

NOAA CENTER FOR COASTAL AND MARINE ECOSYSTEMS (CCME)

Semi-Annual Performance Report for
Award Number NA16SEC4810009
Reporting Period: September 1, 2018 – February 28, 2019

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)

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

Acronyms and Abbreviations	3
I. Accomplishments	9
Major Activities:	9
Specific Objectives:	9
Significant Results: See Executive Summary	11
Coastal Resilience Summary	11
Coastal Intelligence Summary	16
Place-based Conservation Summary	19
II. Products of Award	22
III. Participants in Award Performance	33
V. Impacts of Award	38
VI. Changes / Challenges	39
VII. Special Award Conditions	39
Current tools in development:	47
Appendix A: Summary Tables	1
Appendix B: Advisory Boards	13
Appendix C: Evaluation Summary	18
Appendix D: CCME Scholar CHOW Summaries	27
VIII. Financial Information	38
<u>List of Tables</u>	
<i>Table 1: Faculty Publications</i>	23
<i>Table 2: Student Presentations</i>	25
<i>Table 3: Faculty Presentations</i>	28
<i>Table 4: CCME Award Participants</i>	33
<i>Table 5: Federal and State Collaborative Partners</i>	35
<i>Table 6: External Collaborative Partners</i>	36
<i>Table 7: NOAA Collaborative Partners</i>	37
<u>Appendix</u>	
<i>Appendix Table 1: Number of Funded Students - August 2018</i>	2
<i>Appendix Table 2: NOAA CCME Scholars</i>	3
	2

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 September 1, 2018 – February 28, 2019 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 63 students, 90% from underrepresented minority communities, across three cohorts. A total of

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

- CCME has graduated nine students (1 Transfer, 5 B.S. and 3 M.S.). During the reporting period CCME Graduate Scholar Anthony Lima graduated from the CCME UTRGV Master’s program and entered the CCME TAMUCC Doctoral program.
- CCME Graduate Scholar Mallory Brooks has been hired by NOAA as the Southeast Regional Office as the Fishery Ecosystem Plan (FEP) Coordinator at Caribbean Fishery Management Council as a result of her NERTO. This is a non-Federal contract position.
- CCME currently has a total of 63 active graduate and undergraduate scholars (5 community college transfers, 23 first time in college undergraduates, 24 Master’s students, and 11 PhD students).
- Five CCME Graduate Scholar NERTOs have been completed with NOAA researchers at AOML, SEFSC, the NMPAC and a National Marine Sanctuary (Fall 2018, Spring 2019).

Table 1: Number of Funded Students – Fall 2018 - March 2019

Institution	Transfer	Undergraduate	Master's	Doctoral	TOTALS
Cohort 1					
FAMU	0	7	3	0	10
B-CU	-	-	3	-	3

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

CSUMB	-	3	3	-	6
JSU	0	5	1	1	7
TAMU-CC	-	-	1	4	5
UTRGV	-	0	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	2	-	1	0	1
B-CU	-	-	-	-	0
CSUMB	-	3	2	-	5
JSU	0	1	0	-	1
TAMU-CC	-	-	0	1	0
UTRGV	-	3	3	-	6
TOTAL Active	5	22	25	12	63
Graduated	1	5	3	-	9

***Total active students reflects active students supported during the reporting period (August 31, 2018-February 28, 2019). During the reporting period four students graduated for a total of 9 NOAA CCME Graduates.**

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:

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

- o Coastal Resilience – NERTO and Thesis Defense 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

- o 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

- o Place-Based Conservation – NERTO and Thesis Defense 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

- CCME Science Advisory Council and Community Stakeholder Advisory Board members have enhanced participation in CCME activities through attendance of CCME monthly calls (Spring 2019).
- NOAA CCME conducted a site visit of CCME Partner Institution B-CU on February 20, 2019

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, 11 Master's students, and 2 PhD students – applications are currently under review.
- Recruitment efforts included a CCME booth at ASLO resulted in the collection of information for 30 potential CCME students.

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 participated 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.

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

- 16 CCME Graduate Scholars are expected to complete their NERTO requirements by the end of Year 3.
- CCME faculty and staff have submitted 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.

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 launched the online portion of the CWCC to occur at San Padre Island, TX May 19-24, 2019.

Key Personnel

- The NOAA CCME Data, Communication, and Information Manager has now joined the team. Mr. Kris Suchdeve joins us from Florida State University's Center for Ocean-Atmospheric Prediction studies where he served as the webmaster and dataset administrator.
- NOAA CCME Key Personnel hires are now complete.

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

NOAA CCME Focal Area Participants

Leadership

Center Director: Larry Robinson, Ph.D.
Associate Director: Michael Abazinge, Ph.D.
Assistant Director: Sharmini Pitter, Ph.D.
Distinguished Research Scientist: Steve Morey, Ph.D.
Data, Communication, and Information Manager: Kris Suchdeve

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

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

Focal Area Participants – Faculty

Coastal Intelligence:

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

Coastal Resilience:

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

Place-Based Conservation:

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

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

Focal Area Participants – Students (See Appendix Table 2)

I. Accomplishments

Major Activities: See Executive Summary

Significant Results: See Executive Summary

Key outcomes or other achievements: See Executive Summary

NOAA CCME Areas of Focus

Coastal Resilience Summary

The Coastal Resilience Focal Area (CR) has a total of 6 students from the six CCME institutions: 2 Ph.D. and 4 M.S. students. One student presented her research synopsis to the focal area faculty during the reporting period, 4 had done so in earlier reporting periods, and the newest student plans to present his synopsis in May 2019. The new synopsis was presented by TAMUCC Ph.D. student Mariana León-Pérez and was entitled “Vulnerability of Coastal Social-Ecological Systems to Sargassum Beaching Events”. It will study impacts of the massive increase in influx of pelagic Sargassum macroalgae accumulating along Caribbean coasts. The goal of this research is to develop a conceptual and operational framework encompassing preexisting social-ecological data as well as new data, to spatially characterize coastal social-ecological systems and subsequently identify, map and rank the vulnerability of those systems to Sargassum beaching events.

CR faculty reviewed the student synopses presented, provided valuable feedback, and approved them at the focal area level. The presented synopses were submitted to the CCME Management Team for review, feedback, and approval. Two students have completed a NERTO, one is conducting hers and will complete it March 29th, one is scheduled for summer of 2019, and two others are tentatively scheduled for 2020 or later. One MS student defended her thesis entitled “Disaster Coordination in the Rio Grande Valley” and graduated in December 2018. Her graduate advisor was Owen Temby, UTRGV. Currently, the focal area conducts monthly conference calls in conjunction with the PBC and the Social Science Committee. CR core competencies have been reviewed and approved. Modules and learning lectures for the 2019 virtual CWCC were prepared and uploaded to Blackboard.

CWCC

Dr. Temby, CR Chair, worked with his colleagues at UTRGV to develop a schedule for the CWCC. The course incorporates various training components that centers on a problem-based learning activity – this year focused around a proposed causeway project that would provide communities on a barrier island in South Texas an alternative route to the mainland. The causeway makes an interesting case for coastal resilience, providing a key escape route for communities while substantially damaging sensitive ecosystems, posing some interesting

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

community resilience and ecological considerations for student to grapple with. As part of the mock town hall meeting – the capstone event for the CWCC – students will assume various stakeholder roles, develop some recommendations, and present their cases.

CCME CR Competencies:

The CR worked with the CCME Education Expert and the External Evaluator to finalize 4 core competencies that are aligned with the CR objectives. Two of the 6 Social Science core competencies were adopted by the CR to further integrate social science across the Center. These 6 CR core competencies are associated with gaining critical skills needed for the NOAA-mission science workforce. They guide the development of training, including the CWCC curriculum, to ensure students receive training that is aligned with the CR objectives under this award. Coursework at the CCME partner institutions is also evaluated for alignment with CR core competencies and objectives as a means to evaluate student attainment.

CR Goals and Objectives:

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

1. Apply knowledge of natural and nature-based infrastructure to address issues of extreme weather events
2. Engage in community-based approaches for implementation of natural and nature-based infrastructure
3. Create a model for a community-based approach to assessing needs and implementing solutions for mitigation of impact from extreme events and sea level rise using natural and nature-based infrastructure
4. Develop tools for the assessment of natural and nature-based infrastructure in a selected variety of coastal ecosystem and communities for mitigation of impact of extreme events and sea level rise

During the prior reporting period, the CR developed goals and strategies for Year 3. Accomplishments toward those goals are noted below.

Accomplishments this reporting period:

1. Status of Students
 - a. The CR focal area has a total of 5 active students: 2 Ph.D. and 3 Masters level.
 - Two students joined the focal area since September 2018 (YR 3 Goal 1)
 - b. The demographics of the students
 - 4 are from underserved, underrepresented communities
 - 2 male and 4 female students
2. Student synopses submitted to and approved by CR
 - a. One new student synopsis presented and was approved.
 - b. Total of 5 synopses (out of 6 graduate students) have been presented and approved.

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

3. Student NERTO updates (YR 3 Goal 2)
 - a. Two students have completed a NERTO
 - Mallory Brooks
 - Cristina Madrid
 - b. One NERTO is currently underway
 - Miya Pavlock McAuliffe
 - c. One NERTO is scheduled for summer 2019
 - Sam Mwenda
 - d. The two new CR students are seeking NERTO projects but set scheduling goals.
 - Mariana León Pérez (summer 2020)
 - Anthony Lima (summer 2021 or 2022)
4. Student completion of program
 - a. Cristina Madrid (UTRGV, MA) defended her thesis entitled “Disaster Coordination in the Rio Grande Valley” and graduated in December 2018. Her graduate advisor was Owen Temby, UTRGV.
5. CR members Mikell Smith and Richard McLaughlin worked with NOAA CCME leadership to develop a session proposal for the 2019 Coastal & Estuarine Research Federation (CERF) conference entitled “Education Partnerships in Coastal and Marine Science”. The proposal was accepted. This session will provide an opportunity for CCME and other NOAA EPP Centers to share their work – the education partnerships and the research accomplished within them that trains the next generation of NOAA mission scientists. NOAA EPP assisted in further developing the session and promoting CSC participation. CR has engaged with the coordinate of the CERF underserved, underrepresented minority program and will develop a plan for recruitment activities at the conference (YR 3 Goal 1, Strategy A).
6. CWCC curriculum that is aligned with the CR core competencies was developed and the online portion was released to students. The community issue for the problem-based learning activity is particularly applicable to coastal resilience science. CR Chair, Owen Temby, whose institution will host the CWCC, is engaging community stakeholders and will release video interviews in April to further prepare students for the CWCC activities (YR 3 Goal 3, Strategy A & B).

CCME Coastal Resilience Community of Practice (CRCP) 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.
 - I. Promote CCME through participation in their existing underserved, underrepresented initiative.

- II. Leverage opportunities presented by the fact that NOAA generally provides funding for the conference and NOAA scientists we need to connect with participate significantly.
- III. 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 CRCP 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 CRCP graduate positions.

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

Strategies:

- A. Work with CRCP 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 CRCP Objectives.
- E. Circulate CRCP Core Competencies and encourage NERTO alignment with them.

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

Strategies:

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

Coastal Intelligence Summary

In the current reporting period, CI has a total of 23 active CCME Scholars (5 Ph.D., 8 M.Sc. and 10 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 M.Sc. students; and three Bachelors/transfer undergraduates. Two CCME graduate students presented and had their synopsis approved by the CI this reporting period, third revised synopsis was also approved. In total, CI has approved seven (3 Ph.D. and 5 M.Sc.) student proposal synopses (Appendix Table 2). Eleven (of the thirteen) CCME CI Graduate Scholars have identified NOAA and NOAA

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

NERTO mentors (Appendix Table 2). One additional Scholar completed their NERTO during this period, for total of four CCME CI Scholars have completed their NERTOs.

Dr. Emily Jones, the second CCME Postdoctoral Researcher, submitted her Postdoctoral Development Plan to EPP/MSI, and the plan is in revision. Her postdoctoral NOAA experience entitled “Impacts of mangrove expansion into Northern Gulf of Mexico salt marshes” will be conducted with Dr. Jennifer Doerr at the NOAA Southeast Fisheries Science Center (SEFSC) in Galveston, TX. The experience is tentatively scheduled to start summer 2019.

There are 16 CI faculty mentors at the six institutions, with a subgroup that meets for monthly CCME CI conference calls on the 3rd Monday of the month. 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 a Postdoctoral Researcher. CI faculty members also serve as advisors and supervise student projects submitted to other focal areas in the topics 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 faculty have revised and expanded the scope of material covered in the CWCC to ensure alignment and coverage of the CI student core competencies. Those competencies not covered during the CWCC will be covered through the webinar series previously developed. 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.

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 CCME Scholar CI Competencies

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

CI worked with Education Team and External Evaluator to finalize seven competencies for the CI students to achieve prior to their completion of the CCME program (Appendix Table 2). Competencies will be addressed through a combination of degree program curricula, CI webinar and the CWCC. Partners were asked to complete a competency matrix chart to their degree programs. CI faculty revised their contributions to the CWCC online and on-site material to align with competencies. Lastly, a set of webinars were identified to supplement competencies topics; this includes circulating OneNOAA Science Seminars announcements relevant to CI to the scholars.

Accomplishments this reporting period

1. Status of CCME Student Scholars (Appendix Table 2):
 - a. The CI focal area has a total of 23 students from the six CCME institutions: 5 Ph.D., 8 M.Sc., and 10 B.Sc. scholars, including 4 community college transfer.
2. Student synopses submitted to and approved by CI (Appendix Table 2)
 - a. Two new student synopses were presented and approved.
 - b. A total of 8 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. One student completed their NERTO
 - Brianna Alanis
 - b. Four are currently scheduled for Summer 2019
 - Andrea Pugh
 - Patricia Cockett
 - Queria Simpson
 - Ra'Teema Etienne (Stanley)
 - c. Three are currently scheduled for Fall 2019
 - Angelique Rosa-Marin
 - Caroline Rodriguez
 - Prian Vidal
 - d. All except two graduate students have identified NOAA/NERTO mentors and pending NERTO locations.
4. Student completion of program
 - a. None in this period
5. Leveraged **Student** Research/Training/Outreach Activities

Leveraged Research/Training, Sept 1st, 2018 to Feb 28th, 2019

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

Angelique Rosa-Marin* FAMU has been accepted to ASLO's 2019 Limnology and Oceanography Research Exchange (LOREX) program in Australia. Operated by Advancement of the Sciences of Limnology and Oceanography with support through NSF. Website (<https://www.aslo.org/page/lorex>)

Brianna Alanis* and her mentor Dr. John Chip Breier, UTRGV, participated in a hydrothermal research cruise on R/V Nautilus using ROV Hercules and a variant of the Clio sampling system to study geochemical and biological processes at Loihi Seamount. This cruise is funded by NASA astrobiology and ship time is funded by NOAA Office of Exploration.

Conferences/Meetings/Scientific Session (* CCME student co-authors) Sept 1st, 2018 to Feb 28th, 2019

John A Breier Jr; Michael Jakuba; Mak A Saito; Gregory Dick; Daniel Gomez-Ibanez; Kaitlyn Tradd; Sharon L Grim; Rebecca Chmiel; Matthew R McIlvin; Abigail Emery Noble; **Brianna Alanis***; Marissa Morgan Kellogg and Javier Garcia. *Clio: a vertical sampling AUV for next-generation ocean sectional studies*. Ocean Science Meeting. Portland, OR. Dec 2018

Walker, L*., Wetz, M., Montagna, P., and Hu, X. Feb 2019. Impact of Hurricane Harvey on the water quality of Texas estuaries. Association for the Sciences of Limnology and Oceanography. San Juan, Puerto Rico.

Long, R.A., Mays, J.N., Hollis, B.S. **Rolle, S.*** Feb 2019. Impact of Bisphenol A Upon Aqua-c Bacterial Organic MaPer U-liza-on and Ecosystem Service. Association for the Sciences of Limnology and Oceanography. San Juan, Puerto Rico.

Angelique Rosa-Marín*, Michael Martínez-Colón, Charles Jagoe, and Cheryl Woodley. Feb. 2019. ENVIRONMENTAL ASSESMENT IN CORAL REEFS AT JOBOS BAY, PUERTO RICO. Association for the Sciences of Limnology and Oceanography. San Juan, Puerto Rico.

Olivia Boisen (CSUMB) attended the SACNAS conference in San Antonio October 10-13.

Lily Walker (TAMU-CC) attended the SACNAS conference in San Antonio October 10-13.

Patricia Cockett (TAM-UCC) attended the SACNAS conference in San Antonio October 10-13.

Outreach events Sept 1st, 2018 to Feb 28th, 2019

Melissa Meredith, CSUMB CCME undergraduate presented her CCME work at the upcoming Western Society of Naturalists Meeting Sep 2019.

6. Postdoctoral NOAA experience application submitted and in revision

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

- a. Dr. Emily Jones is finalizing her postdoctoral NOAA experience with Dr. Jennifer Doerr at the NOAA Southeast Fisheries Science Center (SEFSC) in Galveston, TX. The experience is scheduled to start summer 2019.

Place-based Conservation Summary

The Place-Based Conservation Focal Area (PBC) has a total of 29 students from the six CCME institutions: 4 Ph.D., 11 M.S., and 12 B.S level, and 2 transferred students. Among the 15 graduate students, 13 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. Four students have completed NERTO; two are currently scheduled in spring 2019 NERTO; three are scheduled for NERTO in summer 2019 (Appendix Table 2). One MS student defended his thesis entitled, “Measuring Connective Capacity in the Gulf of Mexico Fishery Management Network” on November 30th, 2018. His thesis advisor is Owen Temby. Anthony Lima’s defense was virtually broadcast for center-wide attendance. 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 conducts monthly conference calls in conjunction with the CR and the Social Science team. PBC core competencies have been reviewed and approved. Modules and learning lectures for the 2019 virtual CWCC were prepared and uploaded to the Blackboard. 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 seven 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 was completed through inputs from the CCME institutions of their degree programs' curricula and required activities for students. Current academic curricula required for the CCME students at each of the partner institutions provide topics and lectures. The new 2019 PBC CWCC online modules and on-site agenda were and 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

Accomplishments this reporting period

1. Status of Students (Appendix Table 2):
 - a. The PBC focal area has a total of active 29 students from the six CCME institutions: 4 Ph.D.; 11 M.S.; and 12 B.S level and 2 transferred students.
 - One MS student was added to the focal area since September 2019
 - b. The demographic of the students
 - 12 African American; 13 Hispanic; and 6 Caucasian
 - 10 male and 21 female students
2. Student synopses submitted to and approved by PBC (Appendix Table 2)
 - a. One new student synopsis was presented and approved.
 - b. Total of 13 synopses (out of 15 graduate students) have been presented and approved at the focal area.
3. Student NERTO updates (Appendix Table 2)
 - a. Four students have completed NERTO
 - Taylor Eddy
 - Lauren Parker
 - Rebekah Hernandez
 - Anthony Lima
 - b. Two are currently scheduled in spring 2019 NERTO
 - Elizabeth Murphy (Started Jan. 21, 2019)
 - Diana Del Angel
 - c. Three are scheduled for NERTO in summer 2019
 - Javier Navarro
 - Elizabeth Del Rosario
 - Meghan Martinez (SSIO approved)
 - d. All except two graduate students have identified NOAA/NERTO mentors and pending NERTO locations.
4. Student completion of program

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

- a. Anthony Lima (UTRGV, MS) defended his thesis entitled, "Measuring Connective Capacity in the Gulf of Mexico Fishery Management Network" on November 30th, 2018. His thesis advisor is Owen Temby. Anthony Lima's defense was virtually broadcast for center-wide attendance. He has been accepted as a NOAA CCME Doctoral student at partner institution TAMUCC.
5. 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.
6. Leveraged Research/Training/Outreach Activities
 - a. Outreach Events
 - Kelsey Martin (TAMUCC, Ph.D.) hosted a workshop at Oso Bay Wetlands Preserve September 22nd on "How to become a shark." Kids learned about what makes sharks different from a bony fish, how to identify the parts of a sharks, and they learned about some of the different species in our area. About 30 people attended this workshop.
 - Meghan Martinez (TAMUCC, M.S.) collected quarterly vegetation samples with undergraduates and local high school students. Martinez also spent time during September and October working with undergraduates and high school students on database management, data analysis, and presentation for an October conference in Spokane, Washington.
 - The B-CU students were interviewed and filmed by a local newspaper reporter and photographer as well as by B-CU's Communications' videographer/PR while they were in the field at the study location.
 - 1) B-CU students work to improve area's waters.
<https://www.news-journalonline.com/news/20181205/b-cu-student-s-work-to-improve-areas-waters>. Daytona Beach News Journal. Dec 6, 2018
 - 2) Bethune-Cookman University Living Shoreline Project.
<https://www.youtube.com/watch?v=qlwfh1ScJ0g&t=30s>
 - B-CU CCME students, Abraham DaSilvio, Mallory Brooks, and Samuel Mwenda participated and hosted a Coastal Science Research Workshop on October 27th, 2018 at the Ormond Beach Environmental Discovery Center at Central Park. Ormond Beach, FL
 - 1) They introduced the CCME program and the current research at B-CU, reaching out to 55 participants.
 - 2) During the workshop, Samuel Mwenda conducted a public education workshop on use of native plants in non-point source pollution management and pre- and post-workshop surveys on the participants.
 - b. Student Conferences/Meetings/Scientific Session (* CCME student; ** CCME faculty)

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

- Abraham DaSilvio*, Samuel Mwenda*, Adeljean Ho, H.J. Cho**. 2018. Construction of Treatment Wetland to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters. 2018 Florida Aquatic Plant Management Society Conference, Oct 15-18, 2018, Daytona Beach, FL (poster) (* indicates CCME student presenter/author): awarded conference travel and registration to present the two (one Oral and One poster) presentations.
- Meghan Martinez*. Influence of Oyster Reef Restoration on Benthic Infauna and Reef-Associated Macrofauna, Society for Ecological Restoration & Society of Wetland Scientists conference, October 15-18, 2018, Spokane, Washington.
- M. White, A. DaSilvio*, and H.J. Cho**. 2019. Construction of a Treatment Wetland to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters. Feb 22-23, 2019. Florida Undergraduate Research Conference. University of North Florida, Jacksonville, FL. (Poster)
- M. White, A. DaSilvio*, S. Mwenda*, and H.J. Cho**. 2019. Construction of a Treatment Wetland to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters. 2019 Indian River Lagoon Symposium., Harbor Branch Oceanographic Institution, FL. (Oral)
- C. Garza**, L. Harris, J. Parrish, J. Posselt. Place based science in the Anthropocene. 2019 ASLO meeting, San Juan, Puerto Rick.
- Javier Navarro*, Alejandro Fierro**, Carlos E. Cintra-Buenrostro**. Facilitative interaction between *Batis maritima* and *Avicennia germinans* seedlings: a look at microenvironmental parameters and implications for mangrove restoration. 23rd Annual Conference Meeting Society for Ecological Restoration Texas Chapter. San Antonio, Texas. November 9-11, 2018. (Oral Presentation)

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

- CSUMB has secured a contract agreement with Moss Landing Marine Labs to conduct drone based aerial surveys of rhodolith beds in the California Channel Islands. Drones purchased with CCME funds will be used to conduct the surveys.
- CSUMB has entered into a new research program with NOAA Southwest Fisheries Science Center and the Monterey Bay Aquarium Research Institute to begin a student of trophic dynamics of the California market squid fishery in Monterey Bay.
- CSUMB has secured funding from NSF to begin the SACNAS Geo-Futures program.

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. 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
 - f. 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
 - g. Wetland plant grant from Volusia County. Volusia County, 2018. \$5,000 (CCME B-CU) - Construction of treatment wetland for CCME students
 - h. 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
 - 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: 6 B.S., 3 M.S.

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

Faculty Publications in Journals:

Only publications with CCME award attribution are included.

Table 1: Faculty Publications

	Faculty Member	Title	Journal/Proceedings
--	----------------	-------	---------------------

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

	Name		
1	Fenxiang Han, Ph.D.	Toxicity of As in <i>Crassostrea virginica</i> (Gmelin, 1791) from the Northern Gulf of Mexico at the presence of Zn and its antioxidant defense mechanisms	Ecotoxicology and Environmental Safety 172: 514-522
2	Erin Easton, Ph.D.	Complete mitochondrial genome of <i>Callogorgia cf. gracilis</i> (Octocorallia: Calcaxonia: Primmoidae)	Mitochondrial DNA Part B
3	Erin Easton, Ph.D.	Preliminary Multivariate Comparison of Coral Assemblages on Carbonate Banks in the Western Gulf of Mexico	Gulf and Caribbean Research 29 (1): 23-33

Editor of Special Journal Issues

Books:

Book Chapters:

Thesis/Dissertations:

Lima, A.R. Measuring Connective Capacity Throughout the Gulf of Mexico Fishery Management Network. Thesis. University of Texas Rio Grande Valley, Dec 2018.

Madrid, C. L. (2018). Local disaster planning and preparedness coordination in the Rio Grande Valley (Order No. 10239793). Available from ProQuest Dissertations & Theses Global. (2177357480).

Conference Papers, Posters and Presentations:

Table 2: Student Presentations

	Student Name	Title	Conference/Meeting/Other
1	Abraham DaSilvio and Samuel Mwenda	Development of Wetlands to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters	2018 Florida Aquatic Plant Management Society Conference
2	Abraham DaSilvio and Samuel Mwenda	Construction of Treatment Wetland to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters	2018 Florida Aquatic Plant Management Society Conference
3	Meghan Martinez	Influence of Oyster Reef Restoration on Benthic Infauna and Reef-Associated Macrofauna	Society for Ecological Restoration & Society of Wetland Scientists conference

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

4	Brianna Alanis	Enabling and Applying High Quality Oxygen and Nutrient Measurements from Autonomous Platforms	Atlantic Oceanographic and Meteorological Laboratory (AOML) NOAA facility (AMLO)
5	Samuel Mwenda	Comparative water quality study at city parks with and without stormwater outlets on the Halifax River in the Ormond By the Sea Area	ShORE (Sharing Our Research with Everyone on the Indian River Lagoon) 2018
6	Taylor Eddy	John Field Diet assessment and reproductive success of Californiaspiny lobster (<i>Panulirus interruptus</i>) in relation to marine protected areas	2018 Western Society of Naturalists Meeting
7	Lauren Parker	Groundfish habitat associations on the lost reefs of the Monterey Bay National Marine Sancturay: Implications for conservation and management	2018 Western Society of Naturalists Meeting
8	Meghan Martinez and Jennifer Beseres Pollack	Oyster reef restoration: influence on oyster recruitment and health, benthic infauna, and reef-associated macrofauna	Gulf and Estuarine Research Society
9	Mariana León-Pérez	Initial Steps of an Adaptive Management Exercise to Strengthen Puerto Rico's Coral Reef Monitoring Program	71th Gulf and Caribbean Fisheries Institute Conference
10	Mariana León-Pérez	Vulnerability of Coastal Social-Ecological Systems to Sargassum Beaching Events	NOAA CCME call for the Place-based Conservation, Coastal Resilience, and Social Science Committees
11	Alejandro Fierro and Carlos E. Cintra-Buenrostro	Facilitative interaction between <i>Batis maritima</i> and <i>Avicennia germinans</i> seedlings: a look at microenvironmental parameters and implications for mangrove restoration.	23rd Annual Conference Meeting Society for Ecological Restoration Texas Chapter
12	Alejandro Fierro	An invasive ungulate may restrain mangrove range expansion on the south Texas coast	23rd Annual Conference Meeting Society for Ecological Restoration Texas Chapter
13	Alejandro Fierro	Exploring allelopathy of native woody species as potential approach for thorn forest restoration: a test on inhibition of	23rd Annual Conference Meeting Society for Ecological Restoration Texas Chapter

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

		germination and emergence	
14	David Hicks and Alejandro Fierro	Successful dune restoration using foundation species: the case study of South Padre Island	23rd Annual Conference Meeting Society for Ecological Restoration Texas Chapter
15	Carlos E. Cintra-Buenrostro	Increasing workforce diversity through “Stimulating Hispanic Participation in the Geosciences” (SHIP-GEO) program at Rio Grande Valley/South Texas	2018 (130th) Annual Meeting, Geological Society of America
16	Diana Del Angel, Lily Walker, Mariana León Pérez, Meghan Martinez, Kelsey Martin	NOAA-Mission-Critical Research by NOAA CCME Scholars at Texas A&M University-Corpus Christi	NOAA CCME webinar series
17	Meghan Martinez	Oyster Reef Restoration: Influence on Oyster Recruitment, Benthic Infauna, and Reef- Associated Macrofauna	Texas A&M Marine Biology IDP 9th Annual Retreat and 11th Science Symposium.
18	Carlos E. Cintra-Buenrostro	A comparison of population dynamics from Red Snapper associated with inshore and offshore artificial reefs in the northwestern Gulf of Mexico	Marine artificial reef research and development: integrating fisheries management objectives.
19	Carlos E. Cintra-Buenrostro	Investigating reproductive characteristics of Gray Triggerfish on three artificial reefs in the northwest Gulf of Mexico	Marine artificial reef research and development: integrating fisheries management objectives
20	Taylor Eddy	Seasonal changes in diet of California spiny lobster (<i>Panulirus interruptus</i>) in relation to marine protected areas	2019 ASLO meeting
21	Olivia Boisen	Quantifying the cross-sensitivity of glass pH electrodes in alkaline solutions	2019 ASLO meeting
22	Abraham DaSilvio, Samuel Mwenda	Construction of a Treatment Wetland to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters	Florida Undergraduate Research Conference
23	Abraham DaSilvio, Samuel Mwenda	Construction of a Treatment Wetland to Reduce Nutrient Loading from Stormwater Runoff into Coastal Waters	2019 Indian River Lagoon Symposium

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

24	Lily Walker	Impact of Hurricane Harvey on the water quality of Texas estuaries	2019 ASLO Meeting
----	-------------	--	-------------------

Table 3: Faculty Presentations

Faculty Member Name	Title	Conference/Meeting/Other
Richard McLaughlin, Ph.D.	Get to Know Your Faculty Series	CCME Student Meeting, Online Webinar
Richard McLaughlin, Ph.D.	International Opportunities in Science and Conservation	HRI Retreat at Caldwell Ranch
Richard McLaughlin, Ph.D.	Plans and Goals of the Coastal and Marine Policy and Law Program	HRI Retreat at Caldwell Ranch
Richard McLaughlin, Ph.D.	Gulf of Mexico Decommissioning and Rigs to Reefs Policies	SUT/MASTS Workshop
Richard McLaughlin, Ph.D.	Student Workshop on International Coastal and Marine Management (SWIMM)	MarCuba Conference
Owen Temby, Ph.D.	Climate Change and Its Impact	Valley Environmental Summit 2018
Corey Garza	Place Based Science in the Anthropocene: ASPIRE (Active Societal Participation in Research and Education)	2018 Western Society of Naturalists Meeting
Michael Wetz, Ph.D.	Synthesis of water quality studies in Baffin Bay with a view towards Solutions	2018 Gulf Estuarine Research Society meeting
Richard McLaughlin	Gulf of Mexico Decommissioning and Rigs to Reefs Policies	SUT/MASTS Workshop
Paul Montagna, Ph.D.	Focused flows for natural hatcheries	Gulf Estuarine Research Society
Paul Montagna, Ph.D.	Customizing ODS Graphics to Publish Visualizations	South Central SAS Users Group Meeting

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

Paul Montagna, Ph.D.	What I Wish I Knew When I Was a Graduate Student: Turning Your Research into Publications	Coastal & Estuarine Research Federation Webinar
Owen Temby, Ph.D.	Climate change and its implications for the Rio Grande Valley	Eco Rio Environmental Studies Symposium
J.Cho, Ph.D.	Living Shorelines for Stormwater Runoff Management within the Watershed Areas of Mosquito Lagoon and Halifax River	The Southeast Volusia Audubon Society meeting
Fenxiang Han, Ph.D.	Biogeochemistry of Depleted Uranium in US Army shooting site and potential remediation	The 83th Annual Conference of Mississippi Academy of Science
Fenxiang Han, Ph.D.	Biogeochemistry of depleted uranium in Army Shooting ranges	Fifteenth International Symposium on Recent Advances in Environmental Health Research
Owen Temby, Ph.D.	Research on disaster resilience in the Rio Grande Valley	Transforming Our World Strategic Initiatives Symposium
Michael Wetz, Ph.D.	Spatial-temporal distribution of <i>Aureoumbra lagunensis</i> in Baffin Bay, Texas	2019 ASLO Meeting
Michael Wetz, Ph.D.	Trends in the frequency and duration of Texas “red tide”	2019 ASLO Meeting
Michael Wetz, Ph.D.	Impact of Hurricane Harvey on the water quality of Texas estuaries	2019 ASLO Meeting
Steven L. Morey, Ph.D.	Spatio-Temporal Variability of Coastal Upwelling from Global Satellite Wind Coastal Upwelling Index Databases	2019 ASLO Aquatic Sciences Meeting
Phyllis Gray-Ray, Ph.D., Mikell Smith, Richard McLaughlin, Ph.D., J. Cho, Ph.D., and Sharmini Pitter, Ph.D.	Training for Science that Matters: Integrating Social Sciences at the NOAA Center for Coastal and Marine Ecosystems	American Meteorological Society Annual Meeting, Phoenix AZ

Technologies or Techniques: Nothing to report at this time.

Patents: Nothing to report at this time.

Inventions: Nothing to report at this time.

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

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.hareresearchinstitute.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
Sherry Wells	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 Jago, 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

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

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
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.**

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

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 R Opportunities for CCME s
State	Texas A&M University Corpus Christi	UTRGV	Leveraged Training and R Opportunities for CCME s
Federal	NASA	AMES/ UTRGV	Leveraged Training and R Opportunities for CCME s
State	Texas Parks and Wildlife	UTRGV	Leveraged Training and R Opportunities for CCME s
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 CCM student
Federal	EPA	DC	Funding for the current CC students research
State	FDEP	Tallahassee, FL	Oversighting of funded res by CCME students
State	FWC	Tallahassee, FL	Providing in-kind services boat hours for CCME stud

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

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	Funding agency liaison and director of the NEP program that provides current research funding for CCME

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

		student research	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
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

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

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
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 March 29, 2019 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. An additional revised Implementation Plan that included the addendum was submitted to Grants Online (File ID: 2650452) on June 15, 2018.

4. EPP/MSI CSC Substantial Involvement and Collaborative Engagement

CCME faculty presented two talks in EPP/MSI CSC collaborative sessions at the 2019 American Meteorological Society meeting in Phoenix in January, 2019: “Training for Science that Matters: Integrating Social Sciences at the NOAA Center for Coastal and Marine Ecosystems” (Gray-Ray et al.), and “NOAA CCME Centerwide Competency Course: Student Training to Meet the Demands of an Interdisciplinary Workforce” (Pitter et al.).

CCME, working with NOAA EPP, proposed a session, “Education Partnerships in Coastal and Marine Science” at the 2019 CERF Biennial Conference to feature NOAA Cooperative Science Centers and their collective impact on the NOAA-mission workforce. This session proposal was accepted and CCME has circulated to the other CSCs an invitation to submit abstracts for this collaborative session.

5. EPP/MSI Direct Student Support, Post-Doctoral Program and Pre-Publication During the reporting

CCME engages frequently with the NOAA EPP management team through email correspondence and conference calls. The EPP Supervisor Ms. Jacqueline Rousseau, EPP CSCs Program Manager Dr. Audrey Trotman, and co-Technical Monitors Dr. Steve Thur (NOS) and Dr. Chris Kelble (OAR) participate in monthly NOAA CCME calls with the NOAA CCME Center Management Team and Co-PIs to discuss progress updates and upcoming events. In addition to reviewing internship opportunities, the EPP management team has also been

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

substantially engaged in development of the postdoctoral research and mentorship plan. Technical monitor Steve Thur presented a webinar to CCME scholars and faculty on November 26, 2018, entitled “Thoughts on Landing a Job at NOAA: A Hiring Manager’s Perspective”. Technical monitor Chris Kelble has been engaged with CCME to identify mentors for graduate scholars and a postdoctoral research, and is presently mentoring CCME scholar Brianna Alanis.

Participant Beneficiaries

Table 8: Year 3 Direct Student Support

	Student Name	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-time research	Fringe
1	Alanis, Brianna	UTRGV	\$3,808	\$7,529	\$0	\$0	\$0	\$125
2	Alexander, Shirley	JSU	\$0	\$3,498	\$152	\$0	\$0	\$0
3	Bauer, Shelby	UTRGV	\$0	\$0	\$0	\$0	\$0	\$0
4	Bayron-Arcelay, Margarete	FAMU	\$8,453	\$14,000	\$0	\$0	\$0	\$0
5	Breaux, Jonathan	JSU	\$7,876	\$3,498	\$152	\$0	\$0	\$0
6	Bruce, Terrius	FAMU	\$3,100	\$6,000	\$0	\$0	\$0	\$0
7	DaSilvio, Abraham	BCU	\$14,400	\$9,000	\$214	\$0	\$500	\$0
8	Figueroa, Gabrielle	FAMU	\$925	\$0	\$0	\$0	\$0	\$0
9	Flores, Daniel	UTRGV	\$0	\$2,026	\$0	\$0	\$0	\$125
10	Garcia, Javier	UTRGV	\$0	\$0	\$0	\$0	\$0	\$0
11	Grant, Jada	JSU	\$7,876	\$3,498	\$152	\$0	\$0	\$0
12	Hamilton, Alexis	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
13	Hernandez, Rebekah	UTRGV	\$3,661	\$7,534	\$0	\$0	\$0	\$125

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

14	Holmes, Walter	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
15	Johnson, Benjamin	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
16	Jones, Kennedy	JSU	\$7,876	\$3,498	\$0	\$0	\$0	\$0
17	Lascelles, Nigel	FAMU	\$7,642	\$12,666	\$0	\$0	\$0	\$0
18	Leal, Sandra	UTRGV	\$0	\$1,012	\$0	\$0	\$0	\$0
19	Lecusay, David	UTRGV	\$1,430	\$4,991	\$0	\$0	\$19	\$125
20	Lima, Anthony	UTRGV	\$3,350	\$5,020	\$0	\$0	\$0	\$125
21	Lopez, Jaime	UTRGV	\$0	\$0	\$0	\$0	\$0	\$0
22	Lyons, Willis	FAMU	\$20,781	\$14,000	\$0	\$0	\$0	\$0
23	Madrid, Cristina	UTRGV	\$3,329	\$7,052	\$0	\$0	\$125	\$125
24	McKinnon, Tayler	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
25	Minor, Keenasha	JSU	\$7,880	\$7,998	\$0	\$0	\$0	\$0
26	Murphy, Ashley	UTRGV	\$6,255	\$3,394	\$0	\$5,061	\$1,562	\$125
27	Navarro, Javier	UTRGV	\$3,360	\$7,534	\$238	\$0	\$408	\$125
28	Pavlock-Mc Auliffe, Miya	CSU-MB	\$7,500	\$11,662	\$0	\$0	\$6,000	\$0
29	Perriman, Geramy	JSU	\$0	\$3,498	\$0	\$0	\$0	\$0
30	Preyer, Devon	CSU-MB	\$4,000	\$4,000	\$0	\$0	\$0	\$0
31	Pugh, Andrea	FAMU	\$18,397	\$14,000	\$0	\$0	\$0	\$0

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

32	Roberts, Jordan	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
33	Rodriguez, Caroline	CSU-MB	\$7,176	\$11,662	\$0	\$0	\$0	\$0
34	Rodriguez, Cassandra	CSU-MB	\$1,430	\$2,168	\$0	\$0	\$0	\$125
35	Rolle, Shaquila	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
36	Rosa-Marin, Angelique	FAMU	\$8,162	\$12,666	\$0	\$0	\$1,225	\$0
37	Salinas, Victoria	UTRGV	\$234	\$7,542	\$0	\$0	\$0	\$125
38	Sanchez, Katia	UTRGV	\$0	\$1,880	\$0	\$0	\$0	\$125
39	Shokere, Alexis	FAMU	\$6,000	\$6,000	\$0	\$0	\$0	\$0
40	Simpson, Queriah	FAMU	\$8,759	\$12,666	\$0	\$0	\$0	\$0
41	Thomsen, Alexandra	CSU-MB	\$7,176	\$11,662	\$0	\$0	\$0	\$0
42	Uwaiabi, Ariana	FAMU	\$8,453	\$14,000	\$0	\$0	\$0	\$0
43	Vance, Miracle	JSU	\$0	\$583	\$0	\$0	\$0	\$0
44	Vaughn, Natalie	CSU-MB	\$3,500	\$3,500	\$0	\$0	\$0	\$0
45	Venable, Julian	JSU	\$8,322	\$13,500	\$0	\$0	\$0	\$0
46	Vidal, Prian	FAMU	\$7,742	\$12,666	\$0	\$0	\$0	\$0
47	Watson, Harrison	JSU	\$0	\$3,498	\$152	\$0	\$0	\$0
48	Webb, Jessica	JSU	\$7,876	\$3,498	\$152	\$0	\$0	\$0
49	Windham, Shelby	JSU	\$7,876	\$3,498	\$152	\$0	\$0	\$0

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

50	Young, Riley	CSU-MB	\$3,500	\$3,500	\$0	\$0	\$0	\$600
	Totals		\$264,105	\$317,397	\$1,364	\$5,061	\$9,839	\$1,975

Post-Doctoral Program -

NOAA CCME Postdoctoral Research Associate Dr. Emily Jones identified her NOAA mentor, Jennifer Doerr (SEFSC Galveston). Working with her mentor, she developed her postdoctoral research and mentorship plan and submitted it for review by the EPP Management Team and subsequent revisions (at the time of this report, the internship plan is submitted to Grants Online).

During this reporting period, NOAA CCME Postdoctoral Research Associate Dr. Erin Easton confirmed her upcoming internship with Dr. Peter Etnoyer (NCCOS Charleston).

NERTO and Student Internships with NOAA – See Appendix Table 2

1. 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.

2. NOAA Environmental Data and Information

Currently, there is are no collected data nor information that have been transferred to a publicly accessible data archive center. 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.

3. 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.

4. 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 57 and graduate 7 in NOAA-mission sciences.
2. **Total number of EPP-funded post-secondary students** who are trained 63 and graduate 9 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 1, 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.

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

Please refer to the Evaluation Plan in Appendix C and the Executive Summary for updates on the following:

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 URM students 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

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

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: NOAA CCME Scholars

Appendix Table 2: Student Competencies

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

Appendix Table 1: NOAA CCME Scholars

	CCME Scholar	Degree Level	Cohort	Faculty Advisor(s)	Synopsis Title	Synopsis Presented	Focal Area	Expected NERTO Participation Dates	NOAA/NEH Mentor's Name or Potential NOAA Mentor or NOAA Center of Interest
1	Alexis Hamilton	B	1	Richard Long	–	–	CI		
2	Andrea Pugh	D	2	Steve Morey	In development	N	CI	Summer 2019	Seeking - discussion with Dr. Jesse Farrell, GLERL
3	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	Fall 2019	Dr. Cheryl Woodley, Research Microbiology, NOS
4	Ariana Uwaibi	D	2	Richard Long	In development	N	CI	Spring 2020	Seeking - CI will reach out to potential corals
5	Brianna Alanis	M	2	John Breier	Using primary productivity proxies as ecosystem health metrics	Y	CI	COMPLETE D: Spring 2019	Dr. Chris Koenig, AOML
6	Caroline Rodriguez	M	3	Cheryl Logan	Physiological responses of corals to temperature stress	Y	CI	Fall 2019	SSIO in development, Dr. Thomas Oliver, Pacific Islands Fisheries Science Center
7	Devon Preyer	B	3	Steve Moore	–	–	CI		
8	Emily Chui	B	1	Alison Haupt	–	–	CI		
9	Gabrielle Figueroa	T	2	Michael Martinez-Colon and Emily Jones	–	–	CI		
10	Kennedy Jones	B	2	Ranjani Kulawardhana	–	–	CI		
11	Lily Walker	D	1	Michael Wetz	Dissolved Oxygen Dynamics in Texas Estuaries	Y	CI	Summer 2020	Dr. Suzanne Bricker, Physical Scientist and Manager of NOAA's National Estuarine Eutrophication Assessment, NCCOS Cooperative Laboratory, Oxford Laboratory
12	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	Y	CI	2020 or 2021	Dr. Cheryl Woodley, Research Microbiology, NOS

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

13	Melissa Meredith	B	1	Cheryl Logan	–	–	CI		
14	Nigel Lascelles	M	1	Charles Jagoe	Oysters as sentinels of microplastic pollution	N	CI	COMPLETE D: June 1 - August 31, Summer 2018	Dr. Ashok Deshpande, S Hook, North Fisheries Science Center
15	Olivia Boisen	B	1	John Goeltz	–	–	CI		
16	Patricia Cockett	D	1	Paul Montagna	Landscape Connection to Coastal Marine Systems: The Ahupua'a Concept	Y	CI	Summer 2019	Dr. Randi Kosaki, Papahānaumokuākea Marine National Monument
17	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, Phytoplankton Scientist and Manager NOAA's National Estuarine Eutrophication Assessment NCCOS Cooperative Oxford Laboratory
18	Queriah Simpson	M	3	Steve Morey and Richard Long	In development	N	CI	Summer 2019	NERTO project identified – John Christensen NCCOS, N
19	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 Churnin, Dr. Jung-Su Kim, Meteorology Development Laboratory, Office of Science and Technology Integration, NWS
20	Shan Guruvadoo	M	1	Craig Tinus	Investigating causes of changing tidal range and timing in U.S. harbors	Y	CI	COMPLETE D: Start Date: August 14, 2017 End Date: November 3, 2018; Completed 12 weeks- Fall 2017	Drs. Greg Dusek; Chris Zervas (CO-OP) Organization, Jena Ker
21	Shaquila Rolle	B	1	Richard Long	–	–	CI		
22	Summer Martinez	T	3	Richard Long	–	–	CI		
23	Terrius Bruce	T	2	Steve Morey	–	–	CI		
24	Abraham DaSilvio	M	2	J. Cho	Assessment of Storm-water Pollution within a Coastal Urban Canal Basin: A Case	Y	PBC	Fall 2019/Spring 2020	AOML Miami

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

					Study of Nova-Reed Canal Basin along the Halifax River Estuary, Florida				
25	Alexandra Shien-li Thomsen	M	3	Arlene Haffa	Evaluating indicators of and factors contributing to restoration success in a large-scale experiment	Y	PBCA	Fall 2019	Seeking - N engagemen needed
26	Anthony Lima	M	1	Owen Temby	Inter-agency Cooperation, Policy, and Management of the Gulf of Mexico Fishery	Y	PBC	COMPLETE D: June 4th - August, Summer 2018	Dr. Scott La Northeast Fisheries Sc Center, NM
27	Cassandra Rodriguez	B	1	David Hicks	-	-	PBC		
28	Daniel Flores	B	3	Alejandro Fierro Cabo	-	-	PBC		
29	David Lecusay	B	1	Carlos Cintra	-	-	PBC		
30	Diana Del Angel	D	1	David Yoskowitz	Assessment of Salt Marsh Ecosystem Services in the US Gulf of Mexico	Y	PBC	Spring 2019 (3/11/19 – 5/31/19)	Dr. Rebecca NOAA Offi Coastal Sur
31	Elizabeth del Rosario	D	1	Richard McLaughlin	Environmental Flows Management Strategy for the Coastal Zone in Texas	Y	PBC	Summer 2019 (June 10 - July 28, 2019)	Dr. Trey Flo P.E. Director, An and Predict Division NOAA/NWS C/Office of Predictio
32	Elizabeth Murphy	M	1	Carlos Cintra	Tracking nitrogen transfer through Black Mangrove (<i>Avicennia germinans</i>) communities	Y	PBC	Current Spring 2019	Dr. Joe Se (NOAA/NM EFSC) in M FL
33	Geramy Perriman	B	1	Brent Thoma	-	-	PBC		
34	Harrison R. Watson	B	1	Brent Thoma	-	-	PBC		
35	Jada Grant	B	1	Brent Thoma	-	-	PBC		
36	Javier Navarro	M	1	Alejandro Fierro Cabo	Analysis of the facilitative relationship between <i>Batis maritima</i> and <i>Avicennia germinans</i> seedlings as mangrove restoration strategy	Y	PBC	Summer 2019	Planned – Serafy NMFS/SEF Miami, F
37	Jessica Webb	B	1	Brent Thoma	-	-	PBC		
38	Jonathan Breaux	T	1	Brent Thoma	-	-	PBC		
39	Julian Venable	D	2	Ibrahim Farah/Brent Thoma	Densities and potential impacts of microplastics in Grand Bay National Estuarine Research Reserve	N	PBC	Summer 2019	Ashok Desh NEFSC Habitat Eco Branch NMFS Sar Hook, N
40	Katia Sanchez	B	3	Owen Temby	-	-			

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

41	Keenasha Minor	M	1	Fengxiang Han	Analysis of Naturally Occurring Radionuclides in the Northern Gulf of Mexico	N	PBC	Spring 2019	NOAA mer Kate Rose, N NESDIS
42	Kelsey Martin	D	2	Greg Stunz	Characterizing large predatory fish across Gulf of Mexico habitat	Y	PBC	Spring 2021	Matthe Campbe National M Fisheries Se Pascagoula.
43	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	Completed Fall 2018	Dr. Andro Devogelac Researc Coordinat Monterey NMS
44	Liyah Smith	T	1	Brent Thoma	–	–	PBC		
45	Meghan Martinez	M	1	Jennifer Pollack	Influence of oyster reef restoration on benthic infauna and reef-associated macrofauna	Y	PBC	Summer 2019 (May 28, 2019 – August 20, 2019)	NOAA Ment Dionne Hoskins-Bro NERTO me Eric Weissb Ph.D., NO National M Fisheries Se Office of Ha Conservati Restorati Center, Sil Spring M
46	Natalie Vaughn	B	3	John Olson	–	–	PBC		
47	Riley Young	B	3	Corey Garza	–	–	PBC		
48	Rebekah Hernandez	M	1	David Hicks	Assessing long-term benthic community dynamics at the Flower Garden Banks National Marine Sanctuary	Y	PBC	COMPLETE D: June 2018 - August 2018	NERTO Men Dr. Michelle Johnston, Research Ma Biologist, Flo Garden Bank National Mar Sanctuary; N mentor: Dr. I Hickerson, F Garden Bank National Mar Sanctuary
49	Shelby Windham	B	1	Brent Thoma	–	–	PBC		
50	Shirley Alexander	B	3	Brent Thoma	N/A	N/A	PBC		
51	Taylor Eddy	M	1	Corey Garza	Multiscale habitat use and effects of MPAs on California spiny lobster success	Yes	PBC	Completed Fall 2018	Dr. Charlie V Senior Scient NOAA Natio Marine Prote Areas Center
52	Victoria Salinas	M	3	David Hicks	Growth and Reproduction studies of Black Corals	N		Summer 2019	Seeking - N engagement needed

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

					(antipatharians): South Texas			
--	--	--	--	--	-------------------------------	--	--	--

Appendix Table 2: Student Competencies

<i>Coastal Resilience</i>	<i>Coastal Intelligence</i>	<i>Place-Based Conservation</i>
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 core decision-making tools for 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 applied, and social science policies as it pertains to 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 stakeholders in addressing 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 ecosystem 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 with demand for coastal utilization and economic.
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.
—	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.

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

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)

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 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

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

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,

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

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

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



During this semiannual period the External Evaluation had two (2) evaluation calls with the Assistant Director, Education Expert, and Distinguished Research Scientists. During these calls, the team discussed refinements of the Evaluation Key Performance Indicator Framework for Project Year 3. The Framework was modified with thoughtful input from the team to ensure a more appropriate alignment to operational realities and “lessons learned.” The team also identified the changes made to the project in Year 2 in response to External Evaluators recommendations from Project Year 1. The External Evaluator conducted two (2) quarterly evaluation calls with the Center Director during which he reviewed and approved the modifications to the Key Performance Indicator Framework for Year 3 and changes to the Goal Evaluation Weights highlighted in the table below.

Key Performance Indicator	NOAA CCME Goals
Goal 1 - Recruit, train, and graduate underrepresented minority groups, with the competencies and skills that support NOAA’s Education Strategic Plan workforce goals. Goal 1 is weighted at 30% of overall evaluation score.	
1. Number of NOAA CCME underrepresented minority undergraduate Scholars recruited into NOAA-mission related degree programs at partner institutions	1a
2. Number of NOAA CCME underrepresented minority graduate Scholars recruited into NOAA-mission related degree programs at partner institutions	1a
3. Number of total budgeted underrepresented minority Post Docs recruited into the NOAA CCME	1a
4. Number of total budgeted Post Docs recruited into the NOAA CCME	1a

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

5. Number of total NOAA CCME Scholars enrolled in NOAA CCME related disciplines/ programs and courses at partner institutions during reporting period	1a
Training	
6. Percentage of enrolled NOAA CCME Scholars receiving center wide core competency (CWCC) short course certification	1c
7. Percentage of total NOAA CCME Graduate Scholars who have participated in required experiential opportunities in NOAA mission-relevant sciences (NERTO, SSIO, etc.)	1d
8. Percentage of participants of the GIS Activity	3b
9. Percentage of NOAA CCME Scholars with the required GPA in NOAA related degree programs at partner institutions – at the end of reporting period	1a
10. Number of NOAA mission-aligned invited or refereed presentations or publications by NOAA CCME scientists	2b
11. Percentage of NOAA CCME Scholars applying to NOAA-sponsored internships	2d
Program Completion	
12. Number of NOAA CCME underrepresented minority Scholars who graduate in NOAA-mission sciences annually	1a
13. Number of NOAA CCME Scholars who graduate in NOAA-mission sciences annually	1a
14. Number of NOAA CCME graduates who pursue post-graduate degrees in NOAA mission-aligned disciplines.	1a
15. Number of NOAA CCME Scholars accepted into postdoctoral level programs	1b
16. Number of NOAA CCME Scholars hired by NOAA, NOAA contractors, NOAA mission-aligned industries, and other natural resource and science agencies at the federal, state and local levels.	1a
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. Goal 2 is weighted at 20% of overall evaluation score.	

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

Research	
1. Percentage of NOAA CCME Graduate Scholars with approved research required quality rating on faculty-mentored research projects	2b
2. Number of research projects, theses, and dissertations that include human dimension components	2b
3. Number of NOAA scientists research mentors (NOAA/NERTO mentors)	1d
4. Number of total NOAA CCME scientists (faculty and scholars) establishing research collaborations with NOAA specialists and scientists	1d
5. Number of research collaborations with NOAA and other partner scientists and personnel	2a
6. Number of NOAA CCME faculty who published their research findings in peer-reviewed journals during reporting period	2b
7. Number of management and communication tools (models, datasets, etc.) developed in alignment to NOAA CCME sponsored research	3c
8. Number of citations referencing use of NOAA CCME developed tools	3c
9. Number of citations referencing NOAA CCME sponsored research or publications	2b
10. Total number of research projects conducted by NOAA CCME scientists (faculty and scholars)	2b
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. Goal 3 is weighted at 20% of overall evaluation score.	
Big Data Competencies and Skills	
1. Percentage of student participating in the NOAA CCME Big Data Bootcamp	3a
2. Percentage of NOAA CCME Scholars demonstrating learning gains as a result of NOAA CCME training relative to the use of NOAA large data sets	3a
3. Number of NOAA CCME sponsored research projects that make use of NOAA large data sets	3b
4. Number of NOAA CCME Scholars who are trained to access and use NOAA data sets.	3c

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

Overall Impact is weighted at 30% of overall evaluation score.	
1. Number of NOAA CCME post-secondary Scholars from underrepresented communities who are trained and graduate in NOAA-mission sciences	1a
2. Number of NOAA CCME post-secondary Scholars who are trained and graduate in NOAA-mission fields relevant to this announcement.	1a
3. Number of NOAA CCME graduates who enter the NOAA mission workforce as hired by NOAA, NOAA contractors, NOAA partners, or resource management agencies, or academia or as entrepreneurs	1a
4. Number of NOAA CCME graduates who participate in and complete agency mission-related postdoctoral level programs	1a
5. Amount of funds leveraged with this NOAA EPP award (including post-secondary student support)	1a
Overall Evaluation Matrix Score $.30 \times (\text{Goal 1 Score}) + .20 \times (\text{Goal 2 Score}) + .20 \times (\text{Goal 3 Score}) + .30 \times (\text{Overall Impact Score})$	

	Year 1	Year 2	Year 3	Year 4	Year 5
Goal 1	.30.40	.25 .40	.30	.25	.25
Recruitment	(.15).20	(.10) .20	(.10)	(.05)	N/A
Training	(.15) .20	(.15) .20	(.10)	(.10)	(.05)
Completion	N/A	N/A	(.10)	(.10)	(.20)
Goal 2 (Research)	.10.05	.10.05	.20	.25	.25
Goal 3 (NOAA Big Data)	.10.05	.10.05	.20	.25	.25
Key Impact Metrics	.50	.50	.30	.25	.25
Total	100	100	100	100	100

Finally, the Evaluator participated in a joint monitoring and evaluation visit to Bethune-Cookman University and submitted a draft site visit evaluation report to the CMT.

Follow-Up Report On Year 1 Recommendations: Year 2 and Year 3 Impacts

Evaluation Question (EQ)	Recommendation	Follow-Up on Recommendation (Impact)
<p>EQ 1 - Has the project been implemented as proposed to date, and if not, what adjustments have been made? Why?</p>	<p><i><u>Recommendation 1:</u> Take the necessary steps to hire the required personnel as quickly as possible.</i></p> <p>At the end of year 1, CCME had not hired the <i>Distinguished Research Scientist</i> or the <i>Data, Information, and Communication Manager</i>. These positions are required by NOAA and play a critical role in the intended work of the Center. The Evaluator acknowledges that the Center has acted in good faith to fill these positions. Based on this finding, the following recommendation is advanced:</p>	<p>The Center launched a search for the Distinguished Research Scientist and Data, Communication, and Information Manager in Year 1. An additional search was launched in Year 2. Both positions have been filled as of November 16, 2018 – acceptance received on November 16, 2018 for Data Manager and received on July 16, 2018 for the Distinguished Research Scientist.</p> <p>Over the course of Years 1 and 2, prior to the hiring of the two key personnel positions, the responsibilities and duties of both positions were covered by the NOAA CCME Center Associate and Assistant Directors and the Education Expert.</p>
<p>EQ 2 - How has the project progressed in terms of the achievement of established goals & objectives?</p>	<p><i><u>Recommendation 2:</u> Work across the Center to recruit 2 post-docs.</i></p>	<p>The NOAA CCME postdoctoral research associate positions were advertised widely through NOAA CCME institutional partners. One postdoc was</p>

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

		<p>hired in Year 1 and the second postdoc was hired in Year 2.</p>
	<p><i>Recommendation 3: Enhance the Center’s process for connecting students to NOAA mentors and experiential opportunities.</i></p>	<p>Members of NOAA CCME leadership including Distinguished Research Scientist Dr. Steve Morey meet with each graduate student and potential NERTO/NOAA mentors to establish NERTOs and other training opportunities to fulfill NOAA CCME Graduate Scholar requirements. Following a discussion during the Year 2 NOAA CCME Annual Meeting strategies were developed to allow for the early involvement of NOAA and NERTO mentors in the student project development process. Dr. Morey now has early conversations with new CCME Scholars and their advisors to identify research interests. Some scholars already have NOAA connections through their advisors, but for those who don’t, Dr. Morey now begins the process of researching and reaching out to potential NOAA mentors with overlapping interest and expertise early. This early engagement of NOAA personnel enhances collaboration, direction of student research, and streamlines the eventual NERTO process.</p>

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

	<p style="text-align: center;"><i>Recommendation 4: Strengthen the design and implementation of CCME’s Big Data Bootcamp and training.</i></p>	<p style="text-align: center;">Online modules have been developed as part of the 2019 CWCC to enhance student development of competencies and skills in the utilization of new and existing “big data” archives and decision support tools.</p> <p style="text-align: center;">In Year 3 NOAA CCME plans to utilize NERTO reports and the ISDPs to identify student use of big data analysis skills/tools/datasets.</p>
	<p style="text-align: center;"><i>Recommendation 5: Establish more measurable goals, objectives, and annual performance targets for each focal area.</i></p>	<p style="text-align: center;">Distinct goals for each focal area have been developed. Progress toward each goal is now included in semiannual reporting.</p>
	<p style="text-align: center;"><i>Recommendations 6: Clearly define CCME Social Science Integration components and performance indicators.</i></p>	<p style="text-align: center;">Students must demonstrate an understanding of the social science or human dimension implications of their research. This is a required component of the project research synopsis for all NOAA CCME Graduate Scholars. NOAA CCME Undergraduate Scholars must complete CWCC assignments related to the NOAA CCME Social Science Integration performance indicators. Year 2 developed clearly defined social science performance indicators</p>

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

	<p><i>Recommendation 7: Enhance the learning assessment tools, including direct measures of student learning related to targeted outcomes, in alignment to the Center's educational priorities.</i></p>	<p>Both NOAA CCME Undergraduate and Graduate Scholars are assessed on associated learning gains according to the Center educational priorities as part of the required CWCC. Student competencies have been developed and vetted by each focal area and the social science team. Student competency achievements are assessed through CWCC assignments and testing. Additionally, student-specific learning gains and skills developed are tracked through the Individual Student Development Plans.</p>
--	--	---

<p>General Recommendations</p>	<p><i>Recommendation 8: Seek out the perspective and insights of NOAA collaborators and experts related to the CCME core technical competencies.</i></p> <p>Rationale: The targeted competencies and skills were broadly declared in the CCME proposal that was submitted to NOAA EPP. The Evaluator drafted a set of more clearly defined competencies that were aligned to the goals/objectives for each CCME focal area. These competencies were reviewed, revised, and adopted by CCME faculty. <i>The Evaluator recommends that these competencies be reviewed by CCME’s NOAA partners and other scientific stakeholders (i.e., Advisory Council). Such review and feedback ensure broad-based, expert validation of these competencies as consistent with those that will be needed by the next generation of NOAA mission-aligned professionals.</i></p>	<p>The expertise of NOAA CCME faculty in key technical competencies are supplemented by seminars and resources shared by NOAA researchers particularly through the NOAA CCME webinar series and the CWCC.</p> <p>The NOAA CCME competencies have also been shared with the NOAA CCME Community Stakeholder Advisory Board and Science Advisory Council members for feedback as of Fall 2018. A formal process for receiving feedback from Advisory Board and Science Advisory Council members is in development.</p>
---------------------------------------	--	--

NOAA CCME Semi Annual Performance Report
 (September 1, 2018 – February 28, 2019)
 Larry Robinson, Principal Investigator and Center Director

	<p>Develop mechanisms for tighter alignment of educational training and research at CCME partner institutions to NOAA’s mission and priorities.</p> <p>Rationale: The recommendation is in alignment with NOAA EPP’s CSC Overarching Evaluation Question 2: <i>How have the Center award implementation activities enhanced the capacity for NOAA mission-aligned research at partner institutions and other MSI’s?</i> Specifically, the Evaluator’s recommendation is advanced to encourage the Director and CMT to be prepared to respond to the following Overarching Evaluation sub-questions.</p> <p style="text-align: center;"><i>2.4 What are the CSC mechanisms for increasing the alignment of faculty and student research with NOAA’s mission and priorities? (Research Alignment Mechanisms)</i></p> <p style="text-align: center;"><i>2.5 How do CSC student and faculty mentors verify and/or validate that their CSC research activities align with NOAA’s mission and priorities? (CSC Research Priorities)</i></p>	<p>2.4 and 2.5 The project synopsis review process from focal area and social science team review, to center management, and EPP review with the potential for input at every stage from the NOAA/NERTO mentor ensures alignment with NOAA’s mission and priorities. Advisory Board Advisory Council providing feedback to proposed student research</p> <p>In Year 3 CCME will consider the addition of explicit confirmation that a student project has met the expectations of alignment with NOAA’s mission and priorities within the Taskstream faculty approval process.</p>
--	---	--

INTENTIONAL BLANK PAGE

VIII. Financial Information

1. Total NOAA funding breakout

FY 18 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	Year 3 Funding	Current Value	Invoiced Amount	Balance	End Date
Bethune-Cookman University	\$186,383	\$170,129	\$186,383	\$542,895	\$302,735	\$240,160	8/31/19
Jackson State University	\$274,399	\$257,844	\$274,399	\$806,642	\$445,905	\$370,737	8/31/19
Texas A&M University	\$667,782	\$665,133	\$690,330	\$2,023,245	\$1,147,243	\$876,002	8/31/19
University Corporation at Monterey Bay	\$208,342	\$211,706	\$251,114	\$671,162	\$389,698	\$281,464	8/31/19
University of Texas Rio Grande Valley	\$444,102	\$432,331	\$521,383	\$1,397,816	\$712,642	\$685,174	8/31/19
TOTAL	\$1,781,008	\$1,737,143	\$1,923,609	\$5,441,760	\$2,998,223	\$2,443,537	

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:

NOAA CCME Semi Annual Performance Report
(September 1, 2018 – February 28, 2019)
Larry Robinson, Principal Investigator and Center Director

- 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: