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**2025 Annual**

**Gulf Coast Ecosystem Restoration Council Report**

**Texas RESTORE Centers of Excellence**

**(October 1, 2024 – September 30, 2025)**

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## **I. Executive Summary**

In March 2015, as the Texas Governor's appointee to the RESTORE Council, Commissioner Toby Baker of the TCEQ established two Centers of Excellence (COE) in Texas in accordance with the requirements set forth in the RESTORE Act and U.S. Treasury regulations: Texas OneGulf and Subsea Systems Institute.

### **Texas OneGulf**

The mission of the Texas OneGulf (OG) Center of Excellence is to gather and improve knowledge about the Gulf of America to inform decision-making around the challenges to environmental and economic sustainability of the Gulf of America and its impact on the health and well-being of Texans and the nation. Texas OneGulf is designed with the capacity and flexibility to address all five disciplines denoted in Section 1605 of RESTORE. Drawing from the Texas OneGulf Strategic Research and Action Plan, the Council identified Texas OneGulf Priority Needs, including priority research questions in the Community Resilience and Estuarine and Coastal Environments focus areas.

### **Subsea Systems Institute**

The Subsea Systems Institute (SSI) is a Center of Excellence formed under the RESTORE Act and represents a collaboration between the University of Houston, Rice University and NASA/Johnson Space Center. The mission of SSI is to improve the safety and efficiency of offshore energy development by facilitating engineering, science and policy research and through third party unbiased validation of technology and practices, and by increasing skill sets across the workforce aligned with the development and deployment of new technologies. The vision and objectives for the institute are to:

- Support economic and workforce development in the State of Texas through collaboration between research institutions, colleges and industry
- Develop best available technology and risk mitigation practices to positively impact offshore safety by bringing together NASA, industry and academic expertise
- Provide unbiased third-party validation and establishment of best practices to build public trust in the sustainable and safe offshore drilling and production operations in the Gulf of America region and beyond
- Attract and retain talent for jobs and investments in the local, state and national economy

### **Summary of the Annual Performance of Texas COE**

Texas continues to move the Centers of Excellence program forward. Both Centers continued to work with stakeholders and advisory councils. TCEQ monitored activities associated with each Centers' operational Grant Activity Description (GAD) and research project GADs (six with Texas OneGulf and four with SSI). In September 2024, Treasury issued an amendment to Grant II award, providing an additional \$3,088,000.00 to each Center, and extending the end date to August 31,

2027. Since October 2024, TCEQ has worked with Centers to extend project contracts to February 28, 2027.

## **II. Programmatic Elements**

### **Award Recipient**

In 2020, TCEQ, on behalf of Commissioner Baker and the Governor, received Grant II award from Treasury with an end date of August 31, 2024. That award addresses the disciplines denoted in Section 1605 of RESTORE. Treasury issued an amendment to the award in September 2024, providing an additional \$3,088,000.00 to each Center, and extending the end date to August 31, 2027.

Annual TCEQ accomplishments include:

- extended project contracts to February 28, 2027;
- began sub-awarding process for three Proposals of Grant Activities to OG;
- participated in OG's Request for Proposal (RFP) activities;
- monitored activities associated with all ten active projects and two operational GADs (Grant Activity Description);
- monitored and reviewed deliverables submitted by Centers;
- responded to inquiries from Centers;
- reviewed invoices and processed eligible expenditures for reimbursement;
- generated and submitted required federal reporting; and
- held end-of-year meetings with each of the two Centers to discuss detailed reviews of the progress for each of the active projects and to discuss upcoming and longer-term activities and goals.

### **Award Subrecipient(s)**

#### **Texas OneGulf Consortium**

The nine participants in the Texas OneGulf Consortium include:

- Harte Research Institute (HRI) at Texas A&M University - Corpus Christi
- Texas A&M Center for Environmental Health Research (TiCER) – College Station
- Sealy Center for Environmental Health and Medicine (SCEHM) at the University of Texas Medical Branch (UTMB)
- Center for U.S. and Mexican Law (UHLC) at the University of Houston Law Center
- School of Earth, Environmental, and Marine Sciences at University of Texas – Rio Grande Valley (UTRGV)
- Geochemical and Environmental Research Group (GERG) at Texas A&M University – College Station
- Gulf of America Coastal Ocean Observing System (GCOOS) – Regional Association – College Station

- Meadows Center for Water and the Environment at Texas State University (TSU) – San Marcos
- Departments of Marine Biology, Marine Engineering Technology, and Marine and Coastal and Environmental Science at Texas A&M University – Galveston (TAMUG)

The five participants in the Texas OneGulf Agency Council include:

- Texas Commission on Environmental Quality (TCEQ)
- Texas Division on Emergency Management (TDEM)
- Texas General Land Office (TXGLO)
- Texas Parks and Wildlife Department (TPWD)
- Texas Water Development Board (TWDB)

## PROJECTS

TCEQ monitored activities associated with the operational Grant Activity Description (GAD) and five research project GADs. GAD 2 closed during a previous reporting period.

### **GAD 1 – 22150 Operations and Administration**

Met the reporting requirements, continued to oversee the day-to-day operations, and administration of the Center.

Continued completing monetary amendments documents for submission. Executed Amendment 5. Reviewed, edited, and re-submitted monetary amendments documents for submission to TCEQ and Treasury. Continued execution of three selected projects from Notice of Funding Availability (NoFA) FY25. Drafted and submitted Grant Activity Document (GAD) 8-10 documents. Executed monetary amendments for GADs 1 and 5.

Texas OneGulf met with the US Department of Treasury and the Texas Commission on Environmental Quality (TCEQ) for a site visit in November 2023. Attended, represented, and presented Texas OneGulf at the Gulf of America Alliance (GOAA).

Julie Parish Cantwell was successfully onboarded as Texas OneGulf's Program Manager. Continued interviews with each Texas OneGulf Agency Council (TOAC) and Texas OneGulf Consortium Leadership (TOCL) in preparation for meetings and analysis to establish funding priorities for next Request for Proposal (RFP). Reviewed and edited the Strategic Research and Action Plan (SRAP). RFP 3 began in May 2025, from which three new projects were selected. Updated Texas OneGulf Network of Experts (TONE) list.

### **GAD 3 – 40605 Evaluating the Fiscal and Social Implications of Property Buyouts in Flood-prone Communities**

Project team met regularly through its conclusion on May 31, 2025, to coordinate progress and share updates.

A key outcome was the development and finalization of an interactive GIS-based decision dashboard, created in collaboration with IDRT and local stakeholders. products included: final report, outreach materials including infographics, an interactive GIS-based dashboard including buyouts by city/block group, flood hazard data (present & future), average annual loss (AAL) estimates (present & future), as well as hotspots of vulnerable populations, flood hazard, and AALs.

The GAD 3 team also provided policy recommendations to decisionmakers. These included guiding post-buyout relocations to safer, less vulnerable areas, supporting small cities and ISDs with limited fiscal capability, as well as tracking land reuse and encouragement of green infrastructure and/or community spaces.

The GIS-based dashboard developed in this project stands as a key tool to operationalize these insights, offering a spatially explicit, user-friendly platform to visualize the multifaceted impacts of buyouts. Final report was submitted to TCEQ on April 30, 2025.

#### **GAD 4 – 34872 An Observational Study of Ship Channel and Shallow Bay Interactions and their Influence on Sediment Transport, Mixing, and Water Quality in Corpus Christi Bay**

Performed setup and testing of the cellular data modem, data service, and single board computer for use in the data collection pipeline. Tested single board computer and were able to establish a full data link. Tested sending and recording GPS data to the cloud data service. Evaluated sensor communication protocols to be used to collect data from the sensor array and pass it to the single board computer; options considered were differential I2C, ethernet, CANbus, and RS485. Selected the CANbus option based on initial testing. Setup and tested sensor node network in lab using CANbus and single board computer and established test data flow. Worked to add and validate sensor data to network.

