
41	Melissa Meredith	B	1	Cheryl Logan	Effects of climate change induced ocean acidification and hypoxia on early life stages of rockfishes	_	CI	_	_	_
42	Miya Pavlock McAuliffe	M	1	Rikk Kvitek (CSUMB) and Ivano Aiello (MLML)	Quantifying Sediment Transport Along a Rocky Embayed Coastline: The Southern Monterey Bay, CA	Y	CR	Spring 2019	Dr. Andrew Devogelaere, Research Coordinator, Monterey Bay	Geospatial data collection and visualization to enhance resource manager/scientist collaborations- for EPP CSC student
43	Natalie Vaughn	B	3	John Olson	_	_	PBC	_	_	_
44	Nigel Lascelles	M	1	Charles Jagoe	Oysters as sentinels of microplastic pollution	N	CI	COMPLETED: June 1 - August 31, Summer 2018	Dr. Ashok Deshpande, Sandy Hook, Northeast Fisheries Science Center	Chemical Characterization of Microplastics Polymers for CSC Graduate Student
45	Olivia Boisen	B	1	John Goeltz	Effects of Ionic Strength on Carbonate Equilibria and pH measurement	_	CI	_	_	_
46	Patricia Cockett	D	1	Paul Montagna	In internal review	Y	CI	Summer 2019	Dr. Randall Kosaki, Papahānaumokuākea Marine National Monument	Human use of the NOAA Hawaii Estuarine Research Reserve (NERR) to quantify the ecosystem service values with respect to recreational use

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
47	Prian Vidal	M	1	Charles Jagoe and Elijah Johnson	Nitrogen sequestration associated with oyster aquaculture in the Oyster Bay, Aquaculture Use Zone, Wakulla Co, FL	N	CI	Spring 2019	Dr. Suzanne Bricker, Physical Scientist and Manager of NOAA's National Estuarine Eutrophication Assessment, National Centers for Coastal Ocean Science, Cooperative Oxford Laboratory	To be developed
48	Queriah Simpson	M	3	Steve Morey	In development	N	CI	Summer 2019	Potential mentor NERTO project identified - Matt Poti, NCCOS, NOS	To be developed
49	Ra'Teema Etienne (Stanley)	M	2	Hongmei Chi	Predict Florida Beach rip current via Data Analytics Techniques	N	CI	Initial 1-week Training August 20, 2018; NERTO Summer 2019; Start/End Dates TBD	Mike Churma and Dr. Jung-Sum Im, Meteorological Development Laboratory Office of Science and Technology Integration National Weather Service	Rip Current Model Validation
50	Riley Young	B	3	Corey Garza	_	_	PBC	_	_	_

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
51	Rebekah Hernandez	M	1	David Hicks	Assessing long-term benthic community dynamics at the Flower Garden Banks National Marine Sanctuary	Y	PBC	COMPLETED: June 2018 - August 2018	NERTO Mentor: Dr. Michelle Johnston, Research Marine Biologist, Flower Garden Banks National Marine Sanctuary; NOAA mentor: Dr. Emma Hickerson, Flower Garden Banks National Marine Sanctuary	East Flower Garden Bank Photostation Coral Species Identification and Historical Coral Cover Analysis for CSC Graduate Student
52	Samuel Mwenda	M	1	J. Cho	Assessing Treatment Wetland Efficacy and Public Education in Stormwater Treatment Utilizing Native Wetland Plants	Y	CR	Spring 2019	Lisa Vandiver, Ph.D. Marine Habitat Restoration Specialist Earth Resources Technology Contractor NOAA Restoration Center	Identification of cost-effective salt marsh restoration opportunities along the South Atlantic coast
53	Shan Guruvadoo	M	1	J. Cho	Investigating causes of changing tidal range and timing in U.S. harbors	Y	CI	COMPLETED: Start Date: August 14, 2017 End Date: November 3, 2018; Completed 12 weeks- Fall 2017	Drs. Gregory Dusek; Chris Zervas (CO-OPS); Organization - Jena Kent	Investigating causes of changing tidal range and timing in U.S. harbors

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NERTO Mentor's Name or Potential NOAA Mentors or NOAA Office of Interest	NOAA Mission-Aligned Research Project Title (to be determined in collaboration with NOAA mentor)
54	Shaquila Rolle	B	1	Richard Long	Impact of Pharmaceuticals and Personal Care Products (PPCPS) on Estuarine Microbes and their Ecosystem Service	_	CI	_	_	_
55	Shelby Windham	B	1	Brent Thoma	_	_	PBC	_	_	_
56	Tayler McKinnon	B	1	Michael Abazinge	_	_	_	_	_	_
57	Shirlay Alexander	B	3	Brent Thoma	N/A	N/A	PBC	_	_	_
58	Taylor Eddy	M	1	Corey Garza	Multiscale habitat use and effects of MPAs on California spiny lobster success	Yes	PBC	Fall 2018	Dr. Charlie Wahle, Senior Scientist, NOAA National Marine Protected Areas Center	Meta-analysis of West Coast MPA Performance
59	Terrius Bruce	T	2	Richard Long	In development, started Fall 2018	N/A	CI	_	_	_
60	Victoria Salinas	M	3	David Hicks	To be developed	N	_	Summer 2019	Seeking - NOAA engagement needed	To be developed
61	Walter Holmes	B	1	Michael Abazinge	_	_	_	_	_	_
62	Willis Lyons	D	2	Michael Abazinge	To be developed	N	_	Summer 2020	Seeking - NOAA engagement needed	To be developed

Appendix Table 3: Student Competencies

Coastal Resilience	*Coastal Intelligence*	*Place-Based Conservation*
1. The natural and nature-based infrastructure that address the impact of extreme weather on coastal ecosystems and communities.	1. The elements of sea-level rise observation networks and their relationship to sea-level rise projections.	1. The policies and commonly-used decision-making tools that support place-based conservation.
2. The community-based approaches for the preservation, fortification, and enhancement of natural and nature-based coastal infrastructure.	2. The leading stressors on ecosystem processes and their relationship to ecosystem health.	2. The relationship between natural, applied, and social sciences and the policies as it pertains to capacity management.
3. The models for community-based approaches for assessing the vulnerabilities and value of proposed solutions relating to the impact of extreme weather and sea-level rise on coastal ecosystems and communities.	3. Archived, existing, and new data streams that support ecosystems dynamics and research.	3. Best practices for engaging community stakeholders in addressing specific site-based concerns.
4. The tools used to study natural and nature-based infrastructure that mitigate the impact of extreme weather and sea-level rise on coastal communities and ecosystems.	4. Widely-used databases and decision-support tools that address coastal hazards.	4. Broadly-used ecosystems valuation tools and their use in place-based conservation efforts.
5. Integrating models and practices and other decision-making tools for ecosystem-based management.	5. Best practices for ecosystem assessment and restoration.	5. The tools used to balance conservation with demand for coastal resource utilization and economic development.
6. Advocating for the accountability of social science in planning and budgeting to enhance coastal community projects.	6. Demonstrate the use of communication approaches to deliver more effective warnings about coastal resources and coastal hazards.	6. Understand socio-economic data needs
_	7. Evaluate a select suite of products and services to confirm the integration and effective use of social science into coastal intelligence research.	7. Engage community stakeholders

Appendix B: Advisory Boards

1. Science Advisory Council Members

2. Community Stakeholder Advisory Board

Appendix B1: NOAA CCME Science Advisory Council Members

Chair: Dr. James Pinckney, Director
Belle W. Baruch Institute for Marine and Coastal Sciences
Marine Ecologist at the University of South Carolina
pinckney@sc.edu; Phone: 803-777-5288

Dr. Jay Pinckney is the Director of the Baruch Institute for Marine and Coastal Sciences at the University of South Carolina. He is also a Professor in the Department of Biological Sciences and the Marine Science Program at USC in Columbia, SC. Dr. Pinckney is a marine ecologist who studies how marine ecosystems work, especially in terms of how they process energy derived from microscopic plants (phytoplankton and microalgae). Most of his work is conducted in estuarine and coastal waters, including the Gulf of Mexico, San Salvador Island in the Bahamas, North Inlet Estuary on the South Carolina coast, and Galveston Bay, Texas.

