

# NOAA CENTER FOR COASTAL AND MARINE ECOSYSTEMS-II (CCME-II)



Semi-Annual Performance Report for  
Award Number NA21SEC4810004  
Reporting Period: September 1, 2022 – February 28, 2023

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Dr. Larry Robinson,  
Principal Investigator and Program Director

Dr. Richard Long,  
Center Director

## **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. Brent Thoma (Institutional PI)*

Texas A&M University, Corpus Christi  
*Dr. Paul Montagna (Institutional PI)*

University of Texas, Rio Grande Valley  
*Dr. David Hicks (Institutional PI)*

CCME-II Semi-Annual Performance Report  
 (September 1, 2022 – February 28, 2023)  
 Larry Robinson, Principal Investigator  
 Richard Long, Center Director

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# 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

ACE: Annual Cohort Experience

CCME: Center for Coastal Marine Ecosystems

CMT: Center Management Team

CSC: Cooperative Science Center

CWCC: Center-Wide Core Competency

EPP: Educational Partnership Program

HBCU: Historically Black Colleges and Universities

MSI: Minority Serving Institution

NCCOS: National Centers for Coastal Ocean Science

NERTO: NOAA Experiential Research & Training Opportunities

NMFS: National Marine Fisheries Service

NOAA: National Oceanic and Atmospheric Administration

NOS: National Ocean Service

OAR: Oceanic and Atmospheric Research

SEFSC: Southeast Fisheries Science Center

SSIO: Student Scholarship Internship Opportunity

UC: Underrepresented Communities

Degree Level: B: Undergraduate, M: Master's, D: Doctoral

**NOAA Cooperative Science  
Center Project Performance  
Report Reporting Period:  
September 1, 2022 – February 28, 2023**

## **I. Executive Summary**

The NOAA Center for Coastal and Marine Ecosystems-II (NOAA CCME-II) is a collaboration between NOAA EPP/MSI and six academic minority serving institutions (MSI) with Florida A&M University (FAMU) as the lead institution. The Center is supported by award NA21SEC4810004 from NOAA Educational Partnership Program with Minority Serving Institutions (EPP/MSI). This report covers the accomplishments of the NOAA CCME-II for the reporting period September 1, 2022 – February 28, 2023. During this award period, NOAA CCME-II supported 44 cohort students, 38 (86%) being from Traditionally Underrepresented Communities (UC) in NOAA-relevant STEM disciplines. These include 11 Ph.D., 23 M.S., and 10 B.S. students. One B.S. student (UC) graduated during this time period.

### **CCME-II Goals and Objectives**

NOAA CCME-II has established the following education and research goals and specific objectives:

**1) Recruit, train, and graduate students, particularly from underrepresented communities, with the competencies and skills, as described in the NOAA CCME-II Cohort Student Recruitment Plan, that support NOAA’s Education Strategic Plan, workforce goals and strategic objectives:**

- a. Provide financial support, education and training experiences for undergraduate students, graduate students, and postdoctoral fellows through teaching and mentoring provided by NOAA CCME-II faculty.
- b. To recruit and train students for NOAA mission-aligned degree programs at NOAA CCME-II institutions.
- c. Utilize the Center-Wide Core Competency (CWCC) course and Annual Cohort Experience (ACE) to provide introductory student training in the NOAA CCME-II thematic areas and NOAA Science and Technology Focus Areas.
- d. Graduate and undergraduate students are given the opportunity to broaden their research and experiential skills from participation in NOAA Student Scholarship Internship Opportunities (SSIO) such as NERTOs, as well as additional training activities through partnerships with NOAA and other scientists.

**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, as described in the NOAA CCME-II Comprehensive Scientific and Research Plan.:**

- a. Assess coastal risks and vulnerabilities to hazards and climate change.
- b. Identify solutions to reduce risks and vulnerability.
- c. Utilize engagement to empower coastal communities.
- d. Conduct research at the private and public properties of waterfront communities.
- e. Conduct public education and engagement activities, including promotion of citizen science and environmental justice.
- f. Collaborate with state and local government stakeholders to address coastal management and policy concerns.

**3) Develop competency and skills in the utilization of new and existing NOAA data archives applying strategies from NOAA Science and Technology Focus Areas for research and development of decision support tools that promote the vibrancy of coastal and marine ecosystems, as outlined in the Education and Training, and Comprehensive Scientific and Research Plans:**

- a. Develop and implement training for students in NOAA Science and Technology Strategies analysis tools and methods.
- b. Conduct research utilizing NOAA datasets related to coastal and marine ecosystems.
- c. Develop tools such as communication and mitigation strategies associated with threats, including impacts of climate change, to coastal and marine ecosystems and coastal communities to be shared via scientific conferences, publications, workshops, and local stakeholder engagement activities.

**CCME-II Education and Training Objectives (CCME specific objectives 1a-d and 3a)**

- During this reporting period, NOAA CCME-II began supporting 25 newly recruited students into Cohort 1 and 2 and 20 students who transferred into CCME-II from CCME-I following approval by EPP/MSI.
- One NOAA CCME-II undergraduate scholar (**Jackinson Marcellus**, BCU) graduated during this reporting period.
- A robust education and training curriculum was initiated, including the Annual Cohort Experience (ACE).
- Planning commenced for the 2023 Center-Wide Core Competency course.
- Six new SSIOs were developed for graduate student NERTOs and undergraduate internships, with one NERTO beginning during this reporting period.
- **Nina Mauney**, CSUMB, participated in the NOAA EPP/MSI Graduate Fellowship Program. Nina completed her fellowship and submitted her final report.

### CCME-II Scientific Research Objectives (CCME *Specific Objectives 2a-e, 3b-c*)

- NOAA CCME-II students, working through the CMT, faculty, and Technical Monitors, identified NOAA mentors (74% of graduate students have engaged with a NOAA mentor with the remaining students in the process of seeking mentorship).
- Five scholars developed new synopses of NOAA mission-aligned research.
- The plan for the Joint Collaboration Research Project (JCRP) was revised in collaboration with the NOAA Living Marine Resources Cooperative Science Center and is currently under review by EPP/MSI.

### CSC Administration

- NOAA CCME-II hired its Deputy Director, Dr. Viniece Jennings.
- The center continued efforts to develop its plan documents for EPP/MSI approval and responded to its Special Award Conditions.
- NOAA CCME-II submitted its Annual Calendar, which is currently under review by EPP/MSI.
- NOAA CCME-II began planning for its Annual Meeting to be held in person in Silver Springs, MD on April 4-5.
- NOAA CCME-II held Center-wide monthly virtual meetings with Focal/Thematic Area Leads and Institutional P.I.'s, as well as held virtual education team meetings with the Education Campus Liaisons, to conduct planning activities for FY21 award.
- Center PI Dr. Larry Robinson and Center Director Dr. Richard Long participated in the EPP/MSI and CSC PI and center director quarterly meetings on Nov 9, 2022, and Feb 6-7, 2023.

### Looking Forward

Looking forward to the next semi-annual period, NOAA CCME-II is anticipating the graduation of 9 scholars (2 B.S., 6 M.S., and 1 Ph.D.) during the spring or summer 2023 semesters. NOAA CCME-II will complete recruiting for its existing cohort slots and begin recruitment of Cohort 3 scholars. The center will also recruit two postdoctoral scholars.

NOAA CCME-II scholars will continue to participate in the ACE and prepare for the Center-Wide Core Competency (CWCC) course, which consists of online modules and a week-long in-person problem-based learning activity planned to be held in July 2023 in Monterey, CA.

NOAA CCME-II will hold its annual meeting on April 4-5 in Silver Spring, MD, with a theme of developing strategies to strengthen the CSC-to-NOAA workforce pipeline.

During the next semiannual reporting period, NOAA CCME-II expects to begin work on the objectives of the JCRP plan together with the LMRCSC and NOAA SMEs. Student

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and postdoc recruitment will be aligned with these objectives leading to synopses for cohort student research aligned with the JCRP.

Participants in the CCME-II Award

Administration (bold indicates Key Award Personnel)

Program Director and Principal Investigator: Larry Robinson, Ph.D.

Co-Principal Investigator: Michael Abazinge, Ph.D.

**Center Director: Richard Long, Ph.D.**

**Deputy Director: Viniece Jennings, Ph.D.**

**Education Expert: Bernadette Kelley, Ph.D.**

**Distinguished Research Scientist: Steve Morey, Ph.D.**

Budget Coordinator: Cynthia Henry

Administrative Coordinator: Sherry Wells

Institutional Principal Investigators

CCME B-CU: J. Cho, Ph.D.