Performed preliminary assessment of instrumentation test site in South Bay near the Brownsville Ship Channel connection to the Gulf of America. The team found the site in good condition and ready for immediate use. Received updated permission to locate test equipment at the site from the Texas General Land Office.

Initial deployments at the Brownsville ship channel immediately adjacent to the University of Texas Rio Grande Valley (UTRGV) marine facility were for method development purposes. During these deployments, the system was repeatedly deployed at the edge of the ship channel both to understand how long it would take to deploy and recover, and to work through methods to make deployment and recovery as efficient as possible. The team evaluated floatation and ballasting and the interaction of the system components with wind, waves, and currents and adjusted the system (altering attachment points, line and shackle types, and electronic mast attachment components) to improve its ability to operate in those conditions for extended periods.

Once this was completed, a series of deployments in the Corpus Christi ship channel began. The team made three consecutive trips to Corpus Christi for this purpose, totaling 11 days of travel. During two of those trips, the team encountered either thunderstorms or tropical storms in the Gulf of America (GOA) but were still able to get on the water and deploy the system most of the days.

Overall, to date, the team has had six days' worth of time on the water where they deployed the system in the ship channel to collect data. They are in the process of analyzing that data now. In addition, the co-PIs held meetings to discuss the study progress, analysis of the bay model, and the sensor array configuration.

#### **GAD 5 – 44890 Advancing harmful algal bloom monitoring efforts on the Texas coast to protect human health and coastal economies**

Laura Beecraft, PhD, participated in a tactical/planning meeting for the upcoming red tide season, organized by TPWD with participants from NOAA, DSHS, TPWD, researchers, and resource managers. Recommended cell concentration warning thresholds and the notification list have been established and shared among the group.

Potential HABs were not detected in the current cycle, so no reports were made. Multiple site visits were conducted to the Flour Bluff location, and a new contact was established with the Texas A&M AgriLife Extension Mariculture facility.

The feasibility of installing an Imaging Flow Cytobot (IFCB) at the mariculture site was assessed but ultimately deemed unsuitable due to unrepresentative data caused by algae biofiltration in the pipe system. An updated electrical quote is in progress for a pier-based IFCB deployment. For the Aransas/Copano instrument, the team has been working with the Key Allegro Oyster Co. in Fulton.

The deployment setup is complete, though delays in water line construction have postponed continuous pump operation, which is expected to begin within the month. IFCB deployment is scheduled for October 2025. Two team members received in-person training at McLane Research Labs. In data management, taxonomy-trained personnel have spent considerable time reviewing and correcting image classifications, adding new classes for future training. The software team has collaborated with the taxonomy group to improve the web interface ([phytoplankton.tamucc.edu](http://phytoplankton.tamucc.edu)). Work also continues on the development of a draft HAB monitoring plan, with substantial progress made in this cycle.

#### **GAD 6 – 44891 Risk Communication in an Age of Misinformation: Emergency Manager and Household Perspectives Pre- and Post-Disaster**

Continued utilization of approved interview protocol from the Institutional Review Boards at Texas to hire research assistant at the University of North Texas. Graduate student researchers were trained to conduct interviews with emergency managers in the study area. Ten interviews with emergency managers were conducted.

Texas A&M University and the University of North Texas published a paper on findings from the emergency manager interviews: Ross, Ashley D., Laura Siebeneck, Hao-Che Wu, Sarah Kopczynski, Samir Nepal, and Miranda Saucedo. "Seven Challenges for Risk Communication in Today's Digital Era: The Emergency Manager's Perspective." *Sustainability* (2071-1050) 16, no. 24 (2024). Digital Object Identifier (DOI): 10.3390/su162411306. DynaSearch experiment scenarios that vary risk communication channels for hurricane evacuation are development is in progress along with the development of survey questions to assess public perceptions of risk communication. All principal investigators completed GRIIDC training.

#### **GAD 7 – 44892 Towards Targeted Risk Mitigation: Community Engaged, Fast Impact Estimation of Extreme Weather using Big Social and Climate Data**

Continued acquiring, cleaning, and organizing social network data, meteorological and oceanographic data, and damage and loss data for associated disaster events. Development continued of the AI/ML module of the DIEP using the data collected, with focus on algorithms that can be used to curate data, identify irrelevant information (denoising), and perform user localization from social media sources. PI met with GRIIDC data manager related to processes questions and successfully completed GRIIDC data submission on December 24, 2024.

Task 3a deliverable was submitted to TCEQ on June 30, 2025. This included the development of a prototype DIEP system including artificial intelligence (AI) and machine learning (ML) approaches such as deep neural network (DNN), to estimate statistics for identified disaster impact types based on social and climate data and using machine learning techniques. Discussions began for Amendment 2, which would extend the period of performance of GAD 7 to June 30, 2026. This amendment would extend the deliverable 3b deadline to December 31, 2025.

#### **GAD 8 – 02549 GRIIDC – Coastal and Marine Science Data Repository: Making Texas OneGulf Data Available through FAIR Data Principles**

GAD 8 Notice to Commence (NTC) was executed by TCEQ on September 23, 2025. The goal of this project is to make data produced by Texas OneGulf funded projects publicly available through the GRIIDC website in a timely manner.

The following objectives will be accomplished through this project.

- Researchers will learn about data management best practices, data submission, and proper citation techniques through training.
- Researchers will plan for data submission by submitting dataset information forms (DIF).
- Digital Object Identifiers (DOIs) will be issued for datasets.
- Datasets will be linked with associated publications.
- Descriptive metadata will be created for each dataset.
- Data will be stored and backed up.



- Data will be made available through a dataset landing page.
- Data will be discoverable through the GRIIDC search page, Google dataset search, and DataONE.

Making the data open to end users such as researchers and Texas decision makers assists with policy and management. Texas OneGulf researchers also benefit from transparency about research findings, enhancing the quality of science.

### **Subsea Systems Institute**

The six participants in the SSI Consortium include:

- University of Houston
- Rice University
- National Aeronautics and Space Administration (NASA) Johnson Space Center (JSC)
- Texas Southern University
- Lone Star College System
- Houston Community College

## **PROJECTS**

TCEQ monitored activities associated with the operational GAD and four research project GADs. GADs 2 – 7 closed during previous reporting periods.

### **GAD 1 – 22029 Operations and Administration**

Met the reporting requirements, continue to oversee the day-to-day operations, administration of the center, meetings with researchers, industry, and government. Oversaw development of amendments to all SSI research project GADs.

### **GAD 8 – 42111 Offshore Asset Integrity Monitoring: Environmental Monitoring**

Task 3: Safe Autonomous Repair through AI-driven Human Robot Collaboration  
Experimented and validated IELM with real filling material on cracks and expanded research on different components of VLA architectures.

#### **Task 4: Offshore Asset Integrity Monitoring**

Focused on foundational work under Goal 18 of the project. Summarized the key methods for evaluating offshore legacy well integrity. Identified the suitable methods and key parameters considering the available data that could be collected. Collected relevant data, reports, and regulatory documents from agencies like BOEM, BSEE, EPA, drilling info, and academic sources.

#### **Task 5: Innovative Methods to Monitor Foundation/Anchorage of Offshore Platforms**

The team completed the literature and patent survey, prepared and cast experimental specimens with embedded sensors, and advanced the design of both pull-out and vibrating platform test setups. Initial conceptual design of the model offshore platform was completed.

### **GAD 9 – 42112 Design and Development of Offshore Power Systems**

#### **Task 3: Transformer-less Wind Turbine (WT) Converter**

The modelling framework was upgraded from an induction generator–based turbine representation to a Permanent Magnet Synchronous Generator (PMSG) topology,

chosen for its superior efficiency, higher torque density, and suitability for direct-drive megawatt-scale offshore wind applications. This transition aligns the study with state-of-practice configurations documented in recent IEEE benchmark publications, ensuring both technical relevance and comparability with ongoing research in multi-megawatt wind systems.

The PMSG-based turbine architecture was first developed and validated in MATLAB/Simulink. Site-specific Texas wind resource profiles were employed to drive the aerodynamic subsystem, capturing seasonal variability and stochastic fluctuations. Mechanical-to-electrical conversion was represented with detailed shaft dynamics, including drive-train inertia and damping effects, to accurately replicate transient responses under gusts and turbulence. On the electrical side, the generator interface employed a two-level Voltage Source Converter (2L-VSC) coupled to a regulated DC-link. The control system was designed around Field-Oriented Control (FOC) principles, enabling decoupled regulation of d–q axis currents for independent flux and torque control. The current controllers were implemented with PI regulators tuned via frequency-domain analysis to ensure adequate phase margin and fast disturbance rejection. A PWM-based modulation scheme synthesized the gating signals with minimal harmonic distortion, while DC-link voltage regulation was coordinated with the outer control loop to ensure stable power transfer to downstream converters. After extensive time-domain validation under variable wind conditions in Simulink, the work now focuses on migrating to the Typhoon HIL platform for real-time execution.

#### Task 4: Advanced Software and Hardware Resources for Optimal Energy Management in Carbon Capture and Storage

Generated bottom hole pressure and temperature data for CCS scenarios by modeling a CO<sub>2</sub> injection pipeline into a reservoir with the PIPESIM simulator, producing bottom hole pressure, temperature, and related flow behavior.

Conducted a simulation feasibility analysis of offshore CCS by modeling a CO<sub>2</sub> injection pipeline in PIPESIM using input parameters such as vertical distance, annual flow rate, reservoir pressure, pipeline diameter, and reservoir depth, generating bottom hole pressure and temperature data.

Preprocessed the PIPESIM-generated dataset to ensure data quality and consistency, including applying normalization to scale features, reducing noise from simulation artifacts, and splitting the dataset into training, validation, and test subsets for model development and evaluation.

Incorporated physical boundary conditions and initial states into the dataset, such as reservoir pressure constraints, temperature limits, and injection conditions, to ensure that the training process of the PINN remained consistent with physically valid CCS scenarios.

Identified outliers in PIPESIM outputs (e.g., negative temperatures and unrealistically low bottom hole pressures) that fall outside physically valid CCS scenarios.

Trained a Neural Network (NN) and PINN with the PIPESIM input–output data, where the PINN incorporated governing equations to improve prediction accuracy.

Observed that the NN reproduced these outliers during training, while the PINN, guided by governing equations, avoided such unrealistic values and generated outputs consistent with expected physical behavior.

### **GAD 10 – 42113 Offshore Robotics and Automation for Safer Offshore Energy Systems**

Task 3: Towards Service Robotics for Autonomous Gas Refueling and Nozzle Inspection in Gas Stations.

Focused on the improvement of safety and robustness for robotic system. In-depth research is conducted on integrating machine learning method of Convolutional Autoencoder (CAE) for sensor anomaly detection with Switchable Constraint Factor Graph (SCFG) navigation method.

Two case studies have been implemented, showing good robustness to sensor degradation. Impedance Control is implemented enable compliant motion for robotic arm operation safety. It is then integrated with the FIRL framework for more experiment

Task 4: Subsea Reconfigurable Self-Assembly

Tested methods to mold foam to make the robots neutrally buoyant. Experimentally measured time servos could operate continuously 1 m underwater. The servo labelled 1067 lasted longer than the IP-68 model.

Designed a mechanism for robot foot for more accurate attachment to voxel cubes. Presented a paper on “Moving Matter: Using a Single, Simple Robot to Reconfigure a Connected Set of Building Blocks” at CASE 2025 <https://arxiv.org/abs/2506.23333>.

(Bill-E is a 5-DOF robot inchworm robot that can walk along voxels and pick up one voxel and move it at a time) platform to work underwater. Many servos that are marketed as waterproof are only water resistant up to a certain depth for a relatively short period of time. The team purchased IP-67 and IP-68 water resistant servos to test their performance for sustained use underwater.

### **GAD 11 – 42115 Offshore Energy Transition: Repurposing Gulf of America Assets**

Task 3: Extending the Life of Offshore Oil and Gas Infrastructure in the Gulf of America for Profitable New uses in Power and Hydrogen Generation in Preparation for the Energy Transition.

Showcased work, highlights and findings during the 2025 OTC Conference in Houston, Texas in May 2025.

Task 4: Evaluating the Potential for Offshore CO<sub>2</sub> Sequestration as a ROICE Project

- Reviewed deliverables and Gannt chart
- Continued work on Tasks 12 and 13
- Literature review
- Brazil Lucas do Rio Verde Site Report review
- Meetings with NETL
- Meetings with RPC members (Noble, Black & Veatch)
- ROICE 2025 Workshop – OCS Session

#### Task 5: Developing a Cost-Effective Process for Converting Green Seaweeds into Ethanol

Following completion of Task 5, Goal 17 in Q1, a comprehensive optimization study testing three variables for *U. lactuca* deashing was designed:

- Solids Loading: 5%, 10%, 20%
- Treatment Time: 30, 60, 120 minutes
- Temperature: 35°C, 40°C, 50°C
- Alkali Solution: 0.5% KOH (100 mL per treatment)

Methodology: Treatments conducted in incubator at 200 rpm, followed by washing with 1000 mL DI water through cheesecloth filter. Biomass dried at 60°C for 24 hours. Ash analysis performed on 0.5 g samples (n=2) at 575°C for 5 hours.

Results: Completed 8 of 27 planned conditions. Starting ash content:  $20.7 \pm 1.96\%$ . Best result achieved:  $11.7 \pm 0.4\%$  (10% solids loading, 60 min, 35°C), representing 43.5% ash reduction.

Process Refinement: Analysis revealed incomplete ash removal in initial protocol. Implemented improvement by adding water suspension step after initial wash. This modification will be applied to remaining 19 conditions and initial 8 will be re-tested to confirm reproducibility.

### III. Financial Elements

#### A. Award Recipient

During this reporting period, the following has been expended and obligated of the total \$9,965,167 grant award:

##### TCEQ

- TCEQ's total budget is \$392,291.00. Through September 2024, \$275,156.35 (70%) has been expended.
- In late September 2024, Treasury issued an amendment to the award, adding \$6,176,000.00 for a total of \$16,521,059.00, and extending the end date to August 31, 2027. Contract amendments for each Center of Excellence are in the works for the additional funds and performance time.

##### Texas OneGulf

- RESTORE Center of Excellence (Texas OneGulf) contract was executed November 16, 2020. Amendment 3 was executed December 19, 2024, extending the period of performance to February 28, 2027.
- \$5,134,093.81 has been obligated to Texas A&M University - Corpus Christi / Texas OneGulf. Through September 2025, \$2,437,536.56 (47%) has been expended.

#### Subsea Systems Institute

- RESTORE Center of Excellence (Subsea Systems Institute) contract was executed October 5, 2020. Amendment 4 was executed December 20, 2024, extending the period of performance to February 28, 2027.
- \$6,055,417.38 has been obligated to University of Houston - Subsea System Institute (SSI). Through September 2025, \$2,706,575.25 (45%) has been expended.

### **B. Award Subrecipient(s)**

Center	Project	Awarded	Expended	Remaining Amount	Lower Tier Subawardee
Texas OneGulf	GAD 1 22150	\$2,257,033.00	\$974,147.35	\$ 1,282,885	n/a
	GAD 2 23371	\$432,574.00	\$402,321.77	\$30,252.23	n/a
	GAD 3 40605	\$ 159,474.00	\$157,319.75	\$2,154.25	University of North Carolina at Chapel Hill; Texas A&M University
	GAD 4 34872	\$159,418.00	\$25,992.80	\$133,495.20	University of Houston; and Texas A&M University
	GAD 5 44890	\$872,010.00	\$208,561.16	\$663,448.84	n/a
	GAD 6 44891	\$628,597.00	\$32,721.65	\$595,875.35	Texas A&M - Galveston
	GAD 7 44892	\$542,488.00	\$20,972.40	\$521,515.60	Texas A&M - Galveston
	GAD 8 02549	\$82,499.81.00	\$0.00	\$82,499.81.00	n/a
Subsea Systems Institute	GAD 1 22029	\$822,851.00	\$408,756.53	\$414,094.47	n/a
	GAD 2 22981	\$139,500.00	\$138,386.66	\$1,113.34	n/a
	GAD 3 2982	\$139,500.00	\$139,437.47	\$62.53	n/a

	GAD 4 23426	\$139,500.00	\$139,243.27	\$256.73	n/a
	GAD 5 23428	\$128,264.80	\$127,872.10	\$392.70	Rice University
	GAD 6 24162	\$127,190.58	\$113,987.20	\$13,203.38	Rice University
	GAD 7 24163	\$107,650.00	\$105,888.10	\$1,761.90	Rice University
	GAD 8 42111	\$ 1,152,745.00	\$232,003.06	\$920,741.94	n/a
	GAD 9 42112	\$ 921,076.00	\$370,112.97	\$550,963.03	n/a
	GAD 10 42113	\$ 783,707.00	\$387,280.51	\$396,426.49	n/a
	GAD 11 42115	\$ 1,593,433.00	\$543,607.38	\$1,049,825.62	n/a

#### IV. Gulf Coast Ecosystem Restoration Council Element

##### **Leveraging Multipliers**

##### Coordination between RESTORE Centers of Excellence

**Texas OneGulf** has played a leading role in establishing coordination between both designated and presumptive COEs from all five Gulf states. There is a monthly call between the Centers, where the focus has been on joint research activities.

The Gulf Restoration Science Programs Ad Hoc Coordination Forum, hosted by the NOAA RESTORE Science Program, provides a venue for all Gulf science programs to come together to develop common data management, share funding opportunities and look for synergies and activities that can be shared. The Texas OneGulf Executive Director and Coordinator participates in the monthly call and attends events like Gulf of America Conference. These face-to-face meetings serve to enhance coordination and joint actions, reduce duplication and afford opportunities to leverage individual actions. The Texas OneGulf Director also leads a working group under the Coordination Forum on understanding the impact of science.

The established Advisory Board for **SSI** guides and supports the strategic planning and technical direction of SSI. Membership is on a volunteer basis drawn primarily from industry. This committee supports the strategic planning for SSI.

SSI participates in the Gulf Restoration Science Program Ad Hoc Coordination Forum hosted by NOAA RESTORE Science Program. A bi-monthly meeting for synthesis, integration, and working with other regional research programs to share and integrate scientific findings.

SSI participates in the monthly RESTORE Act Centers of Excellence (COE) meeting. Five states (AL, FL, MS, LA, and TX) form the six Centers of Excellence. These centers collaborate to discuss and address priority research questions for the Gulf. COEs are intricately tied with their respective state agencies, allowing for genuine knowledge co-production that benefits each state locally and, more broadly, Gulf-wide.

Both Centers, Texas OneGulf and SSI participate in the Gulf of America Conference (GoACon), which emphasizes the intersection of scientific research and the management of human and natural systems of the Gulf. A great resource for researchers, resource managers, and stakeholders to collaborate on the natural resources of the Gulf.