Council Members

Lisa Gonzalez, President and Chief Executive Officer
Houston Advanced Research Center (HARC)
lgonzalez@HARCresearch.org; Phone: (281) 364-6044

Lisa Gonzalez is the President and Chief Executive Officer of the Houston Advanced Research Center (HARC). She is responsible for the strategic direction of HARC and its research programs which are designed to facilitate sustainable management of air, energy and water resources. She served as Vice President and Chief Operating Officer of HARC from 2012-2016, overseeing the implementation of HARC's 5-year strategic plan, development of HARC's communication strategy, a reorganization of administrative operations and the design and construction of HARC's new green headquarters. In addition to leading HARC, Ms. Gonzalez is active in research focused on the analysis and dissemination of data concerning the health and productivity of Texas Gulf Coast bays, estuaries and watersheds. Her expertise includes analysis of coastal monitoring data sets and the development of indicators and outreach products describing coastal fish and wildlife populations, invasive species, coastal habitats, water quality, freshwater inflows, seafood safety and climate change.

Jenn Eckerle, Deputy Director, Ocean Protection Council
jenn.eckerle@resources.ca.gov; Phone: (916) 654-9055

Jenn Eckerle joined OPC in December 2016. As OPC's Deputy Director, she is responsible for supervising staff and helping set the strategic priorities for coast and ocean policy in California. Before joining OPC, Jenn spent eight years as an ocean policy analyst for the Natural Resources Defense Council, where she conducted technical analysis and developed policy recommendations to advance ocean conservation. Prior to that, she was a coastal program analyst for the California Coastal Commission and the San Francisco Bay Conservation and

Development Commission. Jenn earned an M.S. in Marine Biology from the Florida Institute of Technology and a B.S. in Biology from the University of Vermont.

Dr. Brean Duncan, Ecological Program Integrated Mission Support Services,
brean.w.duncan@nasa.gov; Phone: 321-861-6292

Dr. Brean Duncan is a Geographer/Spatial Ecologist with the Ecological Program at NASA's John F. Kennedy Space Center, Florida. His interests include investigating how anthropogenic influences alter natural terrestrial systems and their maintenance processes with a focus on mimicking the results of natural maintenance processes through land management application. This includes establishing baseline knowledge of resource abundance/distribution/pattern to guide effective land management practices for conserving/maintaining native fire dependent species habitats and favorable demography for their survival. He has considerable experience using remote sensing, geographic information system (GIS), and global positioning system (GPS) technology to design, implement, and automate spatial databases for ecological modeling and spatial analysis. This includes vegetation, landuse/landcover, habitat, fuels, fire event and fire regime mapping/modeling.

Dr. Philip Kramer, Director, Florida Institute of Oceanography,
philipkramer@usf.edu; Phone: 727-553-1100

Philip Kramer joined the Florida Institute of Oceanography as the director in August, 2016. Previously, Phil spent 13 years with The Nature Conservancy (TNC) as a senior scientist initiating and advancing marine conservation efforts in Florida and internationally in more than a dozen countries around the world.

Trained as a tropical marine geologist with a Ph.D. from the University of Miami's Rosenstiel School of Marine and Atmospheric Science, Phil has spent much of his career advancing tropical ecosystem monitoring, management, and restoration of coral reefs and mangroves. He is the co-founder of the Atlantic and Gulf Rapid Reef Assessment Program (AGRRA), which is a widely accepted as the standard scientific monitoring protocol for reefs and currently houses one of the largest databases on coral reef condition (www.agrra.org). He also established the Florida Reef Resilience Program (FRRP) disturbance response monitoring program which continues to collect annual data on the condition of corals during summer bleaching events (www.frrp.org).

NOAA Employee Members

Dr. LaToya Myles, Deputy Director, NOAA Air Resources Laboratory, Atmospheric Turbulence and Diffusion Division, Oak Ridge, TN,
latoya.myles@noaa.gov; Phone: 865-220-1729

Dr. Latoya Myles' research is interdisciplinary, involving both atmospheric chemistry and environmental science. She measures the exchange (i.e., emission and deposition) of gases and

particles between the air and land in coastal and agricultural ecosystems. Many of her measurement studies focus on ammonia (NH3), the most abundant basic gas in the atmosphere and an important part of the biogeochemical cycle. The data collected from these studies is used to improve estimates of air pollution and provide information about the potential impact on human health and the environment.

Dr. Charles Wahle, Senior Scientist, NOAA National Marine Protected Areas Center, Charles.Wahle@noaa.gov; Phone: (831) 645-2703

Dr. Charlie Wahle serves as Senior Scientist in NOAA's National Marine Protected Areas Center. He is a marine ecologist now working at the science to policy interface of ocean conservation. Recently, this work has focused largely on understanding patterns and implications of human uses of the oceans, particularly ocean recreation in marine protected areas. Between 2010-2012, he served on a detail to help create and implement the US National Ocean Policy. Before joining the MPA Center in 2000, Dr. Wahle led NOAA's national science, education and policy programs for the National Marine Sanctuaries and National Estuarine Research Reserves programs, and represented NOAA and DOC on several major interagency conservation initiatives.

Appendix B2: Community Stakeholder Advisory Board Members

CCME Community Stakeholder Advisory Board Members
Dr. Charles Jacoby
Supervising Environmental Scientist
Water Resources
St. Johns River Management District

Dr. Ayesha Gray, Director
Grand Bay National Estuarine Research Reserve

Mr. Jace Tunnell, Reserve Director
Mission-Aransas National Estuarine Research Reserve
The University of Texas Marine Science Institute
Estuarine Research Center

Dr. Andrew DeVogelaere, Research Coordinator
Monterey Bay National Marine Sanctuary

Ms. Jenna Harper, Manager
Apalachicola National Estuarine Research Reserve
Environmental Education and Training Center

Appendix C: Evaluation Summary

Overview

The External Evaluator continued to work with Project Director and CMT to advance assessment and evaluation work of CCME. The Evaluator participated in monthly conference calls conducted by the Project Director to share evaluation updates with the Co-PIs. Evaluator made two (2) visits to the FAMU campus to meet with the CMT and to discuss evaluation efforts. The Evaluator conferred with the CMT regarding performance indicators for Year 2. The CMT is working to finalize the Year 2 Evaluation Data Template that the Evaluator will use to complete the Year 2 Evaluation Report.