CCME CSUMB: Corey Garza, Ph.D.

CCME JSU: Brent Thoma, Ph.D.

CCME TAMUCC: Paul Montagna, Ph.D.

CCME UTRGV: David Hicks, Ph.D.

Thematic Area Leadership

Social Science Lead: Owen Temby, Ph.D.

Coastal Intelligence Co-Chairs: Paul Montagna, Ph.D. / Michael Martinez-Colon, Ph.D.

Coastal Resilience Co-Chairs: Owen Temby, Ph.D. / Jennifer Pollack, Ph.D.

Place-Based Conservation Co-Chairs: J. Cho, Ph.D. / Corey Garza, Ph.D.

Other Affiliated Faculty

Elijah Johnson, Ph.D., Florida A&M University

James C. Gibeaut, Ph.D., Texas A&M University-Corpus Christi

Hongmei Chi, Ph.D., Florida A&M University

Charles Jagoe, Ph.D., Florida A&M University

Richard Gragg, Ph.D., Florida A&M University

Erin Easton, Ph.D., University of Texas Rio Grande Valley

Thomas Sawicki, Ph.D., Florida A&M University

Xinping Hu, Ph.D., Texas A&M University-Corpus Christi

Carlos Cintra, Ph.D., University of Texas Rio Grande Valley

Alejandra Fierro-Cabo, Ph.D., University of Texas Rio Grande Valley

Greg Stunz, Ph.D., Texas A&M University-Corpus-Christi

Sarah Krejci, Ph.D., Bethune-Cookman University

Parisa Ebrahimbabaie, Ph.D., Bethune-Cookman University

Zurine De Miguel, Ph.D., California State University – Monterey Bay

Leticia Contreras, University of Texas Rio Grande Valley

Mikell Smith, M.S., Texas A&M University-Corpus Christi

CCME-II Students (See Appendix A Table 1)

## II. Accomplishments

### Major Activities

During this reporting period, NOAA CCME-II:

- **Continued its mission of educating training, and graduating a new generation of scientists, particularly from underrepresented communities, in NOAA-aligned disciplines.** –  
NOAA CCME-II trained 44 cohort students (10 bachelor's students, 23 Master's students, and 11 Ph.D. students) during this reporting period (see Appendix A Table 1). 86% of the students supported during this period are from underrepresented communities.
- **Recruited students into CCME-II -**  
NOAA CCME-II recruited 25 new scholars and was approved to fund 20 previously CCME-I-funded scholars through the FY21 award.
- **Provided training opportunities to CCME students to utilize interdisciplinary approaches to address environmental challenges confronting marine and coastal ecosystems** –  
In addition to their coursework and research, CCME students participated in the inaugural Annual Cohort Experience (ACE) webinars.
- **Shared research and Center information with the scientific community through and presentations and with the broader community through outreach activities** –  
These activities are highlighted below.
- **Launched a center-wide quarterly newsletter to enhance internal and external communications.**

### Significant Results:

During this reporting period, CCME-II:

- **Secured \$4,175,751 in leveraged funding, building capacity to conduct research aligned with the Center and providing opportunities for scholars at the partner institutions** –  
This funding is detailed in Section VIII. Financial Information.
- **Worked with NOAA mentors to develop 6 SSIOs for graduate and undergraduate scholars.**  
These SSIOs are detailed below.
- **Had one student begin his NERTO with his NOAA mentor**
- **Had students participate in a NOAA graduate fellowship** –  
Nina Mauney (CSUMB) completed her NOAA EPP/MSI Graduate Fellowship Program



research and final report.

**Key outcomes or other achievements:**

During this reporting period, CCME:

- **Trained 44 active (funded during this period) cohort students –**  
CCME Students and their statuses are detailed in Appendix A (Table 1).
- **Graduated 1 B.S. student –**  
Marcellus Jackinson, BCU, graduated in December 2022. Jackinson received his BS in computer engineering, and conducted research focused on developing an autonomous boat to data in estuaries. His approach combined strategies of uncrewed systems and artificial intelligence / machine learning. Marcellus partnered with fellow CCME-II scholar Jamal Burey on this project.
- **Began training scholars in Center competencies through the Annual Cohort Experience**  
Topics included:
  - Introduction to CCME-II, NOAA, and development of the P.I.C
  - Social Science within NOAA, presented by Dr. Danika Kleiber, NOAA PIFSC
  - Scientific Integrity and Ethics
- **Had five CCME-II scholars present synopses of their NOAA-aligned research plans to the Center and members of the Center Stakeholder Advisory Board and Science Advisory Council.**
  1. **David de la Garza** (UTRGV), “Ecological Factors Affecting Soil Carbon Fluxes Across Estuarine Vegetation Zones in Black Mangrove (*Avicennia germinans*) Stands of the Lower Laguna Madre”, faculty advisor Dr. Alejandro Fierro Cabo
  2. **Jasmine Caillier** (TAMUCC), “An Assessment of Benthic Condition in the Matagorda Bay System using a Sediment Quality Triad Approach”, faculty advisor Dr. Paul Montagna
  3. **Christian Amos** (TAMUCC), “Carbonate Chemistry in the Mission-Aransas Estuary and Its Controlling Factors (2018-2021)”, faculty advisor Dr. Xinping Hu.
  4. **Geaceli Orive** (UTRGV), “Insights to Genetic Connectivity of Gray Triggerfish (*Balistes caprisacus*) in the Mexican Caribbean, the Southern and Northwestern Gulf of Mexico”, faculty advisor Dr. Carlos E. Cintra-Buenrostro.
  5. **Foroozan Arkian** (FAMU), “Role of Coastal Atmospheric Processes in Determining Impacts of Pollutants on Coastal Ecosystems and Communities in the Gulf of Mexico Region”, faculty advisor Dr. Steven Morey.
- **Had three datasets published in public repositories –**  
These datasets are documented in Section III.
- **Had 22 presentations at scientific conferences, workshops, meetings, and as seminars –**

These include 16 student presentations and 6 faculty presentations that are documented in Section III.

- **Had scholars receive awards for their outstanding service, academic performance, and research–**
  - **Jiyahna Price**, BCU, was selected to attend the National Annual HBCU Week Annual National Conference, part of the HBCU Scholar Recognition Program of the White House Initiative on Education Equity, Excellence and Economic Development through HBCUs, and designed to identify current HBCU students for their dedication to academics, leadership, and civic engagement.
  - **Neina Chapa**, TAMUCC, was selected to receive the William and Lyell Snyder Memorial Endowed Scholarship in Marine Science and the Coastal Conservation Association Texas scholarship.
  - **Alyssa A. Outhwaite**, TAMUCC, won best poster presentation. University of Texas Marine Science Institute, Port Aransas, TX.
  
- **Had scholars participate in a large number of scientific webinars, workshops, technical training, and professional development activities, including:**
  - NOAA and CSC webinars, workshops, and training
    - NOAA CCME-II Annual Cohort Experience Webinars
    - CSC Education Team webinars
    - NOAA Science Seminars
  
  - Other scientific conferences, seminars, webinars, and meetings, including:
    - Texas Bays and Estuaries Conference
    - Bays and Bayous Symposium
    - Indian River Lagoon Symposium
    - American Fisheries Society Meeting
    - Mississippi Academy of Sciences Conference
    - Society for Ecological Restoration webinars
    - Various seminars at their home institutions
  
  - Technical and Professional development training
    - Participation on university-led research cruises
    - GROW Workshops in technical writing
    - PRIMER software training
    - PERMANOVA+ training
    - WRF modeling workshop
    - Roger F. Wicker Center for Ocean Enterprise Maritime Data Analytics Program
  
