EXECUTIVE SUMMARY

Brief Description of the selected COE

In 2015 the Alabama Gulf Coast Recovery Council (AGCRC) selected the Alabama Marine Environmental Sciences Consortium (MESC) at the Dauphin Island Sea Lab (DISL) to be the home for Alabama's Center of Excellence (ALCOE). The Alabama MESC is comprised of 23 public and private colleges and universities located throughout Alabama from the mountains to the coast: Alabama A&M University, Alabama State University, Athens State University, Auburn University, Auburn University at Montgomery, Birmingham-Southern College, Huntingdon College, Jacksonville State University, Judson College, Samford University, Spring Hill College, Stillman College, Talladega College, Troy University, Tuskegee University, The University of Alabama, University of Mobile, the University of Montevallo, the Universities of North Alabama, South Alabama, and West Alabama. The MESC was founded to focus resources and reduce redundancy in Marine Sciences in higher education while serving as a vehicle for collaborative coastal studies. Dauphin Island Sea Lab was founded in 1972, a former Air Force Base. Please see https://www.disl.edu/about/our-history for a history of DISL's facilities, science, and personnel. The Dauphin Island Sea Lab's mission is to become a center for transformative U.S. oceanic and coastal research and education.

The mission of the AL Center of Excellence is to provide citizens and officials access to the findings of innovative research and information related to Mobile Bay and Alabama Coastal Waters

Overview of focus of the COE

The ALCOE is focused on RESTORE Act Priority Disciplines 1,2,4, and 5, highlighted below.

(1) Coastal and deltaic sustainability, restoration and protection, including solutions and

technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast Region;

(2) Coastal fisheries and wildlife ecosystem research and monitoring in the Gulf Coast Region;

(4) Sustainable and resilient growth, economic and commercial development in the Gulf of Mexico;

(5) Comprehensive observation, monitoring, and mapping of the Gulf of Mexico.

Summary of the annual performance of the COE

Of the 17 milestones outlined in the Alabama Center of Excellence Federal Award, two (2) were completed in 2022 and seven (7) are ongoing.

Completed milestones included RFP issuance, proposal evaluation, and subaward execution related to <u>AICOE RFP #1</u> Ten (10) proposals were selected for funding related to ALCOE RFP#1 totaling a dedication of over \$ 4 million to research. The awards are listed below. The duration of the research portion of each project is approximately three (3) years. Late 2022/Early 2023 marks year one (Y1) of the research related to these 10 projects.

Dauphin Island Sea LabRuth CarmichaelMonitoring and Predicting Responses of a Sentinel Marine Megafauna to Climate Change and Implications for the Tropicalization of the Northern Gulf of MexicoDauphin Island Sea LabJeff KrauseUsing Optical and Metabolomic Approaches to Predict the Nutritional Quality of Plankton Communities for Shellfish Consumption Under Multi-Stressor Climate Conditions.Dauphin Island Sea LabKelly DorganMeiofaunal Diversity as a Tool for Understanding and Monitoring Northern Gulf of Mexico Environments.Auburn UniversityChristopherAssessing the Function and Vulnerability of Forested Wetlands in the Mobile-Tensaw-Apalachee River Delta.Auburn UniversityShufen PanIntegrating Multi-Scale Observations, Machine Learning and Systems Modeling for Coastal Monitoring, Assessment, and Prediction (Coast-MAP) in the Context of Multiple Stresses.Auburn University of AlabamaYong ZhangGroundwater 2070 in Baldwin County, Alabama Under a Changing Climate and Threatened by Seawater Intrusion: From Sustainability to VulnerabilityUniversity of AlabamaKenneth HoadleyUnderstanding the Interactive Effects of Predation and Ocean Acidification on Economically Important Oyster Variants in the Northern Gulf of MexicoUniversity of South AlabamaBrian DzwonkowskiUsing Shelf Monitoring to Assess Multi-Stressor Impacts on Dissolved Oxygen Dynamics and Hypoxia in a Changing Coastal Climate.	Institution	Lead Principal Investigator	Project Title
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The Center of Excellence Website design and launch was complete in February 2022. Website maintenance will be ongoing through 2025.

Wetlab improvements began in 2022. Facility improvements were complete in August 2022. Delivery, installation, and set-up of the instrumentation required to mimic multi-stressor systems in the lab are underway.

Modernization activities continued on the Alabama Real-Time Coastal Observatory System (ARCOS) Stations funded through ALCOE. Upgrades and maintenance on these three stations will continue through 2025. Other ARCOS Stations in the network are funded through other sources. Each station has a meteorological and hydrography component. Those measuring devices are changed out typically every two weeks due to fouling. ARCOS instrumentation can be damaged in large storms. In 2022 DISL Technical Support and Data Management teams brought ARCOS stations down as a result of Hurricane Sally back online.

Supply chain disruptions related to instrumentation and construction were challenges in 2022.

Field sampling for monitoring related to marsh and seagrass connectivity began in 2022.

ALCOE and ADCNR-Marine Resources Divisions (MRD) work to investigate the use of eDNA to monitor fish in Alabama's coastal waters is ongoing.

Programmatic Elements

Award Recipient

Treasury – ADCNR: Treasury issued an amendment to the federal award to ADCNR on September 14, 2022. The amendment extended the period of performance to September 30, 2025. ADCNR executed the sub-award amendment extending the period of performance with MESC, and conducted routine monitoring and reporting, and participated in routine meetings with the Center of Excellence. Additionally, ADCNR holds a monthly monitoring call with Treasury and MESC.

Award Sub-recipient/Consortium Lead

ADCNR – Marine Environmental Sciences Consortium:

During the reporting period, ADCNR and MESC conducted routine monitoring and reporting activities, including monthly reporting submittal and monthly status calls, and participated in routine meetings.

MESC worked to finalize scopes of work and fully execute subawards with each of the investigators from successful RFP#1 proposals.

Financial Elements

Award Recipient

Recipient:Alabama Department of Conservation and Natural ResourcesAward Amount:\$8,454,643.00Expenditures to Date:\$43,187.92*Funds Leveraged:\$0.00

 Amount is less than last year because we excluded pre-award costs and costs that are over budget and have not been recovered.

Award Sub-recipient/Consortium Lead

Sub-recipient:Marine Environmental Sciences ConsortiumSub-award Amount:\$8,368,353.00Expenditures to Date:\$834,238.29Funds Leveraged:\$0.00

Gulf Coast Ecosystem Restoration Council Elements

Relevant Synergies/Collaboration with other RESTORE funding streams

Alabama's Center of Excellence (ALCOE) participates in bimonthly calls with the Gulf Restoration and Science Programs Coordination Forum. This forum is lead by the NOAA RESTORE Science Program and works to facilitate collaboration between the different RESTORE funding streams. ALCOE joined one of the working groups examining the metrics used for program success and transfer of research to various stakeholders including State resource managers.

Relevant Synergies/Collaboration with other DWH funding mechanisms

Currently, ALCoE does not have any synergies/collaborations with other DWH funding mechanisms to report.

Opportunities

Currently, ALCOE does not see any need for modifications to existing laws or program rules to improve the COE grant program.