In August of 2018, the Evaluator held an evaluation conference call with Project Director and Co-PIs to review the Evaluation Performance Indicator Scoring Matrix (Evaluation Appendix 1). During the call the Evaluator reviewed the Performance Indicator Scoring Matrix for Year 2. The team also discussed the scoring weights assigned to each goal for Project Years 1-5 as an integral component of the overall evaluation scheme (below).

	Year 1	Year 2	Year 3	Year 4	Year 5
Goa1 1	**.30**	**.25**	**.30**	**.25**	**.30**
Recruitment	(.15)	(.10)	(.10)	(.05)	(.05)
Training	(.15)	(.15)	(.10)	(.10)	(.05)
Completion	N/A	N/A	(.10)	(.10)	(.20)
Goal 2 (Research)	**.10**	**.20**	**.20**	**.25**	**.20**
Goal 3 (NOAA Big Data)	**.10**	**.15**	**.20**	**.25**	**.20**
Key Impact Metrics	**.50**	**.40**	**.30**	**.25**	**.30**

The Evaluator will meet with the Project Director and CMT to refine the Year 3 Evaluation Plan and to determine the key steps in preparing for the Year 4 evaluation that will be conducted under the auspices of NOAA EPP.

The Evaluator and CMT continues to advance the CCME assessment and evaluation efforts consistent with CCME Evaluation Timeline (Evaluation Appendix 2).

EVALUATION APPENDIX 1: CCME External Evaluation Key Performance Indicator Framework

CCME Goal 1 - Recruit, train, and graduate underrepresented minority groups, with the competencies and skills that support NOAA's Education Strategic Plan workforce goals.								
Recruitment Performance Indicator	**Strategic Plan Performance Objectives**		**CCME Project Goals**	**Measure Type**	**Baselines**	**Target**	**Current Performance level**	**Evaluation Score**
	Objective	**Number**						
Number of CCME underrepresented minority undergraduate students enrolled in NOAA-mission related degree programs at partner institutions	Relationships/Partnerships	1.1	1a	Summative				
Number of CCME underrepresented minority graduate students enrolled in NOAA-mission related degree programs at partner institutions	Relationships/Partnerships	1.1	1a	Summative				
Number of total budgeted underrepresented minority Post Docs recruited into the CCME	Relationships/Partnerships	1.1	1a	Summative				
Total number of CCME students recruited and enrolled in NOAA mission-related degree programs at partner institutions	Relationships/Partnerships	1.1	1a	Summative				
Mean Effectiveness Score (Recruitment) =								
Training Performance Indicator	**Strategic Plan Performance Objectives**		**CCME Project Goals**	**Measure Type**	**Baselines**	**Target**	**Current Performance level**	**Evaluation Score**
	Objective	**Number**						
Percentage of total CCME students receiving center wide core competency (CWCC) short course certification	Education and Outreach	1.2	1c	Summative				
Number of CCME students who have participated in experiential opportunities at a NOAA Lab, office, or facility (i.e., NERTO or SSIO)	Education and Outreach	1.1	1a	Summative				
Number of participants of the GIS Activities	Educational Training	1.1	3b	Summative				

Percentage of students with the required GPA in NOAA related degree programs at partner institutions	Educational Training	2.5	1a	Summative				
Percentage of students demonstrating learning gains in the competencies related to the CCME Focus Areas	Education and Outreach	1.2	1.c	Summative				
Percentage of students demonstrating learning gains in competencies related to social science integration	Education and Outreach	1.2	2a,b,c	Summative				
Number of invited or refereed presentations or publications by CCME scientists	Educational Training	1.1	1a	Summative				
Number of NOAA scientists and experts working in collaboration with CCME students and faculty	Research	3.1	1.d	Summative				
Mean Effectiveness Score (Training) =								
Program Completion Performance Indicator	**Strategic Plan Performance Objectives**		**CCME Project Goals**	**Measure Type**	**Baselines**	**Target**	**Current Performance level**	**Evaluation Score**
	Objective	**Number**						
Number of CCME underrepresented minority students accepted into postdoctoral level programs	Educational Training	2.3	1b	Summative				
Number of underrepresented minority students who graduate in NOAA-mission sciences annually	Educational Training	2.2	1a	Summative				
Number of CCME students hired by NOAA, NOAA contractors, and other natural resource and science agencies at the federal, state and local levels	Educational Training	2.4	1b	Summative				
Mean Effectiveness Score (Program Completion) =								
Mean Effectiveness Score (Goal 1) =								
CCME Goal 2 - Conduct research leading to the development of management and communication tools that can be utilized to enhance the resilience of coastal communities and economies.								

APPENDIX: NOAA CCME Semi Annual Performance Report
(March 1 - August 31, 2018)
Larry Robinson, Principal Investigator and Center Director

Performance Indicator	Strategic Plan Performance Objectives		CCME Project Goals	Measure Type	Baselines	Target	Current Performance level	Evaluation Score
	Objective	Number						
Percentage of CCME students earning required quality rating on faculty-mentored research projects	Personnel	1.1	2a,b,c	Summative				
Number of NOAA scientists serving as research mentors and advisors for student research	Personnel	3.2	1a	Summative				
Number of total CCME scientists establishing research collaborations with NOAA specialists and scientists	Research	3.1	2a,b,c	Summative				
Number of CCME faculty and staff who publish their NOAA mission-related research findings in peer-reviewed journals	Educational Training	1.1	2a,b,c	Summative				
Number of CCME students who publish their NOAA mission-related research findings in peer-reviewed journals	Educational Training	1.1	2a,b,c	Summative				
Number of management and communication tools (models, datasets, etc.) developed in alignment to CCME sponsored research	Personnel	2.1	1a	Summative				
Number of citations referencing use of CCME developed tools	Personnel	1.1	2a,b,c	Summative				
Number of citations referencing CCME sponsored research or publications	Personnel	1.1	2a,b,c b	Summative				
Number of CCME students, staff, or faculty recognized nationally for NOAA-mission relevant research	Personnel	3.1	2a,b,c	Summative				
Total number of NOAA mission-related research projects conducted by CCME scientists	Personnel	3.1	2b	Summative				

Mean Effectiveness Score (Goal 2) =								
Goal 3- Develop competencies and skills in the utilization of new and existing "big data" archives in decision support tools that promote the vibrancy of coastal and marine ecosystems.								
Performance Indicator	**Strategic Plan Performance Objectives**		**CCME Project Goals**	**Measure Type**	**Baselines**	**Target**	**Current Performance level**	**Evaluation Score**
	Objective	**Number**						
Number of student participating in the CCME Big Data Bootcamp	Personnel	2.1	3a	Summative				
Percentage of students demonstrating learning gains as a result of CCME training relative to the use of NOAA large data sets	Personnel	2.1	3a	Summative				
Number of CCME submissions of new data to enhance NOAA-relevant data sets	Personnel	2.3	3a	Summative				
Number of CCME sponsored research project that make use of NOAA large data sets	Personnel	2.1	3b	Summative				
Number of CCME sponsored authorized users of NOAA-related databases	Personnel	2.1	3b	Summative				
Number of NOAA scientists and managers engaged in CCME large data projects	Research	3.1	1.d	Summative				
Mean Effectiveness Score (Goal 3) =								
CCME Overall Impact Indicators								
Performance Indicator	**Strategic Plan Performance Objectives**		**CCME Project Goals**	**Measure Type**	**Baselines**	**Target**	**Current Performance level**	**Evaluation Score**
	Objective	**Number**						
Number of CCME-funded post-secondary students who are trained and graduate in NOAA mission-related sciences	Educational Training	2.2	1a	Summative				