- **Engaged in outreach to the public and educational communities –**

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- **Neina Chapa** (TAMUCC) shared information about oyster reef restoration and associated ecosystem services at the HRI Surftoberfest, by hosting a Coastal Conservation and Restoration Lab Tour at HRI and at the Rockport Education Center.
  - **Alyssa Outhwaite and Neina Chapa** (TAMUCC) participated in the Austin Oysterfest sharing information to the public about oyster ecology.
  - **Susana Gonzalez** (TAMUCC) attended the Coastal Alliance to Protect our Environment Chapter Meeting to discuss local environmental concerns. She also participated in the Baffin Bay Stakeholder Group Meeting.
  - **Alyssa Outhwaite** (TAMUCC) attended a meeting with tribal elders in preparation for her NERTO that is being planned with the Point Au Chien Indian tribe in Houma, LA. She spoke with LA SeaGrant officials and the PACIT elders on shoreline vulnerability and social equity.
- **Developed SSIOs with NOAA mentors**
    1. **Foroozan Arkian** (FAMU), “Marine emissions of reactive nitrogen compounds and the impacts on the global atmospheric chemistry – For CSC Student,” with Dr. Brian McDonald, NOAA/OAR/CSL. Planned for Fall 2023.
    2. **Jasmine Callier** (TAMUCC), “Sediment Quality Assessment Survey of Lavaca and Matagorda Bays”, with Dr. Marie de Lorenzo, NOAA/NOS/NCCOS. Planned for Summer 2023.
    3. **Christopher Olson** (FAMU), “Comparison of NOAA Wave Model Simulations with High-Frequency Radar Data – For CSC Student”, with Dr. Dmitry Dukhovskoy, NOAA/NWS/NCEP. Planned for summer 2023.
    4. **Alyssa Outhwaite** (TAMUCC), “Importance of culture: how alternative oyster cultivation can be used to enhance equity among indigenous peoples within Terrebonne Parish, LA.”, with Dr. Becky Allee, NOAA/NOS/OCM. Planned for summer 2023.
    5. **Jiyahna Price** (BCU), “Impact of climate induced acidification, temperature, and nutrients on cyanobacteria harmful algal blooms in the Great Lakes - CSC student”, with Dr. Reagan Errera, NOAA/OAR/GLERL. Planned for summer 2023 (undergraduate internship).
    6. **David de la Garza** (UTRGV), “Quantification of Soil Carbon Flux from *Spartina alterniflora* Living Shorelines”, with Dr. Jennifer Davis, NOAA/NOS/NCCOS, Started February 2022.

## III. Products of Award

The following are products of the FY21 CSC award accomplished during this reporting period.

### Degrees Awarded:

1. **Jackson Marcellus**, BS, Computer Engineering, BCU

### Student Publications in Journals:

*Only publications with CCME award attribution are included.*

\*CCME Student, \*\*CCME Faculty, \*\*\*NOAA Collaborator, CCME students, and postdocs are in **bold**  
None to report

### Faculty Publications in Journals:

None to report

### Editor of Special Issues

None to report

### Books:

None to report

### Book Chapters

None to report

### Thesis/Dissertations:

None to report

### Conference Papers, Posters and Presentations:

\*CCME-II Student, \*\*CCME-II Faculty, \*\*\*NOAA Collaborator, CCME-II students and postdocs are in **bold**

*Student Presentations*

1. **Caillier, J.\***, P. Montagna\*\*, M. DeLorenzo\*\*\*, P. Key\*\*\*, K. Chung\*\*\* (2022). An Assessment of Benthic Condition in the Matagorda Bay System using a Sediment Quality Triad Approach. Society of Environmental Toxicology and Chemistry /SETAC Conference 2022.
2. Coffey, B., S. Gaudreault, **J. Price\***, H. J. Cho\*\* (2023). IRL Seagrass Restoration using Mosquito Control Impoundment. 2023 Indian River Lagoon Symposium.
3. Green, D.I., **Sweet, R.K\*.**, and B.P. Thoma\*\* (2023). Population connectivity of the Camp Shelby Burrowing Crayfish, *Creaserinus gordonii*. 2023 Mississippi Academy of Sciences.

4. **Jackson, D\*** and B. Thoma\*\* (2022). Diet and feeding ecology of the Atlantic mole crab, *Emerita talpoida*, and its potential impact on species of concern. JSU Research Engagement Week.
5. **Jackson, D.\*** and B.P. Thoma\*\* (2023). Generation of DNA Barcodes for the Atlantic Mole Crab, *Emerita talpoida*, and the Development of Blocker Primers for Fecal DNA Metabarcoding Analysis. 2023 Bays and Bayous Symposium.
6. **Jackson, D.M.N\*., Love, K\*.,** and B.P. Thoma\*\* (2023). Comparison of DNA yields using various DNA extraction methods for small fecal samples from marine crustaceans. 2023 Mississippi Academy of Sciences
7. Linder, J., B. Coffey, S. Gaudreault, **J. Price\***, H. J. Cho\*\* (2023). Mosquito Control Impoundments: An Unlikely Seagrass Hero? 2023 Indian River Lagoon Symposium.
8. **Love, K.\*** and B. Thoma\*\* (2022). Genomic analysis of the diet and feeding ecology of *Callichirus islagrande*, the beach ghost shrimp. JSU Research Engagement Week.
9. **Love, K.\*** and B.P. Thoma\*\* (2023). Generation of DNA Barcode Data for *Callichirus islagrande*, a beach ghost shrimp, and Generation of Blocker Primers for Fecal DNA Metabarcoding. 2023 Mississippi Academy Research Symposium.
10. **Love, K.\***, and B.P. Thoma\*\* (2023). Generation of DNA Barcode Data for *Callichirus islagrande*, a beach ghost shrimp, and Generation of Blocker Primers for Fecal DNA Metabarcoding. 2023 Bays and Bayous Symposium.
11. **Marcellus\*, J., J. Burey\*,** and J. Calderon (2023). Autonomous Boat Design for Remote Sensing. 2023 Indian River Lagoon Symposium.
12. **Outhwaite, A.\***, B. Lebreton, J. Beseres Pollack\*\* (2022). Any way the wind blows: how seasonal inundation affects wind-tidal flat community structure and resource quality. Texas Bays and Estuaries Meeting, University of Texas Marine Science Institute, Port Aransas, TX, September 21-22, 2022.
13. **Price\*, J., L. McGregor\*,** S. Brooks, and H.J. Cho\*\*. (2023). Center for Coastal and Marine Ecosystems: a NOAA EPP-Funded Cooperative Science Center. 2023 Indian River Lagoon Symposium.
14. **Sweet, R.\*** and B. Thoma\*\* (2022). Population connectivity of the Camp Shelby Burrowing Crayfish, *Creaserinus gordonii*. JSU Research Engagement Week.
15. **Sweet, R.\*** and B.P. Thoma\*\* (2023). Using Environmental DNA (eDNA) to Detect Hypoxia in Marine Waters. 2023 Bays & Bayous Symposium.
16. **Sweet, R.K.\*** and B.P. Thoma\*\* (2023). Comparison of commonly used methods for extraction and purification of environmental DNA from enclosed Sterivex filters. Mississippi Academy of Sciences.

#### *Faculty Presentations*

1. Venable, J.N., and B.P. Thoma\*\* (2023). Development of DNA Barcodes for *Lepidophthalmus louisianensis* and Their Use in Developing Blocker Primers for Fecal DNA Metabarcoding. 2023 Mississippi Academy of Sciences.

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2. Venable, J.N., and B.P. Thoma\*\* (2023). Development of DNA Barcodes for *Lepidophthalmus louisianensis* and Their Use in Developing Blocker Primers for Fecal DNA Metabarcoding. 2023 Bays and Bayous Symposium.
3. Easton, E.E.\*\* (2023). Molecular Genetics of Octocorals on MCEs: Integrative Approaches. 2023 Mesophotic Coral Reef Ecosystems Gordon Research Conference (Connectivity and Resilience Relative to Shallow Reefs).
4. Hicks, D.\*\* (2023). The Texas Barrier Reef. 2023 Winter Wildlife Outdoor Expo, WOVE..
5. Wetz, M.\*\* August (2022). Bringing Baffin Back: Restoring and protecting a Texas treasure. Corpus Christi Rotary Club.
6. Venable, J. and B. Thoma\*\* (2022). Determining the Diet of *Lepidophthalmus louisianensis* through Environmental DNA Metabarcoding. JSU Research Engagement Week.

### Technologies or Techniques:

None to report

### Patents:

None to report

### Inventions:

None to report

### Licenses:

None to report

### Websites:

CCME-II website: <https://ccme.famu.edu/>

### Other Products:

#### Publicly available datasets and products

1. Montagna, P.A.\*\*. 2023. Effects of Hurricane Harvey on benthos of San Antonio Bay. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University–Corpus Christi. <https://doi.org/10.7266/s1qhhvz2>
2. Montagna, P.A.\*\* and M.C. Ritter. 2023. Sampling scales to characterize estuarine macroinfaunal patch dynamics. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University–Corpus Christi. <https://doi.org/10.7266/jkp05qj9>
3. Montagna, P.A.\*\*\*, J. Caillier\*, M.E. DeLorenzo, and P. Key. 2023 Sediment Quality Triad (SQT) Assessment Survey of Lavaca and Matagorda Bays. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University–Corpus Christi. <https://doi.org/10.7266/9syzmzrd>

## IV. Participants in Award Performance

See Executive Summary and Appendix Table 1 for faculty and student participants.

### What other organizations have been involved as partners?

*Table 1: Federal and State Organizations as CCME Collaborative Partners*

Type of Partner Organization:	Organization Name:	Partner's Contribution to CCME
State	Florida Dept. of Environmental Protection	Stakeholder advisory board member Jenna Harper; providing research opportunities for CCME-II students at the Apalachicola National Estuarine Research Reserve
State	St. Johns Water Management District	Stakeholder advisory board member Charles Jacoby; providing research opportunities for CCME-II scholars
State	Padilla Bay National Estuarine Research Reserve	Stakeholder advisory board member Jude Apple; providing science connections to NERRs
Federal	USGS	Science Advisory Council member Curt Storlazzi; providing input on student research synopses

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**Have other collaborators or contacts been involved? Yes**

*Table 2: Non-Federal or State External Collaborative Partners with CCME*

Type of Partner Organization:	Organization Name:	Partner's Contribution to CCME
Academic	Florida Institute of Oceanography	Stakeholder Advisory Board member Monty Graham; providing experiential training opportunities to CCME-II scholars
Non-Profit	IOOS Association	Stakeholder Advisory Board member Kristen Yarincik
Academic	Mississippi State University	Stakeholder Advisory Board member James Sims; Providing subject matter expertise

**Have NOAA collaborators or contacts been involved? Yes**

*Table 3: NOAA Individuals as NOAA Collaborative Partners*

NOAA Mentor Name	NOAA Facility	CCME Scholar Name	Description of Collaboration
Alexandria Hounshell	NOS/NCCOS	Ashley Lacey	Research Mentor
Artara Johnson	NOS/CO-OPS	Kylee Lewis	Research Mentor
Ashok Deshpande	NMFS/NEFSC	Nigel Lascelles; Demarcus Turner; Maya McWilliams	NERTO and Research Mentor
Christopher Kelble	OAR/AOML	Lakean McGregor	NERTO Mentor
Glenn Zapfe	NMFS/SEFSC	Jacob Gonzalez; Geaceli Orive	Research and NERTO Mentor
Elliot Hazan	NMFS/SWFSC	Nina Mauney	NERTO Mentor/GFP Mentor
Ian Enochs	OAR/AOML	Edward Gniffke	Research and NERTO Mentor
Jeff Guyon	NOS/NCCOS	Jaden Hunt	Research and NERTO Mentor
Mark Rowe	OAR/GLERL	Andrea Pugh-Kelley	Research and NERTO Mentor
Dmitry Dukhovskoy	NWS/NCEP	Christopher Olson	NERTO Mentor
Ali Abdolali	NWS/NCEP	Christopher Olson	Research Mentor
Becky Allee	NOS/OCM	Alyssa Outhwaite	Research and NERTO Mentor
Brent Stoffle	NMFS/SEFSC	Mya Brown	Research Mentor
Bryan Cole	OAR/ORTA/UxSRTO	Jamal Burey	Undergraduate Internship Mentor; Subject Matter Expert for Center Training



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Denis Pierrot	OAR/AMOL	Christian Amos	Research and NERTO Mentor
Emily Osborne	OAR/AOML	Gabriella Lirio	Research and NERTO Mentor
Eric Hoffmayer	NMFS/SEFSC	Geaceli Orive	Research and NERTO Mentor
Marie de Lorenzo	NOS/NCCOS	Jasmine Callier	Research and NERTO Mentor
Randall Kosaki	NOS/NMS	Patricia Cockett	Research and NERTO Mentor
Randy Clark	NOS/NCCOS	Dijani Laplace	Research Mentor
Reagan Errera	OAR/GLERL	Jiyahna Price	Undergraduate Internship Mentor
Rietta Hohman	NOS/GFNMS	Madison McKay	Research Mentor
Siyuan Wang	OAR/CSL	Foroozan Arkian	Research Mentor
Brian McDonald	OAR/CSL	Foroozan Arkian	NERTO Mentor
Steve Morton	NOS/NCCOS	Susana Gonzalez	Research Mentor
Suzanne Bricker	NOS/NCCOS	Anthony Lima	Research and NERTO 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 44 cohort students (10 Bachelor's, 23 Master's, and 11 Ph.D.) have been recruited to join CCME-II in NOAA and CME-aligned disciplines. One CCME-II student graduated with a B.S. in Computer Engineering during this award period.

### **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?**

CCME-II has increased the number of CSC post-secondary students trained with core competencies relevant to the NOAA-mission workforce, including increased quantitative and analytical skills, increased competence in applying STEM and social science to decision making, policy and management, and increased skills to use large data sets, geographical information systems and statistical analysis, computer modeling, and algorithm development. These core competencies are achieved through the recruitment and graduation of students in Center-approved relevant degree programs to provide this training. To increase the training above the typical academic degree requirements, CCME students also participate in the Annual Cohort Experience. Students are provided with additional training (detailed in Section II), and conduct research aligned with the CCME-II thematic areas that include social science and big data as cross-cutting themes. The impact on candidate development is tracked and measured through the Individual Student Development Plan. Individual Student Development Plans were assessed with CCME-II Scholars at the end of the Fall 2022 semester.

CCME-II graduated one student from an under-represented community in a NOAA mission field.

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

Throughout the CSC award, CCME-II partner institutions increased their institutional capacity as a result of the award through enhancing research infrastructure, creating new curricula, and hiring new faculty. Partner institution JSU recently secured funding to purchase a 'omics-related instrumentation and is remodeling space to allow for the development of an aquaculture and aquarium science lab. JSU has created new undergraduate oceanography courses and is hiring a new GIS and remote sensing faculty member. FAMU is currently conducting a search to augment its environmental science faculty expertise.

CCME-II faculty secured \$4,175,751 in leveraged research funding during this reporting period. This funding builds upon Center student research activities to support field work for students and to provide additional equipment to be used for student research. This funding is detailed in Section VIII.

### **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?**

At the time of this report CCME-II is conducting a search and interviews for the Data and Information, Manager to support this function. The Center Deputy Director and Education Expert coordinate with other CCME-II team members to support data collection in keeping with the implementation of the award. Center accomplishments are communicated to the public and scientific community via,

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publications, and presentations. CCME-II communicates outcomes of the Center to NOAA through routine meetings with the Technical Monitors and other NOAA collaborators.

**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 transitioned into operations, applications, and commercialization to report at this time. CCME-II has been engaged with the NOAA Office of Research, Transition, and Application during the past reporting period to engage scholars and learn about opportunities with this office.

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

CCME-II scholars and faculty conduct research of societal importance. Each student's synopsis is evaluated to ensure that the societal relevance of the research is clearly identified. The impactful research by the Center is communicated to the scientific community through publications and presentations and to the larger community by the participation of CCME-II scholars and faculty in outreach activities.

CCME management, faculty, and students have also had the opportunity to emphasize the importance of their research and the NOAA CSC to Federal, State, and Local officials through participation in state and local events such as Oceans Day at the state capitols, participation in panels at briefings or stakeholder engagement events, and engagement with local and national leaders.

## VI. Changes / Challenges

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

Differences between proposed and accomplished student recruitment goals (shown in Appendix A Table 2) and how these were addressed are explained as follows: To date, CCME-II has supported a total of 44 of 53 planned degrees through Cohorts 1 and 2. Onboarding of cohort 1 students was not allowed until September 2022, due to CCME-II not being allowed to expend funds until that time. Nevertheless, cohort 1 recruitment has exceeded its goal of 23 students, recruiting 25 (one extra Ph.D. student was carried over from CCME-I into cohort 1 and one extra B.S. student was recruited into cohort 1). 19 of 30 cohort 2 students have been recruited, mainly consisting of CCME-I students being carried over into those cohort 2 slots. Recruitment of cohort 2 students will continue through August 2023. Delays in approval for carry-over requests of CCME-I students led to some students graduating prior to their requests being granted or opting to not join CCME-II leaving their anticipated cohort slots open.

### **Actual or anticipated problems or delays and actions or plans to resolve them:**

CCME-II experienced delays in hiring of two key personnel, the Deputy Director and the Data and Information Manager (DIM). CCME-II hired Dr. Viniece Jennings in January, 2023, as its Deputy Director. CCME-II has been conducting searches and interviews for its DIM. This search has been complicated by the 50% FTE requirement for this position. At present, candidate interviews are scheduled. In the absence of a person to fill that position, DIM duties are presently being shared by the Center Director, Deputy Director and Education Expert with other staff within FAMU assisting in updating the website.

### **Changes that have a significant impact on expenditures:**

CCME-II did not receive approval to spend funds until September 2022, one year after the award start date. This delay impacts spending of Year 1 and 2 funds. Further, the cohort model of funding means that, although budgets are set aside for cohort students, those funds are not actually expended which will lead to the need to carry unexpended funds into subsequent years to accommodate this model.

## VII. Special Award Conditions

This section details the progress made during this reporting period for the specified special award conditions below.

- 1. CSC Programmatic Specific Award Condition. Key award Positions May Not Be Vacant**  
NOAA CCME-II hired Dr. Viniece Jennings as the Deputy Director. Dr. Jennings began working in that role in January, 2023. CCME-II is currently conducting a search and interviews for the DIM.

### X. EPP MSI CSC Programmatic Special Award Conditions

- 1. Programmatic Specific Award Community (in NOAA VLab)**  
NOAA CCME-II submitted names and email addresses of individuals requesting access to VLab. CCME-II has not heard back from that submission.
- 2. Research Performance Progress Report (RPPR)**  
CCME-II submitted its semi-annual research performance progress report for the previous period in September 2022.
- 3. Multi-Year Special Award Condition**  
NOAA CCME-II year 2 funding award period began September 1, 2023.
- 4. Programmatic Specific Award Condition: Publicizing of Progress with Award Implementation**  
  
NOAA CCME-II is working with internal FAMU staff to update its website while the DIM search continues.
- 5. Year 2 Award Implementation with NOAA Involvement & Quarterly Meetings to Increase Students at NOAA**  
The quarterly meeting with NOAA EPP/MSI was scheduled for March 9, 2023, after this reporting period.  
CCME-II held regular weekly calls with its technical monitors during this reporting period to plan for the 2023 Center Annual Meeting.
- 6. Programmatic Award Conditions. Recruitment of Center Postdoctoral Fellows Requires Approval**  
  
A draft position announcement for the postdoctoral fellow positions is in development and will be advertised following the 2023 Annual Meeting on April 4-5
- 7. Programmatic Specific Award Condition. Annual Program Plan for Cooperative Science Award**  
No program plan was required to be submitted during this reporting period.
- 8. Center Award Annual Meeting**  
The center annual meeting is scheduled for April 4-5, 2023 in Silver Spring, MD. Planning for this event occurred during this reporting period.

**9. Programmatic Specific Award Condition: Approval for expenditure of funds for Center Joint Project**

Revisions to the JCRP plan were submitted on Sep 27, 2022, Nov 16, 2022, Jan 18, 2023, and Feb 13, 2023. At the time of this report, the plan approval is pending and no funds have been expended for the JCRP.

**10. Programmatic Award Condition - Data & Information Manager for Award**

CCME-II is currently conducting a search and interviews for the DIM.

**11. Programmatic Specific Award Condition. Transfer of Cohort Students from FY16 Award.**

CCME-II submitted revisions to its request for the transfer of cohort students from the FY 16 award. The request was approved in December 2022, and the students were onboarded into CCME-II in January 2023.

**12. Year 2 Programmatic Specific Award Condition. Rigorous Data Collection Robust Data Management Plan**

CCME-II submitted its data management plan on Nov 3, 2022.

**13. Programmatic Specific Award Condition. CENTER CALENDAR OF ACTIVITIES**

CCME-II submitted its calendar of activities on Dec 1, 2022.

## VIII. Financial Information

### 1. Total NOAA funding breakout

*Table 4: Award Budget Update*

Category	Amount Awarded	Amount Expended	Amount Remaining
Personnel	\$855,743.00	\$153,865.50	\$701,877.50
Fringe Benefits	\$299,509.00	\$54,157.91	\$245,351.09
Travel	\$53,679.00	\$1,777.29	\$51,901.71
Equipment	\$0.00	\$0.00	\$0.00
Supplies	\$3,274.00	\$0.00	\$3,274.00
Contractual	\$120,000.00	\$10,000.00	\$110,000.00
Construction	\$0.00	\$0.00	\$0.00
Other	\$7,574,245.00	\$1,017,902.31	\$6,556,342.69

### Participant Beneficiaries

*Table 5: Direct Student Support disbursed during the reporting period.*

		Cohort #	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-Time Research	Professional Development	TOTAL
1	Price, Jiyahna	1	BCU	\$0.00	\$3,800.00	\$20.00	\$0.00	\$1,951.01	\$0.00	\$5,771.01
2	Burey, Jamal	1	BCU	\$3,711.00	\$2,800.00	\$20.00	\$0.00	\$5,279.00	\$0.00	\$11,810.00
3	McGregor, LaKean	1	BCU	\$0.00	\$5,000.00	\$151.00	\$0.00	\$104.00	\$0.00	\$5,255.00
4	Marcellus, Jackinson	1	BCU	\$0.00	\$2,575.00	\$0.00	\$0.00	\$300.00	\$0.00	\$2,875.00
5	McKay, Madison	1	CSUMB	\$7,400.00	\$15,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22,400.00
6	Anzalone, Alyssa	1	CSUMB	\$7,400.00	\$15,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22,400.00
7	Mauney, Nina	2	CSUMB	\$3,700.00	\$5,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$8,700.00
8	Trevino, Taylor	1	CSUMB	\$3,700.00	\$6,996.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10,696.00
9	Romero, Nicholas	2	CSUMB	\$3,700.00	\$20,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23,700.00
10	Garrett-Mills, Amonra	1	FAMU	\$9,064.74	\$26,666.66	\$0.00	\$0.00	\$0.00	\$0.00	\$35,731.40
11	Arkian, Foroozan	1	FAMU	\$7,442.06	\$26,666.66	\$0.00	\$0.00	\$0.00	\$0.00	\$34,108.72
12	Smith, Emily	1	FAMU	\$18,552.72	\$20,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38,552.72
13	McWilliams, Maya	1	FAMU	\$18,652.72	\$10,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28,652.72
14	Howard, Taylor	2	FAMU	\$9,268.36	\$13,333.33	\$0.00	\$0.00	\$0.00	\$0.00	\$22,601.69
15	Lacey, Ashley	2	FAMU	\$3,721.03	\$10,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13,721.03
16	Lirio, Gabriella	2	FAMU	\$4,126.70	\$13,333.33	\$0.00	\$0.00	\$0.00	\$0.00	\$17,460.03
17	Hunt, Jalen	2	FAMU	\$9,268.36	\$13,333.33	\$0.00	\$0.00	\$0.00	\$0.00	\$22,601.69

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		Cohort #	CCME Partner Institution	Tuition	Stipend	Travel	NERTO	One-Time Research	Professional Development	TOTAL
18	Olson, Christopher	2	FAMU	\$9,268.36	\$13,333.33	\$0.00	\$0.00	\$0.00	\$0.00	\$22,601.69
19	Pugh-Kelley, Andrea	2	FAMU	\$3,721.03	\$10,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13,721.03
20	Turner, Demarcus	2	FAMU	\$9,268.36	\$7,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16,268.36
21	Miles, Jordan	2	FAMU	\$8,465.22	\$7,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15,465.22
22	Choice, Lalah	2	FAMU	\$4,770.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,770.16
23	Cesarone, Avia	2	FAMU	\$2,732.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,732.00
24	Sweet, Reneisha	1	JSU	\$9,500.00	\$15,000.00	\$1,218.94	\$0.00	\$0.00	\$0.00	\$25,718.94
25	Jackson, Dwan	1	JSU	\$9,500.00	\$15,000.00	\$804.54	\$0.00	\$0.00	\$0.00	\$25,304.54
26	Love, Kambrial	2	JSU	\$8,500.00	\$15,000.00	\$1,526.53	\$0.00	\$0.00	\$0.00	\$25,026.53
27	Brooks,, Destyn	2	JSU	\$4,500.00	\$3,000.00	\$582.35	\$0.00	\$0.00	\$0.00	\$8,082.35
28	Amos, Christian	1	TAMUCC	\$7,178.30	\$22,200.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29,378.30
29	Caillier, Jasmine	1	TAMUCC	\$7,233.10	\$25,800.00	\$9,140.74	\$0.00	\$5,901.00	\$1,565.00	\$49,639.84
30	Chapa, Neina	1	TAMUCC	\$8,650.74	\$15,000.00	\$0.00	\$0.00	\$335.27	\$985.00	\$24,971.01
31	Cockett, Patricia	1	TAMUCC	\$7,178.30	\$21,198.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28,376.30
32	Gonzalez, Susana	1	TAMUCC	\$8,850.74	\$19,999.32	\$0.00	\$0.00	\$0.00	\$0.00	\$28,850.06
33	Laplace, Dijani	1	TAMUCC	\$9,291.62	\$15,000.00	\$0.00	\$0.00	\$267.00	\$0.00	\$24,558.62
34	Lascelles, Nigel	2	TAMUCC	\$8,650.74	\$19,998.00	\$2,142.57	\$0.00	\$0.00	\$0.00	\$30,791.31
35	Lewis, Kylee	2	TAMUCC	\$8,650.74	\$15,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23,650.74
36	Lima, Anthony	2	TAMUCC	\$3,589.15	\$21,198.00	\$0.00	\$0.00	\$144.00	\$0.00	\$24,931.15
37	Outhwaite, Alyssa	2	TAMUCC	\$8,650.74	\$21,198.00	\$1,089.78	\$0.00	\$0.00	\$0.00	\$30,938.52
38	Brown, Mya	1	UTRGV	\$7,788.34	\$15,066.33	\$0.00	\$0.00	\$0.00	\$0.00	\$22,854.67
39	Cisneros, Jose	1	UTRGV	\$3,554.53	\$1,251.57	\$0.00	\$0.00	\$0.00	\$0.00	\$4,806.10
40	De la Garza, David	1	UTRGV	\$8,332.54	\$15,075.84	\$1,500.00	\$0.00	\$0.00	\$0.00	\$24,908.38
41	Duran, Sonia	2	UTRGV	\$4,116.27	\$5,037.96	\$341.40	\$0.00	\$0.00	\$0.00	\$9,495.63
42	Gniffke, Edward	2	UTRGV	\$3,894.17	\$5,037.96	\$0.00	\$0.00	\$0.00	\$0.00	\$8,932.13
43	Gonzalez, Jacob	2	UTRGV	\$3,894.17	\$5,037.96	\$0.00	\$0.00	\$0.00	\$0.00	\$8,932.13
44	Orive, Geaceli	2	UTRGV	\$8,762.77	\$14,474.06	\$0.00	\$0.00	\$0.00	\$0.00	\$23,236.83
<b>TOTALS:</b>				<b>Cohort 1</b>	<b>\$12,855.22</b>	<b>\$0.00</b>	<b>\$14,137.28</b>	<b>\$2,550.00</b>	<b>\$507,619.33</b>	
				<b>Cohort 2</b>	<b>\$5,682.63</b>	<b>\$0.00</b>	<b>\$144.00</b>	<b>\$0.00</b>	<b>\$378,360.22</b>	
				<b>All Cohorts</b>	<b>\$18,537.85</b>	<b>\$0.00</b>	<b>\$14,299.83</b>	<b>\$2,550.00</b>	<b>\$885,979.55</b>	



## 2. Total leverage funding breakout

Indicate funding source, type (grant or contract), amount, Center PI, project title; and how funding contributed to the FY 21 Center award for:

### *Postsecondary Student Support:*

- Indian River Lagoon National Estuary Program / FWC. “). IRL Seagrass Restoration using Mosquito Control Impoundment”. \$70,130. P.I. J. Cho, BCU. Provides opportunities for CCME-II student training and research in restoration.
- NASA MUREP, “DEAP Institute of Environmental Intelligence for Advanced Space-based Earth Sciences”. \$1,499,733. P.I. J. Cho, BCU. The DEAP Institute’s research will focus on Machine Learning-based development of a virtual constellation of satellites and other sensors to capture changing water levels from a storm event to multi-decadal time scales. At least one MS CCME-II student will conduct research on the topic of ML based estimation of water level changes using remote sensing data affiliated with this institute.
- DOE Title III B, “Advancing Data Analytics Program through Environmental Intelligence (ADAPT-EI)”. \$864,178. P.I., J. Cho, BCU. Collaboration of BCU’s environmental science, computer engineering, computer science, computational chemistry, and mathematics to enhance faculty and student’s data analytics research using environmental data. This program will provide CCME-II student professional development opportunities in Data Analytics using Environmental big data.
- California Ocean Protection Council, “Impact of sea level rise on intertidal communities: assessment to inform resilience-based management and conservation priorities”. \$1,125,935. P.I. C. Garza. This grant provides research opportunities using drone technology employed by CCME-II scholars.
- California Ocean Protection Council, “Identifying pathways to distributive equity in MPA management in a changing climate”. \$615,775. P.I. C. Garza. This grant provides opportunities for CCME-II students to engage in a relevant social science project.

**Total leveraged funding for reporting period: \$4,175,751**

## Appendix A: Summary Tables

*Appendix Table 1: CCME Scholars*

Name	URM Race /Ethnicity	School	Cohort	Degree	Thematic Area	Synopsis Title	NOAA Mentor	Mentor Line Office	Mentor lab/ office/ branch/ center	NERTO Mentor if different	Status	NERTO Title
Burey, Jamal	Black or African-American	BCU	1	B.S.			Bryan Cole		UxSRTO		SSIO IN DEVELOPMENT	
Marcellus, Jackson	Black or African-American	BCU	1	B.S.								
Romero, Nicholas	American Indian or Alaska Native	CSUMB	1	B.S.	CI			NMFS	SWFSC			
Trevino, Taylor	American Indian or Alaska Native	CSUMB	1	B.S.	PBC			NMFS	SWFSC			
Cesarone, Avia	Black or African-American	FAMU	1	B.S.								
Cisneros, Jose	Hispanic	UTRGV	1	B.S.	CI							
Anzalone, Aylssa	No	CSUMB	1	M.S.	PBC		Elliot Hazen	NMFS	SWFSC			
McKay, Madison	No	CSUMB	1	M.S.	PBC		Rietta Hohman	NOS	GFNMS			

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Name	URM Race /Ethnicity	School	Cohort	Degree	Thematic Area	Synopsis Title	NOAA Mentor	Mentor Line Office	Mentor lab/ office/ branch/ center	NERTO Mentor if different	Status	NERTO Title
McWilliams, Maya	Black or African-American	FAMU	1	M.S.	CI		Ashok Deshpande	NMFS	NEFSC		SSIO in DEVELOPMENT	
Garrett-Mills, Amonra	Black or African-American	FAMU	1	M.S.	CI		Emily Osborne	OAR	AOML	Beverly Barnett (SEFSC)	SSIO in DEVELOPMENT	
Jackson, Dwan	Black or African-American	JSU	1	M.S.	CI							
Sweet, Reneisha	Black or African-American	JSU	1	M.S.	CI							
Amos, Christian	American Indian or Alaska Native	TAMUC C	1	M.S.	CI	Carbonate Chemistry in the Mission-Aransas Estuary and Its Controlling Factors (2018-2021)	Denis Pierrot	OAR	AOML		SSIO in development	
Chapa, Neina	American Indian or Alaska Native	TAMUC C	1	M.S.	CI	Restoration of coupled intertidal and subtidal oyster reefs to rebuild habitat and fisheries in St. Charles Bay, Texas	Irma Lagomarsino	NMFS	West Coast Regional Office		SSIO IN DEVELOPMENT	
Callier, Jasmine	Black or African-American	TAMUC C	1	M.S.	CI	An Assessment of Benthic Condition in the Matagorda Bay System using a Sediment Quality Triad Approach	Marie De Lorenzo	NOS	NCCOS		Application in preparation	Sediment Quality Assessment Survey of Lavaca and Matagorda Bays

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Laplace, Dijani L.	Black or African-American	TAMUC C	1	M.S.	CR		Randy Clark	NOS	NCCOS	Seeking		
Brown, Mya	Hispanic	UTRGV	1	M.S.	PBC		Brent Stoffle	NMFS	SEFSC	communicating with Danika Kleiber, PIFSC		
Orive, Geaceli	Hispanic	UTRGV	1	M.S.	PBC	Insights to Genetic Connectivity of Gray Triggerfish ( <i>Balistes caprisucus</i> ) in the Mexican Caribbean, the Southern and Northwestern Gulf of Mexico	Eric Hoffmayer / Glenn Zapfe	NMFS	SEFSC		SSIO in DEVELOPMENT (planned for August 2023)	
Garza, David R.	Hispanic	UTRGV	1	M.S.	CI	Ecological Factors Affecting Soil Carbon Fluxes Across Estuarine Vegetation Zones in Black Mangrove ( <i>Avicennia germinans</i> ) Stands of the Lower Laguna Madre	Jennifer Davis	NOS	NCCOS		In Progress Feb 21 - May 12	Quantification of Soil Carbon Flux from <i>Spartina alterniflora</i> Living Shorelines

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Name	URM Race /Ethnicity	School	Cohort	Degree	Thematic Area	Synopsis Title	NOAA Mentor	Mentor Line Office	Mentor lab/ office/ branch/ center	NERTO Mentor if different	Status	NERTO Title
Arkian, Foroozan	No	FAMU	1	Ph.D	CI	Role of Coastal Atmospheric Processes in Determining Impacts of Pollutants on Coastal Ecosystems and Communities in the Gulf of Mexico Region	Siyuan Wang	OAR	CSL	Brian McDonald, OAR/CSL	Application in preparation	Marine emissions of reactive nitrogen compounds and the impacts on the global atmospheric chemistry – For CSC Student
Smith, Emily	Black or African-American	FAMU	1	Ph.D	CI							
Gonzalez, Susana	Hispanic	TAMUC C	1	Ph.D	CI	Assessing harmful algal bloom prevalence and potential impacts in Texas	Steve Morton	NOS	NCCOS		planned for 2025	
Price, Jiyahna	Black or African-American	BCU	1	B.S.			Reagan Errera	OAR	GLERL		Application in preparation	Impact of climate induced acidification, temperature, and nutrients on cyanobacteria harmful algal blooms in the Great Lakes - CSC student
Love, Kambrial	Black or African-American	JSU	2	M.S.	CI							
Duran, Sonia	Hispanic	UTRGV	2	M.S.	PBC							

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McGregor, Lakean	Black or African-American	BCU	1 (carry over)	M.S.	PBC	Comparing temperature impacts on reproductive success, survival, and gene expression between tropical and subtropical populations of dwarf seahorses, <i>Hippocampus zosterae</i>	Chris Kelble	OAR	AOML		Completed 2022 Aug 14	Investigating long-term changes in estuarine biota
Cockett, Patricia	Native Hawaiian or Pacific Islander	TAMUC C	1 (carry over)	Ph.D	CI	Linking the Land and Sea: Adaptation of Hawaiian Traditional Ecological Knowledge to South Texas Coastal Marine Ecosystems	Randall Kosaki	NOS	Papahāna umokuāke a Marine National Monument		Completed 2019 September	Temporal and Spatial Comparison of Intertidal Community Dynamics Within Papahānaumokuākea Marine National Monument
Choice, Lalah	Black or African-American	FAMU	2 (carry over)	B.S.								
Jordan, Miles	Black or African-American	FAMU	2 (carry over)	B.S.								
Brooks, Destyn	Black or African-American	JSU	2 (carry over)	B.S.								

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Mauney, Nina	Hispanic	CSUMB	2 (carry over)	M.S.	PBC	Characterizing movement and habitat use of leatherback sea turtle ( <i>Dermochelys coriacea</i> )	Elliot Hazan	NMFS	SWFSC		Completed 2022 Jan 6	Top predator ecology and ecosystem response to climate variability and change in the Northeast Pacific
Turner, Demarcus	Black or African-American	FAMU	2 (carry over)	M.S.	CI	Validating a Model of Microplastic Hotspots from the Apalachicola Watershed to the Apalachicola Bay	Ashok Deshpande	NMFS	NEFSC		Completed 2022 August 31	Detection and identification of microplastics in a deep diving cetacean, the pygmy sperm whale ( <i>Kogia breviceps</i> )
Lirio, Gabriella	Hispanic	FAMU	2 (carry over)	M.S.	CI	Latitudinal effects of ocean acidification in calcifying meiofauna over the past 40 years	Emily Osborne	OAR	AOML		Completed 2022 Aug 15	Developing proxy tools to track ocean acidification in the Gulf of Mexico for CSC student
Howard, Taylor	Black or African-American	FAMU	2 (carry over)	M.S.	CR							
Lewis, Kylee	American Indian or Alaska Native	TAMUC C	2 (carry over)	M.S.	CR	Hydrodynamic Modeling of Oyster Reefs under Climate Change Conditions	Artara Jonson	NOS	CO-OPS		Completed 2021 Aug 20	For EPP CSC Student "Oceanographic Data Analysis Using Modeled and Observed Water Level Data"

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Gonzalez, Jacob	Hispanic	UTRGV	2 (carry over)	M.S.	PBC	Increasing temperature effects on the distribution of <i>Anchoa spp.</i> in Texas coasts	Glenn Zapfe	NMFS	SEFSC		Completed 2022 August 26	Examining the role three fishery-independent programs play in the fisheries management of reef community species in the northern Gulf of Mexico
Gniffke, Edward	No	UTRGV	2 (carry over)	M.S.	PBC	A preliminary characterization and assessment of mesophotic octocoral microbiomes in the western Gulf of Mexico	Ian Enochs	OAR	AOML		Completed 2022 August 30	siRNA mediated gene knockdown in <i>Acropora cervicornis</i> . Investigating sclerite composition using micro-CT to describe <i>Scleracis</i> species.
Lacey, Ashley	Black or African-American	FAMU	2 (carry over)	Ph.D	CR		Alexandria Hounshell	NOS	NCCOS	Erin Schnettler, OLIA	Completed 2021 November 12	NOAA EPP/MSI Research and Training Opportunity with NOAA Office of Legislative Affairs for CSC Student
Olson, Christopher	No	FAMU	2 (carry over)	Ph.D	CI		Ali Abdolali	NWS	NCEP	Dmitry Dukhovskoy	Application in preparation	Comparison of NOAA Wave Model Simulations with High-Frequency Radar Data – For CSC Student



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Hunt, Jaden	Black or African-American	FAMU	2 (carry over)	Ph.D	CI		Jeff Guyon	NOS	NCCOS		SSIO IN DEVELOPMENT	
Pugh-Kelley, Andrea	Black or African-American	FAMU	2 (carry over)	Ph.D	CI	Pathways of PFAS in the Great Lakes from Sources to Water Intakes and Human Consumption	Mark Rowe	OAR	GLERL		Completed 2019 August	Numerical Simulation of PFAS in the Great Lakes for NOAA EPP Graduate Student
Lascelles, Nigel	Black or African-American	TAMUC	2 (carry over)	Ph.D	CI	Tire Wear particles in surface waters and their impacts on the Environment	Ashok Deshpande	NMFS	NEFSC		Completed 2022 May 24	Kinetics of chemical contaminant uptake by the microplastics (for CSC Student)
Outhwaite, Alyssa	No	TAMUC	2 (carry over)	Ph.D	PBC	Ecological structure and function of estuarine habitats in Matagorda Bay, Texas	Becky Alee	NOS	OCM		Application in preparation	Importance of culture: how alternative oyster cultivation can be used to enhance equity among indigenous peoples within Terrebonne Parish, LA.
Lima, Anthony	Hispanic	TAMUC	2 (carry over)	Ph.D	CR	Exploring Oyster Aquaculture Potential and Investigating Economic, Ecological, and Legal Barriers	Suzanne Bricker	NOS	NCCOS		Completed 2021 Aug 30	Eutrophication, shellfish aquaculture, and bioextraction: ecosystem services provided by oysters

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*Appendix Table 2: Number of Degrees Supported by Cohort (Sept. 2021-Feb. 2023)*

<b>Institution</b>	<b>Degree</b>	<b>From Annual Plan</b>	<b>Accomplished</b>	<b>From Annual Plan</b>	<b>Accomplished</b>
<b>FAMU</b>	<b>Cohort 1</b>			<b>Cohort 2</b>	(in progress)
	Bachelor's	1	1	Bachelor's	1
	Master's	2	2	Master's	3
	PhD	2	2	PhD	4
<b>B-CU</b>	Bachelor's	1	3	Bachelor's	1
	Master's	2	1	Master's	0
<b>CSUMB</b>	Bachelor's	1	2	Bachelor's	3
	Master's	2	2	Master's	2
<b>JSU</b>	Bachelor's	0	0	Bachelor's	1
	Master's	2	2	Master's	2
	PhD	0	0	PhD	0
<b>TAMUCC</b>	Bachelor's	0	0	Bachelor's	0
	Master's	4	4	Master's	2
	PhD	1	2	PhD	5
<b>UTRGV</b>	Bachelor's	3	1	Bachelor's	1
	Master's	2	3	Master's	5
<b>Center Totals</b>	<b>Cohort 1 Total</b>			<b>Cohort 2 Total</b>	
	<b>Bachelor's</b>	<b>6</b>	<b>7</b>	<b>Bachelor's</b>	<b>7</b>
	<b>Master's</b>	<b>14</b>	<b>14</b>	<b>Master's</b>	<b>14</b>
	<b>PhD</b>	<b>3</b>	<b>4</b>	<b>PhD</b>	<b>9</b>
<b>TOTAL</b>		<b>23</b>	<b>25</b>		<b>30</b>
<b>Total Degrees Planned through Cohort 2</b>		<b>53</b>			
<b>Total Degrees Supported through Cohort 2</b>		<b>44</b>			

## **Appendix B: Advisory Boards**

B1. Science Advisory Council Members

B2. Community Stakeholder Advisory Board

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## Appendix B1: CCME Science Advisory Council Members

**Chair:** Dr. Curt Storlazzi, Project Chief Scientist  
U.S. Geological Survey  
Coastal and Marine Hazards and Resources Program

Dr. Curt Storlazzi, Research Geologist, USGS Pacific Coastal and Marine Science Center

Dr. Curt Storlazzi is a Project Chief Scientist with the U.S. Geological Survey's Coastal and Marine Hazards and Resources Program and Research Associate with the University of California at Santa Cruz's Institute for Marine Science. He presently leads a USGS team examining the geologic and oceanographic processes that affect the health and sustainability of coral reefs, and the hazard risk reduction they provide adjacent coastlines. He is on the steering committee for the US Coral Reef Task Force and regularly contributes scientific review for the US Global Change Research Program, the US Department of the Interior, the US Department of the State, the US Department of the Defense, and the US's and other countries' National Science Foundations.

### Council Members

Dr. Jeffrey Collins, Environmental Biologist, NASA Kennedy Space Center

Dr. Jeffrey Collins is an environmental biologist at the NASA Kennedy Space Center. Dr. Collins conducts research in the Indian River Lagoon, recently working to develop the Indian River Lagoon Health Initiative Plan to provide a framework for KSC and its partners to navigate the unique relationship between the space center and the Indian River Lagoon (IRL) National Estuary. The national estuary is on and adjacent to the spaceport, and the plan proposes restoration projects and actions directly addressing current environmental challenges.

Dr. James Sims, Deputy Director, Northern Gulf Institute, Mississippi State University

Dr. James Sims is the deputy director and strategic advisor for federal partnerships at the Northern Gulf Institute, a NOAA Cooperative Institute hosted by Mississippi State University. She is an accomplished atmospheric scientist with extensive U.S. government program management experience. She previously served as the director of the modeling program and senior science advisor for artificial intelligence within the NOAA National Weather Service's Office of Science and Technology Integration.

### NOAA Employee Members

Dr. LaToya Myles, Director, NOAA Air Resources Laboratory, Atmospheric Turbulence and Diffusion Division, Oak Ridge, TN,

Dr. LaToya Myles' research is interdisciplinary, involving both atmospheric chemistry and environmental science. She measures the exchange (i.e., emission and deposition) of gases and particles between the air and land in coastal and agricultural ecosystems. Many of her measurement studies focus on ammonia (NH<sub>3</sub>), 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.

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Dr. Francisco Werner, Director of Scientific Programs and Chief Science Advisor,  
NOAA Fisheries

Dr. Francisco (Cisco) Werner is the Director of Scientific Programs and Chief Science Advisor for NOAA Fisheries, a role he took on in June 2017. In this capacity, he leads NOAA Fisheries' efforts to provide the science needed to support sustainable fisheries and ecosystems and to continue our nation's progress in ending overfishing, rebuilding fish populations, saving critical species, and preserving vital habitats.

## Appendix B2: Community Stakeholder Advisory Board Members

**Chair:** Dr. Charles Jacoby  
Supervising Environmental Scientist  
Water Resources  
St. Johns River Management District

Dr. Charles Jacoby is the Supervising Environmental Scientist for the Estuaries Section at the St. Johns River Water Management District and a Courtesy Associate Professor in the Soil and Water Sciences Department at the University of Florida. In these roles, he translates science into sustainable management of aquatic systems. He received bachelor's and master's degrees in biological sciences from Illinois State University, a doctorate in biological sciences from Stanford University, and a master's in business administration from the University of Western Australia.

During his career, he has investigated water quality, seagrasses, spring-fed systems, saltmarshes, mid-water systems, invertebrates, fish, and manatees. Drawing from his experience, he has provided advice to industry and federal, state, and local governments in both the United States and Australia, including being a Gubernatorial appointment to Florida's Harmful Algal Bloom Task Force.

### Board Members

Dr. Jude Apple, Director, Padilla Bay National Estuarine Research Reserve

Dr. Jude Apple is an oceanographer, estuarine ecologist, STEM educator, and Director of the Padilla Bay National Estuarine Research Reserve. His research interests include ocean acidification, plankton communities, eelgrass ecology, and response of coastal ecosystems to a changing climate – and how to use this information to achieve sustainable management of our valuable coastal resources. He is also involved in developing curriculum and professional learning opportunities that advance climate and data literacy for K-12 learners.

Jenna Harper, Director, Apalachicola National Estuarine Research Reserve

Ms. Jenna Harper has served as the Director of the Apalachicola National Estuarine Research Reserve since 2014. Before moving into the Director role, Jenna served as the Research Coordinator for the Reserve, facilitating in-house research, collaboration with outside researchers and the running the System-

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wide Monitoring Program. As the Director, Jenna partners with many institutions to address locally relevant coastal management issues such as declining water quality and quantity, changing fisheries status, and climate change impacts. The Apalachicola NERR has been a partner with FAMU in the CCME, and previous to that the Environmental Cooperative Science Center, for 19 years. The NERR is committed to facilitating priority research with CCME scientists and supporting the development of the next generation workforce.

Dr. Monty Graham, Director, Florida Institute of Oceanography

Dr. Monty Graham is the Director of the Florida Institute of Oceanography hosted at the University of South Florida. During more than two decades of academic and professional service to the University of Southern Mississippi and his previous institution, the University of South Alabama, Graham has been the department chair of Marine Science and the interim director of the Gulf Coast Research Laboratory, in addition to his 16 years as senior marine scientist at Dauphin Island Sea Lab in Alabama. He also served as an advisory board member for the National Academy of Science, Engineering, and Medicine's Gulf Research Program. He has recently served as interim associate vice president for Research, Coastal Operations, as board chair of the Consortium for Ocean Leadership, and as a member of the board of directors of the Ocean Exploration Trust. Throughout his career, Graham has authored or co-authored more than 85 peer-reviewed scientific articles, mostly in biological oceanography, focusing on jellyfish behavior and the effects of the Deepwater Horizon oil spill and the Gulf Coast region.

Dr. Steve Lonhart, Research Coordinator, Monterey Bay National Marine Sanctuary

Ms. Kristen Yarincik, Director, IOOS Association

Ms. Kristen Yarincik is the executive program director for the IOOS Association. She has 20 years experience in strategic and mission-oriented ocean science and education program management and development. She previously served as the Vice President and Director for Research and Education for the Consortium for Ocean Leadership, where she provided technical and strategic advice and programmatic oversight to Ocean Leadership's research and education programs

## **Appendix C: Evaluation Summary**

The External Evaluation Team reviewed the RFA (FFO for 2021 award) and CCMET II proposal and then worked with the CCME II Management Team to review all required plans. After that review, the External Evaluation Team drafted the evaluation plan and scope of the CCME II Evaluation narrative that was included in the submitted Implementation Plan. The Evaluation Team also participated in a conference call with the Project Director and the Education Expert to review the plan for assessing student competencies and related rubric. The Evaluation Team is currently working to complete the final details of the comprehensive CCME Evaluation Plan. There were no invoices or payments made during the six-month cycle.