Number of CCME-funded post-secondary underrepresented minority students who are trained and graduate in NOAA-mission sciences	Educational Training	2.2	1a	Summative				
Number of CCME graduates hired by NOAA, NOAA contractors, NOAA partners, or resource management agencies, or academia or as entrepreneurs	Educational Training	2.4	1b	Summative				
Number of CCME graduates who participate in and complete NOAA mission-related post-doctoral level programs	Educational Training	2.4	1b	Summative				
Number of scholarly publications (peer-reviewed, reports to community groups and coastal decision-makers) and presentations (scientific, agency, inter-agency, local)	Personnel	1.1	1b	Summative				
Funds leveraged with NOAA EPP award (including post-secondary support)	Research	2.1		Summative				
Total number of NOAA mission-related research projects conducted by CCME scientists	Personnel	3.1	2b	Summative				
Number of CCME research projects, theses, and dissertations that include human dimension components	Personnel	3.1	2a,b,c	Summative				
Number of CCME students that have research projects, theses, and dissertations committees that include social scientists	Personnel	3.1	2a,b,c	Summative				
Number of research collaborations with NOAA and CCME student, faculty, and staff	Research	3.1	2a	Summative				
Number of partnerships established and maintained in support of NOAA's mission	Research	3.2	2b	Summative				

Number of NOAA scientists and experts working in collaboration with CCME students and faculty	Research	3.1	1d	Summative				
Mean Effectiveness Score (CCME Overall Impact) =								
OVERALL MEAN EFFECTIVENESS SCORE =								

EVALUATION APPENDIX 2: CCME Evaluation Activity Timeline

Evaluation Activity		Project Year 1				Project Year 2				Project Year 3				Project Year 4				Project Year 5				Closeout
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Planning	CMT Evaluation Planning and Update Conference Call			X	X	X		X		X		X		X		X		X		X		
	Review/Revise Logic Model			X						X												
	Review/Revise CCME Comprehensive Evaluation Plan			X						X								X				
	Develop Focus Group Protocol				X								X									
	Draft Perception Surveys				X								X									
	Internal Evaluation Team Conference Call			X	X		X		X		X		X		X		X		X			
Site Visits	Review/Refine Site Visit Protocol			X	X																	
	Site 1 Site Monitoring Report Due to Evaluator				X				X				X				X				X	
	Site 1 On-site Visit				X				X				X				X				X	
	Site 2 Site Monitoring Report Due to Evaluator				X				X				X				X				X	
	Site 2 On-site Visit				X				X				X				X				X	
	Site 3 Site Monitoring Report Due to Evaluator				X				X				X				X				X	
	Site 3 On-site Visit				X				X				X				X				X	
	Site 4 Site Monitoring Report Due to Evaluator					X					X				X				X			
	Site 4 On-site Visit					X					X				X				X			
	Site 5 Site Monitoring Report Due to Evaluator					X					X				X				X			
	Site 5 On-site Visit					X					X				X				X			
	Site 6 Site Monitoring Report Due to Evaluator					X					X				X				X			
	Site 6 On-site Visit					X					X				X				X			

Perception Data	Distribution of CCME Student Survey			X				X				X				X				X		
	Distribution of CCME Faculty/Staff Survey			X				X				X				X				X		
	Distribution of CCME Administrative Questionnaire					X				X				X				X				
	Conduct CCME Student Focus Group Discussion				X				X				X				X				X	
	Conduct CCME Faculty Focus Group Discussion				X				X				X				X				X	
Reporting	CCME Mid-Year Status Report Due to Evaluator						X				X				X				X			
	Submission of Mid-Year Evaluation Report							X				X				X				X		
	CCME Annual Status Report Due to Evaluator				X				X				X				X				X	
	Submission of Annual Evaluation Report to CMT					X				X				X				X				X
	2-Day Annual Evaluation Meeting with CMT and Lead PIs					X				X				X				X				
	Focus Area Progress Report Due to Evaluator						X						X								X	
	Submission of Interim 3rd-Year Evaluation Report														X							
	Submission of Summative 5th Year Evaluation Report																					X

Appendix D: CCME Scholar CHOW Summaries

CHOW Experience, NOAA CCME Graduate Scholar Samuel Mwenda

Attending the 2018 Capitol Hill Ocean Week (CHOW) conference representing the Center for Coastal and Marine Ecosystems (CCME) was an honor as well as an enlightening experience. The speakers, panels, and sessions sought to bring to the fore every pertinent topic relating to oceans. Convened by the National Marine Sanctuary Foundation, the theme this year was focused more on how innovative partnerships lead to more effective change. From media to private equity firms, the core principle was initiating conversations that lead to policy results. Held from the 5th to the 7th of June, this year was the first that separate multiple sessions occurred concurrently. This enabled participants to attend focal areas of importance to current or future research as well as make connections to leaders in the field.

Arriving the first day, the conference began with opening remarks from the president of the foundation Kris Sarri. She spoke of how important it is in these times to persuade politicians and pursue policies that replenishes natural resources in oceans. Ms. Sarri also elaborated on how conferences such as CHOW paved the way to helpful legislation by bringing together scientists, policy makers, industry, and the general public. After her remarks, Julie Lawson a representative for the District of Columbia (D.C.) Mayor's office presented Ms. Sarri with a decree declaring June 5th Ocean Day. She then proceeded to speak, illuminating how the Mayor's administration was committed to marine issues through various projects conducted around the city.

The first panel was centered on media as it brought together producers and influencers. Common themes that were transferrable across various fields included personalization, accessibility, and comedy. These not only capture the intended audience through intimate connections but then achieve the intended goal by education of the issues. They ended by stating that the best way to move policy forward from its current state was to bridge differing opinions from various stakeholders. The first session attended was adaptive management for shifting populations which were sponsored by the International Fund for Animal Welfare. Most of the conversation centered around wild and fishery population in the Northeast as well as the Mid-Atlantic. Congresswoman Pingree discussed problems her home state of Maine, where the lobster industry is a $1-billion-dollar market. Warming waters resulting from climate change forces marine populations to move further north which impact the economic vitality of coastal communities. Additionally, this burdened neighboring states, who had to adjust to shifting populations not originally native to those areas. Recommendations included comprehensive management in all relevant scales from local entities to national bodies.

During lunch the group met and had the opportunity to converse with Dr. Christopher Moses as well as Dr. Steven Thur. The conversation turned to what each scientist did at the National Oceanic and Atmospheric Administration ((NOAA) and how they ended up in their positions. Advice on how to market ourselves and offering realistic expectations about working with the agency, dominated the conversation during lunchtime. Both inquired about the nature of our research and what we wanted to do with it in the future which tied into our career goals.

The group attended the keynote address immediately after lunch. The speaker was the director of NOAA, retired U.S. Rear Admiral Dr. Tim Gallaudet. The speech covered potential impacts of climate change as well as the economic benefits of protecting marine and estuarine areas. Benefits include more food, increased trade, and healthier ecosystems. The majority of the time was spent touting how the administration was a strong partner in shoring up dollars for conservation/protection efforts.

Subsequently, I ambled to the next session that discussed cultural connections and the environment. The session started off defining what culture meant to each of the panelists. The most interesting interpretation to me stated that culture meant empowerment and involved the power of storytelling. The values associated with culture need to be able to adapt in a rapidly changing environment. Recommendations on how to efficiently stitch culture and the environment included working with the youth to shape their ideals. By helping them forge a connection to the environment, the new generation when in power will be informed by their values as they decide policy. It was described as using the most important resource to protect our most endangered resource. Other recommendations included finding new ways to transmit information and harnessing local knowledge to greater effect. Midway through, the panel was interrupted by a member of congress coming to discuss his platform and how that related to culture. The main takeaway was that unlike most policymakers, he made an effort to consider disproportionate effects to underserved communities.

The next day, the session selected was the Gulf Coast Restoration panel. Most of the discussion centered on how to remedy the effects being felt and mitigate the damage currently occurring. Conserving and restoring wetlands damaged by dredging was a big topic. Millions of acres continue to be lost as sediments and silt do not accrue quickly enough. The accretion process had been impacted due to modified hydrological patterns. By extension, the frequent flooding combined with climate change have irrevocably altered the way of life for numerous communities, many indigenous along the coast. Additionally, the probability of stronger storms due to warmer oceans also was broached. The case study was Houston. Katrina was introduced as a catalyst for change and panelists discussed what they took away from that event. The state that everyone focused on was Louisiana.

Following that I attended the Market Based Solutions sessions. I expected more out of the session than I thought I received. The two panelists I gravitated to were the representative from Sea World and the entrepreneur. Those two gave the most cogent answers in my opinion. Ms. Flumerfelt from the Monterey Fisheries Trust had very good insight when it came to public-private partnerships, however the other two gave examples of possible market bases solution from their experience.

During the course of the conference Dr. Moses introduced us to so many NOAA employees and affiliates. We met two former sea grant fellows, one of whom was also a Knauss fellow. There was an opportunity to meet several scientists as well as groups from Florida such as the Scubanauts. The last day was where everything came to fruition. We employed the tactics taught to us to cajole and persuade congressional staffers while also making contacts with fellow environmental groups. Everyone attended Hill Day where we listened to a quick panel from activists on how to capture and retain the attention of congressional staffers. We practiced our two-minute pitches and then thrusted into the unknown. First, we traveled to the office of

Senator Marco Rubio where we conversed with his page assigned to environmental issues. It went fairly well. He mentioned specific policies that either Sen. Rubio had crafted or supported that showed his commitment to the environment. Following that meeting we met with a staffer from the office of Senator Feinstein who didn't really give specifics on what legislation that either they sponsored or supported. The best meeting that we had as a group probably came with staffers representing Senator Wicker from Mississippi. They were engaged and passionate about the ocean especially considering the state borders the Gulf of Mexico. We also spoke with staffers representing Senators Ted Cruz & Kamala Harris.

Overall, the event was entertaining, informative, and rewarding. It was heartwarming to meet so many people that were equally as passionate about marine issues as the CCME cohort. Moreover, it was amazing to talk with everyone at the booths that sacrificed their time to come and present. From the Department of the Interior, the National Oceanic and Atmospheric Administration (NOAA), and the Littoral Society, everyone was welcoming and gracious. My hope is that as NOAA CCME and the other NOAA CSCs grow that many more students will have the chance to experience our nation's capital as change agents and future scientists.

CHOW Experience, NOAA CCME Graduate Scholar Taylor Eddy

Capitol Hill Ocean Week (CHOW) was very educational and helped me develop my networking skills. Throughout the conference there were many opportunities to speak with many people in different fields within marine science including policy makers, environmental agencies, and activists. I have never been to a policy-centered conference and before doing research prior to the conference, I expected it to be mostly science-based talks about policy, but I was excited to see that there was quite a diverse group of speakers that would attend. The talks ranged from science-based policy, to things like how to use art to communicate science.

The first day of CHOW started with a panel of distinguished artists and conservationists including Mark Brownlow from BBC's Blue Planet II, Asher Jay who is a 'Creative Conservationist', John Tartaglia creator of Splash and Bubbles, and Jim Toomey creator of 'Sherman's Lagoon'. This panel discussed how to best communicate scientific issues to the public. Having just taken a course in scientific communication, I was able to relate what I learned in that class to what the speakers were talking about. Both the course and the talk emphasized the importance of making a connection to your audience. In the talk, Asher Jay summarized it very well saying you must speak to the public's emotions. If you can get them to feel something, to make that emotional connection, they will be receptive to the message you are conveying. In Blue Planet II, Brownlow uses footage of mother and child walruses to show the effect of global warming. Most of the public can relate to the relationship between parent and offspring, and he uses this emotion to convey the urgency of the issues.

The second session was a breakout session where attendees could choose from three different panels to attend. This was a new addition to CHOW this year, and I believe it was a great idea. It allowed us to tailor the conference to what we are most interested in and get the most out of the conference. I attended the panel titled "Adaptive Management for Shifting Populations". This was the most relevant to my thesis which relates to the efficiency of Marine Protected Areas. They discussed how, as the ocean is warming, there is a shift in species ranges. With these changes, fishermen are finding species that they don't have permits to catch, and they

can't fill their catch quotas. The panelists discussed different approaches to consider when managing species as their ranges shift. It was very informative and interesting to hear the innovative ways being considered to manage the species.

During our lunch break, we had the pleasure of meeting with Dr. Chris Moses from OAR and Dr. Steve Thur from NOS. We were able to discuss how to take advantage of networking opportunities, how to navigate finding jobs within NOAA, and their own paths of how they got to where they are today. Dr. Moses and Dr. Thur introduced us to various people within NOAA as well as some current and former Sea Grant fellows.

We started the second half of the day hearing from RDML Timothy Gallaudet about how NOAA will support the ocean economy. After that, there was another break out session, in which I attended the talk about offshore aquaculture. It was interesting to hear from people that were business majors, that learned about how important the ocean is for providing protein to the world, and they developed businesses from this idea. We heard about their path to where they are now, and the challenges they faced with their aquaculture businesses. They do believe that businesses like these offshore aquaculture farms will be the future of fish and no matter how many obstacles they ran into, they kept going because they knew there would be a great payoff in the long run.

The second day was filled with more great sessions, including "The Value of Protected Places" which was my favorite session of the week. In this one, the panelists discussed how to put a value on a protected place. The panel was comprised of speakers from many different backgrounds, including a catch-and-release fishing boat captain, the outdoor programs manager of REI, the co-founder of a non-profit where Special Ops veterans help with coral reef restoration, and the director of Sound Seas. With the different backgrounds came different perspectives of how valuable our world's protected areas are, and it made for a lively discussion. It is impossible to put a dollar value on protected areas because they offer so much more than just economic gain. Every person that goes outside and truly experiences these protected areas makes a new connection, and they can share these stories and experiences with their friends now, as well as with future generations. The goal of protected areas should be to preserve a variety of different and diverse ecosystems for the future generations to be able to tell their own stories of the natural world.

The last day of the conference was the first "Hill Day" where we were encouraged to meet with our senators and representatives. This was the first time CHOW had facilitated this kind of event and from what I saw, it seemed to be a great success. We started off the morning in a discussion about how to approach a meeting with a member of congress and some talking points to discuss. This was very helpful as I have not had the opportunity to formally discuss policy at the Hill, and I had no idea where to start. We practiced our talking points with our table mates which made me less apprehensive to meet with my senators. For the NOAA CCME students that could make it, we found each of our states senate offices. We were able to have group discussions with a few of our senator's aides that handle ocean policy. As the day went on and we had a chance to practice our talk and hear our peers lead their discussions with the aides, it got easier and felt more natural. Being from California, I was able to talk to one of Dianne Feinstein's aides and she was very receptive, and eager to hear about my research. I specifically

discussed how some upcoming legislature about marine protected areas will have ecological and economic effects in the very near future if passed.

Overall, this was a very different kind of conference from what I have previously experienced, and I felt I was able to further develop my networking skills, and I learned a lot about the world of ocean policy. Having the opportunity to attend this conference, especially being able to talk with the senate aides about ocean policy made me more confident in my place in the field of ocean science, and in my ability to understand and discuss ocean policy issues related to my work in a formal setting.

CHOW Experience, NOAA CCME Undergraduate Scholar Julian Venable

My experience at this year's Capitol Hill Ocean Week (CHOW) was both intriguing and exciting. Throughout my first year with NOAA CCME, I have obtained remarkable networking opportunities and learning experiences. As a first year PhD student, it was indeed a pleasure to attend CHOW in Washington, D.C. Without a doubt, attending this conference is certainly one of my greatest achievements. I was able to hear many viewpoints about ocean pollutions and the many ways to solve these problems. As an Environmental Science PhD student at Jackson State University working with microplastics, I found the seminars to be very beneficial regarding my research interest.

On the first day of the conference, I had the pleasure of meeting two of NOAA CCME Technical Monitors, Dr. Chris Moses of NOAA Oceanic and Atmospheric Research (OAR) and Dr. Steve Thur, Director of National Center for Coastal Ocean Science (NCCOS/NOS). We discussed our interest in the marine sanctuaries and how my research at Jackson State University is helping with NOAA's mission. While speaking with Dr. Thur, I informed him that my research interest deals with microplastics in the oceans and he was able to put me in contact with a chief scientist in NOAA's Marine Debris program. The networking opportunities were priceless!

After meeting with both Dr. Thur and Dr. Moses, I attended a panel discussion titled, "Igniting Ocean Conservation through Media and Art", which gave me a deeper understanding of ocean conservations. It centered around increasing the audiences understanding of the oceans and how the environment is affected. Additionally, John Tartaglia, an actor-puppeteer from the children's show, "Splash and Bubbles", discussed why he chose to gear his message towards elementary students. Mr. Tartaglia voiced that he believes it is better to start exposing children to the oceans while they are young. He stressed how a lot of sea creatures go unnoticed in the world even though they play an integral role in the oceans. Another speaker who sparked my interest was a creative conservationist, Asher Jay. She uses visual media through her artwork to ignite one's interest in marine science. I think this is wonderful because some people are visual learners. Ms. Jay has been successful with changing society's viewpoints on sea creatures and on pollution within the environment.

On the second day of the CHOW conference, I chose to attend "The Gulf Coast Restoration" because my research focuses on microplastics and is based in the Gulf of Mexico. I was interested in learning about the Gulf of Mexico's ecosystem and the connection between natural disasters and rebuilding natural coastal barriers. Afterwards, I visited discussion tables and engaged in conversations with various agencies regarding how to protect ocean life. Each agency representative distributed flyers and packets summarizing the objectives of their agency.

On the last day, my fellow NOAA CCME Scholars and I, went to Capitol Hill to speak with our State Representatives and Senators. We went to the locations of our state Senators to discuss our concerns about the oceans and what is being done to solve the issues at hand. Even though our Senators were absent due to meetings, we were still able to speak with their aides who assured us that our message would be on the desk of the Senators once their meetings concluded. CHOW was such an awesome experience for me and I am honored to have been chosen to attend this conference!

CHOW Experience, NOAA CCME Graduate Scholar Margarette Bayron-Arcelay

In Spring 2018, I was admitted into the Ph.D. program in Environmental Science at Florida A&M University (FAMU) and awarded the NOAA CCME Fellowship. The NOAA CCME program has offered me tremendous opportunities for me to grow as a graduate student and a professional. One of the many opportunities was letting me participate in the Capitol Hill Ocean Week (CHOW), 2018. This event included panels on various topics related to pressing ocean issues shared by experts and opinion leaders across the country and around the world. These panels were divided into four topics: Vision for Our Oceans and Great Lakes, Restoration of Marine and Great Lake Ecosystems, Our Changing Ocean and Working Together for Sustainable Waters.

During the CHOW, I attended various panels within these four topics. Given that these panels were composed of people with different backgrounds (i.e., activists, civilians, policy makers, scientists, among others), it gave me insight on the different points of view that exist on important ocean issues. For instance, in the panel, "Igniting Ocean Conservation through Media Art", we heard how a series producer, a creative conservationist, an actor-puppeteer and a cartoonist engage the public (i.e., non-scientific community) to create awareness of marine conservation. Each one of them engages the public differently based on their professional background; the creative conservationist takes real-time picture of important issues regarding ocean conservation (i.e., overfishing) and integrates it with culturally popular icons to make a connection with the public and create awareness. All the panels, during the CHOW follow the same dynamic.

As a student scientist, hearing viewpoints of different professionals on several topics makes you aware of other important factors that may be passed unnoticed such as connecting with the community in your research area. For instance, in the panel, "The Value of Protected Places" we could understand that conserving a place is not only important for the sake of a rare species, but protected places can also have a special significance and great value to societies, ecologically, economically and culturally. Thus, both the organisms that live within the ecosystem and the human community around it are important factors to consider when talking about protected areas.

In addition, to being able to hear different points of view from different professionals about pressing ocean issues, attending the CHOW also gave me the opportunity to network with different important agencies such as the Environmental Protection Agency (EPA) and U.S. government officials. During my navigation through the booths, I was able to exchange emails and establish professional connections that will help me in the present and future endeavors. Overall, CHOW was an excellent learning and professional growth opportunity.

CHOW Experience, NOAA CCME Graduate Scholar Meghan Martinez

CHOW was my first policy-oriented conference, and it was an exciting opportunity to be chosen from my institution to attend the event. There were familiar faces from the Center of Coastal and Marine Ecosystems (CCME), as well as attendees from this year's National Oceanic and Atmospheric Administration (NOAA) Educational Partnership Program (EPP) Forum, such as keynote speaker, RDML Tim Gallaudet who presented the administration's priorities to support our "blue" economy at CHOW. These included goals such as the contribution to doubling the current economic contributions of the U.S. economy over the next decade via sea food production, competitiveness, and sustainability, maritime vessel safety and efficiency to bolster commerce, making maps of the ocean floor available to private industry for exploration, development of renewable and nonrenewable offshore energy sources, and the increase of ecotourism and outdoor recreation.

The sessions that were presented at the conference were both informative and thoughtful in the panelists that were chosen to bring insight and perspective into the varying marine issues that we are facing, both as a nation and globally. This included universal themes such as conservation of marine resources in the face of climate change and increasing populations. I attended sessions that were applicable to my research and interests such as the 'Gulf Coast Restoration', that addressed how restorative efforts, ecosystem services, and social-behavioral-economic information may be used to improve management of our ecosystem's resources. I also attended sessions whose topics were less familiar to me and yet proved to be inspiring, such as the 'Igniting Ocean and Conservation through Media and Art' where the focus was education and outreach for the public through diverse forms of visual media. The breakout sessions were a great way to meet new people and keep the discussion's going after an interesting session. We met with the Director of the National Centers for Coastal Ocean Science (NCCOS), Dr. Steve Thur, as well as Dr. Christopher Moses of the Office of Oceanic and Atmospheric Research (OAR). We were introduced to Jonathan Pennock, the Director of the National Sea Grant College Program, John Armor, the Director of Office of National Marine Sanctuaries, as well as Knauss and Sea Grant fellows. I also networked and exchanged business cards with people that represented different agencies/organizations and interests during the entirety of the conference.

During the last day of the event, 'Hill Day', we had the opportunity to meet with the staff of our U.S. State Senators and voice our concerns and encourage continued support for both the national and local environmental issues that are important for marine and Great Lakes policy and conservation efforts. The CCME cohort decided to represent the center with unity, by approaching the offices of our respective U.S. Senators (Ted Cruz & John Cornyn for the state of Texas) as a group. We visited various Senate office buildings and met with the staff of the state's our group represented (Texas, California, Mississippi, Florida). The conversations that took place with every office and staff member proved to be interactive and well-received with genuine interest in the priorities and issues that were addressed during CHOW. During my free time, I travelled around the D.C. area and visited the National Museum of Natural History, and the Smithsonian National Zoo, which were both enriching cultural experiences.

Overall, this event highlighted the importance of establishing and maintaining relationships of those around us, because so much more can be accomplished when we work together to come up with solutions for real issues. Both policy and scientific research must work

hand-in-hand to bring about the improvements we are seeking to make for the conservation of our resources, economic development, and scientific advancement. We also need to continue the dialogue with our local government and continue to push for the changes we wish to see within our communities. I am grateful for the experience as well as the opportunity to represent the NOAA CCME and Texas A&M University - Corpus Christi at this national event.

CHOW Experience, NOAA CCME Graduate Scholar Abraham DaSilvio

Capitol Hill Ocean Week was a great experience. We got to observe, listen to, and speak with policymakers, environmentalists, conservationists, and other groups who directly affect changes to marine and coastal policy. This conference was much different from others that I have attended in the past because it was not strictly a scientific conference. I found the CHOW conference to be valuable because the members of these different stakeholders/interest groups were all together in the same place, discussing the same issues from their own perspectives. When all interested parties have a chance to voice their opinions and concerns on issues meaningful change can be brought about. To me, the common thread throughout the conference was participation of stakeholders as well as cooperation among stakeholders, to set and then meet (marine and coastal) policy goals. I enjoyed the style in which most of the sessions were held; most were a panelist-discussion with a moderator(s). This again, points back to that common theme of stakeholders being involved in the issues and having open dialogue with one another and through that dialogue, progressive policies and practices may emerge. Most of the sessions also had reserved time at the end where the audience was able to ask questions in a no holds barred fashion (again, demonstrating the involvement of *all/most* stakeholders in the shaping of practices and policy). Aside from the sessions, the panelists and speakers were all available for questions and conversation with attendees at any time during the conference.

The sessions I attended were all interesting and engaging. The format encouraged participation and sessions weren't a series of monotonous lectures; there were multiple panelists, each with a career in an industry in/linked to/connected to/or affected by the ocean and marine/coastal policy. The opening day's first session featured panelists: from the series producer of Blue Planet II, a creative conservationist, a cartoonist, and an actor/puppeteer. This was the session I was looking forward to the most and ended up being my favorite session at the conference. Panelists throughout the conference were involved in: media (BBC Blue Planet Documentary director), fishing (commercial fisherman), ocean conservation, education, research, politics (elected official from Maine), technology etc. This is what I enjoyed most, the variety of the groups that were represented at and participated in this conference. The diversity of these groups further demonstrates that ocean practices and policies affect a wide array of people and industries. The takeaways from CHOW are: practices and policies are affected by and shaped by the *participating* stakeholders; for policies to be as progressive and *inclusive* as possible stakeholders need to share information, and perceptions of an issue as well as having dialogue with other stakeholder groups.

CHOW Experience, NOAA CCME Graduate Scholar Anthony Lima

I have had nothing but positive experiences throughout my time as a NOAA CCME Scholar. The opportunity to visit D.C. for Capitol Hill Ocean Week (CHOW) was no different. CHOW offered several opportunities to network and explore with marine scientists, environmentalists, policy makers, and activists. The engagement with these sources offered new insight into technical aspects of science, but also brought new perspectives in professional and career options that I was unaware of. The diversity of speakers was incredibly impactful. While I was expecting mostly natural scientists to be present, I was delighted to see a cast that included animators, artists, and even cartoonists. It became apparent quickly that CHOW encompassed critical decision-making with sound science, but also relationships between people and their natural environment.

Navigating CHOW, D.C., and logistical information was very simple, as Dr. Pitter and other CCME leaders communicated excellently through e-mail and teleconference to all participants. Previous CCME functions have allowed for students to network and familiarize ourselves with each other and began to network with their connections as well. This allowed myself and other students to have a productive and efficient first day of CHOW. The first presentation "Igniting Ocean Conservation through Media and Art" brought together all CHOW attendees for a presentation and discussion with artists who use various methods of communication to convey messages about coastal and ocean systems. This presentation dealt with the important role of science communication to a wide range of audiences, and through various styles. Science communication is an issue that we have discussed many times at the University of Texas Rio Grande Valley, but there was a different perspective to see those who focus almost solely on communication and conservation. This presentation also touched upon management in the future, and how children today will be the ones making decisions in the future.

For the second presentation of the first day, participants were able to choose between three different tracks. This allowed CCME scholars the option to explore topics they may not be familiar with or pursue a topic that compliments their research. I chose to review a topic that I am currently working on, adaptive management and fishery governance, but this time focused away from my research in the Gulf of Mexico and toward the northeast fishery. This was an excellent opportunity, especially as my NERTO is in the Northeast Fishery Science Center in Woods Hole, MA. Two different opportunities as a CCME scholar converged (CHOW and NERTO), gave me an incredible chance to gain the perspectives of experts I would not have the ability to meet otherwise. I was able to hear concerns and opinions of scientists and policy makers in the region, as well as pose questions and meet them individually after. Only with the CCME support would I have been able to engage with these experts and seek there scientific and professional advice.

Several fantastic presentations were given the second day as well. I was very pleased to hear discussions aimed at my research topics, especially "Gulf Coast Restoration" and "Restoring American Fisheries: The Magnuson-Stevens Act." It was also beneficial to interact with individuals who are also connected to NOAA CCME, such as Dr. David Yoskowitz who is Associate Director of the Harte Research Institute, and an advisor to several CCME students at the Texas A&M University Corpus Christi. Many of the presenters are people who have

incredible knowledge and experience about the Gulf of Mexico fishery management network that I am studying. Everyone who I approached after their portion of the presentation was also eager to hear from CCME scholars, and to offer opinions and expertise to aid them. I made several professional contacts during CHOW and with the CCME program, and I am extremely thankful for the guidance that they offer.

Due to limited flight options and logistics, I was unable to attend the final day of CHOW, Hill Day. However, I heard from other CCME scholars that the day was unique compared to the first and second. Hill Day was an event that allowed students to analyze some of the environmental and fishery politics and concerns in a new way. The entirety of CHOW was a phenomenal learning and network experience, and I am grateful for the opportunity that NOAA has provided to so many students. I hope to continue my association with NOAA in the future as a PhD student and eventually as an employee with NMFS.

CHOW Experience, NOAA CCME Graduate Scholar Prian Vidal

As a NOAA CCME Graduate Scholar, I had the opportunity to visit D.C. and attend Capital Hill Ocean Week (CHOW), 2018. I was able to listen to various individuals, respected in their fields, from academia to industry, and so many others. I was expecting to sit in various panel discussions of environmental scientists, but it was engaging to have a number of speakers outside my familiar sphere of applied science, such as documentary producers and fishery aqua-culturalists. It was engaging to hear various conservationists discuss difficulties in educating the public, natural scientists addressing anthropogenic impacts on the environment, and policy makers highlighting the relationship between the public and our natural resources. To say the least, it was an enlightening experience. Bringing together these individuals from various backgrounds, got the message across just how important our ocean, coastal, and Great Lakes resources are.

"Igniting Ocean Conservation through Media and Art" was a wonderful panel discussion to kick off CHOW 2018. CHOW attendees participated in a panel discussion of how various media platforms and art can be used to stimulate public thinking and cultivate an emotional connection between the public and marine conservation. I found this discussion most intriguing. The speakers were well prepared and delivered thought provoking responses to audience questions. This Fall my colleagues and I plan to volunteer with a local environmental organization in Tallahassee, FL to help educate the public of the impact that single use plastics have on the marine environment. I hope to rely on visual presentations such as animated clips to show students at various academic institutions the cycle of single-use plastics from their soda to the ocean. This panel discussion alone made me realize that the public is made up of individuals and we each learn or impacted differently from one another. It is to my benefit as an environmental student/researcher to learn how to engage my audience through various media platforms to address ocean and coastal issues, such as marine debris.

After this introduction, CHOW attendees could choose from one of three tracks. I chose the track "Working Together for Sustainable Waters." The first panel discussion emphasized how modern tools e.g. artificial intelligence and machine learning can be employed across industry and academia to address ocean and Great Lakes resource conservation and management. This discussion provided insight into tools and aspects I could apply to my own research. I am currently studying nitrogen transformations related to shellfish aquaculture in the Florida

Panhandle. Native oyster populations have decreased significantly due to low freshwater inputs in Apalachicola Bay. However, shellfish aquaculture off the coast of Panacea, FL has increased to meet consumer demands. Through my field work and research, I learned the importance of proper management of our coastal and marine ecosystems to provide a sustainable food supply as the U.S. and global population continues to grow.

I enjoyed listening to the next panel "The Rewards and Risks of Ocean Farming." One panelist in particular caught my ear, Omar Alfi, co-CEO of Pacifico Aquaculture. He described many of the challenges that finfish aquaculturalists face, such as day-to-day business operations, technology, and financial investments, as well as risks. However, he also spoke of his accomplishments, alongside his partner, of getting the operation off the ground, providing more than 100 jobs, and the sustainability standards and management practices associated with their business after five years in operation. At a time when the U.S. and the globe are exploring methods to increase food security, finfish as well as shellfish aquaculture have the potential to produce a sustainable food supply, while maintaining eco-friendly conservation practices.

During my first day at CHOW, it was a privilege meeting Dr. Chris Moses of OAR and Dr. Steve Thur of NCCOS/NOS. During lunch they were drilled with questions from my NOAA CCME cohort. They were a reservoir of knowledge and more than willing to impart their information and advice. They provided invaluable insight into a career with NOAA. They mentioned that many individuals start their career with NOAA as contractors.

During day 2 of CHOW, I chose to attend the Gulf Coast Restoration and Restoring American Fisheries presentations. I have an affinity for the Gulf of Mexico, whether recreational fishing, swimming, or sampling that there was no choice, but to attend. The first presentation emphasized the complexity of the Gulf and how our dependence and impact on it as a resource and an ecosystem should continue to push us to further understand our relationship with it and enhance conservation measures. The second presentation had various industry leaders and experts discuss the role of the Magnuson-Stevens Act on fishery restoration and conservation from its passage to today. My flight departed Thursday June 7, 2018, therefore, I was unable to attend Hill Day, but my overall experience at CHOW was unforgettable.

INTENTIONAL BLANK PAGE

VIII. Financial Information

1. Total NOAA funding breakout

FY 16 Award Center base funds: Indicate how funds were used for the reporting period, using award budget categories to provide detailed information for reporting period. Unobligated balances will be compared with SF 425 reporting.

Partner Institution	Year 1 Funding	Year 2 Funding	Current Value	Invoiced Amount	Balance	End Date
Bethune-Cookman University	$170,129.12	$186,383.00	$356,512.12	$232,123.21	$124,388.91	8/31/19
Jackson State University	$257,844.00	$274,399.00	$532,243.00	$308,090.87	$224,152.13	8/31/19
Texas A&M University	$665,133.00	$667,782.00	$1,332,915.00	$812,928.87	$519,986.13	8/31/19
University Corporation at Monterey Bay	$211,706.00	$208,342.00	$420,048.00	$261,143.45	$158,904.55	8/31/19
University of Texas Rio Grande Valley	$432,331.00	$444,102.00	$876,433.00	$590,932.74	$285,500.26	8/31/19
TOTAL	**$1,737,143.12**	**$1,781,008.00**	**$3,518,151.12**	**$2,205,219.14**	**$1,312,931.98**	

Postsecondary Direct Student Support: $587,779

Collaborative Research:

2. Total leverage funding breakout

Indicate funding source, type (grant or contract), amount, Center PI, project title; and, how funding contributed to the FY 16 Center award for:

Postsecondary Student Support:

a. Dr. Yoskowitz's proposal entitled "Ecological Effects of Sea Level Rise (EESLR) Program", funded in the amount of $120,000, will provide outputs that student Diana Del Angel will use for her dissertation.
b. Richard McLaughlin received a National Academy of Science award in the amount of $164,336 entitled "Gulf of Mexico Student Workshop on International Marine Management". The grant funds U.S./Mexican/Cuban students to study and train together on a coastal resiliency topic in Cuba. CCME student Diana Del Angel will participate in the workshop.
c. Montagna, P., TAMUCC, "Using Comparative Long-term Benthic Data for Adaptive Management of Freshwater Inflow to Three Basins," Texas Water Development Board. $135,000. 2018-2019. *Supports data collection for doctoral student studies, and advances focus on coastal intelligence.
d. Wetz, M.S., TAMUCC**,** "Influence of freshwater inflow gradients on estuarine nutrient-phytoplankton dynamics", *awarded* by Texas Water Development Board. $100,000. 2018-2019. *Supports data collections that will be used by CCME CI student Lily Walker in her dissertation
e. Wetz, M.S., TAMUCC**,** "Baffin Bay water quality study", *awarded* by Celanese Corporation. $150,000. 2018-2021. *Supports data collections that will be used by CCME CI student Lily Walker in her dissertation

Total leveraged funding for reporting period: $669,336

Collaborative Research: