

## RESEARCH AGREEMENT

This Agreement is between the **Escambia County Board of County Commissioners acting as fiscal agent for the Pensacola and Perdido Bays Estuary Program**, hereinafter referred to as "SPONSOR", organized and existing under the laws of the State of Florida with its administrative address being 221 Palafox Place, Pensacola, FL 32502, and the **University of Southern Mississippi**, a governmental entity of the State of Mississippi, hereinafter referred to as "USM", for and on behalf of its Division of Coastal Sciences with its address at 118 College Drive #5157, Hattiesburg, Mississippi 39406. SPONSOR and USM are collectively referred to as the "parties."

WHEREAS, SPONSOR desires to engage with USM in certain, specific research activities; and

WHEREAS, USM is interested in and has expertise in the research area; and

WHEREAS, both parties desire to collaborate on the defined line of research.

### I. TERMS

**A. Term of Contract.** This agreement shall not be effective unless and until both parties have executed this agreement. The effective date of this agreement shall be the date of last signature. The period of performance is from **February 1, 2022 to December 31, 2022**. The project period may be changed by mutual consent of the parties by written amendment to this agreement.

**B. Scope of Work.** USM will perform the work as described in Addendum A. Kelly M. Darnell, a USM faculty member, will supervise all work to be performed under the terms of this Agreement. In the event the USM faculty member is unable or unwilling to continue with this project, the parties will attempt to find a mutually acceptable substitute. In the event a mutually acceptable substitute is not found, the Agreement may be terminated in accordance with Article W.

**C. Payment.** Both parties agree this is a cost reimbursable agreement, with costs not to exceed **\$49,574.00, inclusive of any direct or indirect costs or expenses and reimbursable travel expenses.** Contractor may request payment by the submission of a properly executed invoice reflecting the amount due and owing for services rendered with appropriate supporting documentation. Invoices may not be submitted more frequently than once per month. Payments and interest on any late payments shall be governed by and construed in accordance with the Local Government Prompt Payment Act, §§ 218.70, et seq., Florida Statutes.

***Invoices shall be sent to:***

Pensacola and Perdido Bays Estuary Program  
Attn: Executive Director  
226 South Palafox Place  
Pensacola, FL 32502

***Payment shall be sent to:***

Office of Research Administration  
Financial Reporting and Audit, ATTN: Corrie Stringer  
118 College Drive #5157  
Hattiesburg, MS 39406-0001

**D. Publicity.** SPONSOR shall not use the names, logos, trademarks, or any other mark or image considered by USM to be identified with or protected by USM, or those of any of the institution's employees or former employees, or any adaptation thereof, in any advertising, promotional or sales literature without prior written consent being obtained from the USM University Counsel and the Vice President for Research, in each case, except that SPONSOR may state that SPONSOR has engaged USM to perform research for the SPONSOR under this Agreement.

**E.** Title to any equipment purchased by USM in the performance of this research project will remain with USM and will be free of all claims, liens, or encumbrances of the SPONSOR.

## **II. CONDITIONS**

**A. Availability of Funds.** It is expressly understood and agreed that the obligation of USM to proceed under this agreement is conditioned upon the availability and receipt of funds by USM to specifically perform the obligations set forth for USM under this agreement.

**B. No USM Funding.** It is expressly understood and agreed that the obligation of USM to proceed under this agreement is conditioned upon the receipt by USM of funds or other mutually agreed upon consideration from SPONSOR to specifically perform the obligations set forth for USM under this agreement. No USM funds are obligated for payment or disbursement or envisioned as being encumbered under this agreement to any party at any time.

**C. Representation Regarding Contingent Fees and Gratuities.** SPONSOR represents that it has not retained a person to solicit or secure a state contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee. Further, SPONSOR represents that it has not violated, is not violating, and promises that it will not violate the prohibition against gratuities set forth in state law.

**D. Authority to Contract.** Each individual executing this Agreement on behalf of a corporate or governmental party represents and warrants that he/she is duly authorized to execute and deliver this Agreement on behalf of said party, in accordance with any duly adopted action of the governing board of said party, as may be applicable and in accordance with applicable law, and that this Agreement is binding upon said party in accordance with its terms.

**E. Disputes.** The parties agree that any and all disputes between the parties to this agreement may, if mutually agreeable to both parties, be subjected to voluntary mediation and that such disputes are subject to final resolution if said voluntary mediation efforts result in a written resolution agreement executed by both parties.

**F. Failure to Enforce.** The failure by either party at any time to enforce the provisions of this agreement shall not be construed as a waiver of any such provision. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of either party to enforce the provision at any time in accordance with its terms.

**G. [Intentionally Deleted.]**

**H. No Warranty.** USM makes no representations or warranties, either express or implied, as to any matter including but not limited to the condition or quality of the Deliverables or their merchantability or fitness for a particular purpose. USM will have no liability or responsibility for or regarding any claims, damages or losses arising out of the use by the Sponsor or by any party acting on behalf of or under authorization from the Sponsor of the deliverables, or out of any use, sale or other disposition by the Sponsor or by any party acting on behalf of or under authorization from the Sponsor of any product or technique which is the subject of the research or is created or modified based on the deliverables.

**I. USM Responsibility.** USM shall be responsible for liability resulting from the actions/inactions of its officers, agents, and employees acting within the course and scope of their official duties with USM to the degree and within the parameters permitted under §§11-46-1, et seq., Mississippi Code Annotated of 1972.

**J. [Intentionally Deleted.]**

## **K. Intellectual Property.**

a. Definitions. As used herein, "Intellectual Property" means individually and collectively all inventions, improvements, or discoveries and all works of authorship, excluding articles, dissertations, theses, and books, which are generated in the performance of the research during the Period.

b. Invention. Invention, (the "Invention") means any invention conceived or reduced to practice during the performance of the research agreement during the Contract Period. The parties agree to abide by the applicable United States regulations governing patents and inventions issued by the U.S. Department of Commerce at 37 CFR 401, wherein the rights of the Federal Government are established.

c. Title. Each party shall retain title to Inventions and other Intellectual Property developed by their respective employees. In the event that employees of more than one party make an Invention, the Invention shall be jointly owned by the parties employing the inventors. Any question of Inventorship shall be determined in accordance with U.S. Patent law under Title 35 of the United States Code.

d. Disclosure. The parties agree to disclose to each other, in writing, each and every Invention, which may be patentable or otherwise protectable under the United States patent laws in Title 35, United States Code. The parties acknowledge that they will disclose Invention(s) to each other within 3 months after their respective inventor(s) first disclose the Invention in writing to person(s) responsible for patent matters of the disclosing Party. All written disclosures of such Inventions shall contain sufficient detail of the Invention, identification of any statutory bars and shall be marked confidential.

e. Patent Prosecution - Inventions. Each party, at its cost and expense, may apply for, acquire and maintain in the United States and in other countries as necessary forms of patents or protection registrations, or other intellectual property rights covering Inventions developed solely by their respective employees.

f. Patent Prosecution – Joint Inventions. The parties shall consult regarding preparation and filing of United States and foreign patent applications for jointly owned Inventions. The party designated to file an application will provide the other, on a confidential basis, a copy of any such application filed and any documents received or filed during prosecution thereof with the opportunity to comment thereon. The parties will cooperate in obtaining execution of any necessary documents by their employees.

g. License Rights – University Inventions. In recognition of Sponsor's contribution to this project, Sponsor shall be entitled to a first-right-to-negotiate a royalty-bearing exclusive license to USM owned Inventions. Sponsor's right to such license is subject to the negotiation of reasonable terms and conditions with Sponsor within one (1) year following the expiration of the Period of Performance or Termination of this Agreement, whichever comes first

h. License Rights – Joint Inventions. Both Sponsor and USM shall be entitled to license, assign, sub-license and exploit jointly owned Inventions with no accounting to each other or any third party provided, however that Sponsor shall be entitled to negotiate a royalty-bearing exclusive license to USM's interest in Joint Inventions. Sponsor's right to such license is subject to the negotiation of reasonable terms and conditions with Sponsor within one (1) year following the expiration of the Period of Performance or Termination of this Agreement, whichever comes first

i. Background Intellectual Property. "Background Intellectual Property" means Intellectual Property and the legal right therein of either or both parties developed before or independent of this Agreement including inventions, patent applications, patents, copyrights,

trademarks, mask works, trade secrets and any information embodying proprietary data such as technical data and computer software. This Agreement shall not be construed as implying that either party hereto shall have the right to use Background Intellectual Property of the other in connection with this research except as otherwise provided by mutual agreement.

j. Software. Where the deliverable, scope or purpose of this agreement is to develop computer software, anything in this agreement to the contrary notwithstanding, the deliverable shall be an executable format of the software and does not include source code. License rights for intellectual property relating to computer software are subject to negotiation.

k. Other Scholarly Products. Other than computer software (Subsection J), the Sponsor acknowledges that this contract in no way constitutes a work made for hire as described in the Copyright Act of 1976, 17 USC 101, and as such understands that all written materials, reports, and articles that may result from conduct under this project shall be copyrighted by the USM. Sponsor shall have an unlimited, royalty-free license to use, reproduce, translate or publish such material when submitted to Sponsor as a deliverable under this Agreement, so long as such uses are for its own internal non-commercial, educational and research purposes. USM shall in no way limit the dissemination and/or utilization of such material and data as shall arise from the work performed under the contract.

l. Government Rights. Intellectual Property developed by USM is subject to all applicable laws and regulations, including Public Laws 96-517 and 98-620 and implementing regulations including 35 USC §§200-211. When required by such laws, USM shall include a statement in any patent application fully identifying such government right; and USM acknowledges that the United States Government has the right to a worldwide, non-exclusive, royalty-free license to practice any patent arising from USM owned Intellectual Property, notwithstanding anything in this Agreement to the contrary. In addition, Inventions that are subject to a non-exclusive royalty-free license to the United States government shall be manufactured substantially in the United States.

**L. USM - Independent Contractor.** USM shall at all times be regarded as and shall be legally considered an independent contractor and neither USM nor its employees shall, under any circumstances, be considered servants, agents or employees of SPONSOR, and SPONSOR shall at no time be legally responsible for any negligence or other wrongdoing by USM, its principals, officers, agents, employees or representatives. SPONSOR shall not be responsible for any federal or state unemployment tax, federal or state income taxes, Social Security taxes, or any other amounts for the benefit of USM or any of its principals, officers, agents, employees or representatives.

SPONSOR shall not provide to USM, its principals, officers, agents, employees or representatives any employee insurance coverage or other benefits, including, but not limited to, Workers' Compensation, which are normally provided by SPONSOR to its employees. USM's personnel shall not be deemed in any way, directly, indirectly, expressly or by implication, to be employees of SPONSOR. Nothing contained in this agreement or otherwise shall be deemed or construed as creating the relationship of principal and agent, partners, joint venturers, or any similar relationship between SPONSOR and USM. At no time shall USM be authorized to do so and at no time shall USM act as an agent for or of SPONSOR.

**M. Equal Employment Opportunity.** SPONSOR represents and understands that USM is an equal opportunity employer and therefore maintains a policy which prohibits unlawful discrimination. SPONSOR agrees that during the term of this agreement that SPONSOR will strictly adhere to this policy in its employment practices and the provision of its services.

**N. Assignment Prohibition.** This agreement shall not be assigned by either party and any attempt to do so shall be void.

**O. No Third Parties.** There are no other parties to this agreement. No obligations to third parties are provided herein, whether by the express or implied terms and conditions. Neither party shall be liable to any third party based upon this agreement, its terms and conditions, or a party's actions taken hereunder.

**P. No Other Terms, Conditions, or Understandings.** The parties hereto acknowledge that this Agreement sets forth the entire Agreement and understanding of the parties hereto as to the subject matter hereof and constitutes the full and complete Agreement in this matter by and between the parties hereto and shall not be subject to any change or modification except by the execution of a written instrument subscribed to by the parties hereto. Should SPONSOR issue a purchase order to USM for work performed under this agreement, both parties agree that any purchase order terms preprinted or referenced on a website DO NOT APPLY to the work being performed under this agreement.

**Q. Modifications to Agreement.** This agreement may be modified only by a written amendment authorized by and executed by the parties. No oral statements of any person shall modify or otherwise affect the terms, conditions or specifications stated in this agreement.

**R. Notices.** All notices required or permitted to be given under this agreement must be in writing and personally delivered or sent by certified U.S. Mail, postage prepaid, return receipt requested, to the persons at the addresses shown below. The parties agree to notify the other in writing of any change of address.

For SPONSOR:  
Matt J. Posner  
226 South Palafox Place  
Pensacola, FL 32502

For USM jointly at:  
Marcia Landen, Associate VP for Research  
118 College Drive #5157  
Hattiesburg, MS 39406-0001  
AND  
Kelly M. Darnell, Asst. Res. Professor  
703 E. Beach Drive  
Ocean Springs, MS 39564

**S. Ownership of Documents and Work Papers.** Drawings, specifications, design, models, photographs, reports, surveys, and other data produced by USM in connection with this Agreement are and shall remain the property of the SPONSOR whether the Project is completed or not. Such ownership also shall include any electronic files developed or created of such documents. Such ownership shall not include financial or administrative data.

**T. Publications.** USM has the right to use data or results from this research for its own publication, presentation, instructional or noncommercial research objectives provided that the publication, presentation, or use does not disclose any confidential information furnished by SPONSOR under Paragraph U and defined therein. USM agrees that any proposed publication or presentation relating to the research project conducted under this agreement will be submitted to SPONSOR for review at least thirty (30) days prior to submission for publication or presentation to remove Confidential Information. As such, the scope of Confidential Information in this publication context does not include the results arising out of the performance of this Agreement. In the event that the proposed publication or presentation contains patentable subject matter which needs protection, USM will, upon written request from SPONSOR within the initial thirty (30) day review period, delay the publication or presentation for a maximum of an additional ninety (90) days to allow SPONSOR or USM to file a patent application. If SPONSOR does not respond to USM in writing within the thirty (30) day review period, USM is free to proceed with the publication or presentation.

**U. Confidential Information.** "Confidential Information" means information consistent with the purpose stated in Addendum A which is disclosed in any tangible form and is clearly labeled or marked as confidential, proprietary or its equivalent, and is confidential and/or exempt from the disclosure requirements of Chapter 119, Florida Statutes. To the extent allowed by law, the party

receiving Confidential Information shall restrict the use of the Confidential Information to the purpose set forth in Addendum A and shall safeguard against disclosure of the Confidential Information to third parties using the same degree of care to prevent disclosure as it uses to protect its own information of like importance, but at least reasonable care. A party may make only the minimum number of copies of any Confidential Information required to carry out the purpose of this Agreement. All proprietary and copyright notices in the original must be affixed to copies or partial copies.

Neither party shall be obligated to maintain any information in confidence or refrain from use if:

- a. The information was in the receiving party's possession or was known to it prior to its receipt from the disclosing party;
- b. The information is independently developed by the receiving party without the utilization of Confidential Information of the disclosing party;
- c. The information is or becomes public knowledge without fault of the receiving party.
- d. The information is or becomes available on an unrestricted basis to the receiving party from a source other than the disclosing party;
- e. The information becomes available on an unrestricted basis to a third party from the disclosing party or from someone acting under its control; or
- f. The information is publicly disclosed (i.e., not under adequate protective order) by the receiving party under an order of a court or government agency, provided that the receiving party provides prior written notification to the disclosing party of such obligation and the opportunity to oppose such order.
- g. Ordered to release by a court of competent jurisdiction or otherwise required to release by law.
- h. The information is subject to disclosure pursuant to Chapter 119, Florida Statutes.

**V. Severability.** If any part of this agreement is declared to be invalid or unenforceable, such invalidity or unenforceability shall not affect any other provision of the agreement, and to that end the provisions hereof are severable. In such an event, the parties shall amend the agreement as necessary to reflect the original intent of the parties and to bring any invalid or unenforceable provisions in compliance with applicable law.

**W. Termination for Convenience.** Either party may terminate this agreement, in whole or in part, for convenience. Written notice of the same is required and shall allow no less than 60 days' notice prior to the effective date of the termination. SPONSOR agrees to pay USM for all properly incurred expenses and non-cancellable commitments incurred through the date of termination.

**X. Termination for Cause.** Either party may terminate this agreement upon issuance of written notice if the other party fails to perform the obligations to the other party under this agreement. The party issuing such a termination notice may allow 30 days within which the other party may attempt to cure the failure to fulfill its obligations, but such 30 day cure time is not required.

**Y. Applicable Law.** The parties shall comply with applicable federal, state, and local laws and regulations.

**Z. Public Records.** Notwithstanding any provision to the contrary contained herein, it is recognized that USM is a public agency of the State of Mississippi and is subject to the Mississippi Public Records Act, Mississippi Code Annotated §25-61-1, *et seq.*, as amended. If a public records request is made for any Information provided to USM pursuant to this agreement, USM shall

promptly notify the disclosing Party of such request. The disclosing Party shall promptly institute appropriate legal proceedings to protect its Information. No Party to this agreement shall be liable to the other Party for disclosures of Information required by Court order or required by law.

USM acknowledges that this Agreement and any related financial records, audits, reports, plans, correspondence, and other documents may be subject to disclosure to members of the public pursuant to Chapter 119, Florida Statutes, as amended. Failure to abide by the provisions of Chapter 119, Florida Statutes, shall be grounds for immediate termination of the Agreement by SPONSOR.

**For SPONSOR by:**

**PENSACOLA AND PERDIDO BAYS ESTUARY PROGRAM**

\_\_\_\_\_  
Matt J. Posner, Executive Director                      Date

**ESCAMBIA COUNTY BOARD OF COUNTY COMMISSIONERS acting as fiscal agent for PPBEP**

\_\_\_\_\_  
Wesley J. Moreno, Interim County Administrator                      Date

Witness: \_\_\_\_\_

Witness: \_\_\_\_\_

**For UNIVERSITY OF SOUTHERN MISSISSIPPI by:**

Approved as to form and legal sufficiency.

Marcia Landen    3/10/2022  
\_\_\_\_\_  
Marcia Landen    Date  
Associate Vice President for Research

By/Title: Kristin D. Hual, DCA

Date: 03-09-2022

Read and Understood:

Kelly M. Darnell    3/15/22  
\_\_\_\_\_  
PI, Kelly M. Darnell    Date

**ADDENDUM A  
To the  
RESEARCH AGREEMENT  
Between  
THE UNIVERSITY OF SOUTHERN MISSISSIPPI  
And  
PENSACOLA AND PERDIDO BAYS ESTUARY PROGRAM**



1. Project Title: Seagrass monitoring for status and condition to inform comprehensive conservation and management in Pensacola and Perdido Bays, FL
2. Principal Investigator:  
Dr. Kelly M. Darnell  
Assistant Research Professor  
The University of Southern Mississippi  
703 E. Beach Drive, Ocean Springs, MS 39564  
228-872-4278  
Kelly.Darnell@usm.edu
3. Fiduciary Information:  
The University of Southern Mississippi  
Corrie Stringer  
Director of Financial Reporting and Auditing  
118 College Drive #5157, Hattiesburg, MS 39406  
601-266-4119  
ora-pam@usm.edu
4. Budget Request: \$49,574
5. Project Duration: February 1, 2022 – December 31, 2022

## **Scope of Work**

### ***Background***

Seagrass is an economically and ecologically important coastal resource. Monitoring for seagrass status and condition is necessary for understanding ecological baselines and detecting change and trends across space and time. The hierarchical multi-tiered framework for monitoring first described by Neckles et al. (2012) has been adopted by several states and federal agencies and has been recommended for widespread application by the Gulf of Mexico Seagrass Community of Practice (Handley et al. 2018). Central to the hierarchical approach is “Tier 2” seagrass monitoring, which involves rapid-assessment *in situ* monitoring for plant biological and condition indicators paired with measurements of environmental drivers such as water quality and light availability. This proposed project will implement Tier 2 monitoring at 110 stations in Pensacola and Perdido Bays, FL for the Pensacola and Perdido Bays Estuary Program (PPBEP), and will pair collection of sediment cores for quantification of seagrass dormant seed densities with Tier 2 stations to further understand plant demographics and the potential for seagrass expansion and/or recovery from seed following a disturbance. This project directly addresses Action 5.2.1 in PPBEP’s CCMP to “Conduct seagrass surveys (aerial and ground truth surveys) to assess current extent and distribution of seagrass species in the Pensacola and Perdido Bay systems”, which was developed in collaboration with stakeholders. And will assist PPBEP with implementing their CCMP and comprehensive management plan.

### ***Project Tasks***

The tasks for the proposed project are to:

1. Implement Tier 2 monitoring at 110 stations within Pensacola and Perdido Bays, FL following Meiman (2019). Stations will be selected using a stratified random tessellated hexagonal design where a hexagon layer is placed over a map of the area of interest and one station is randomly assigned to each hexagon. The area of interest will be determined following conversations with PPBEP personnel. Each station will be monitored during the time of peak seagrass biomass for: (1) seagrass condition indicators including seagrass percent cover by species, seagrass canopy height, and reproductive status, and (2) environmental parameters including water depth, salinity, dissolved oxygen, pH, temperature, total suspended solids, turbidity measured as Secchi depth, light availability measured as photosynthetically active radiation and the light attenuation coefficient, and presence/absence of attached and drift macroalgae. Monitoring will be conducted in September–October 2021, which is the time of peak seagrass biomass in the northern Gulf of Mexico.
2. Collect replicate sediment cores to quantify dormant seagrass seed densities following Darnell et al. (2021). At each station, replicate sediment cores (9cm diameter x 10 cm depth) will be collected, combined into one representative sample, placed on ice, and returned to the Gulf Coast Research Laboratory (GCRL) where they will be frozen until processing. During processing, the core will be cleaned with running water to remove mud and silt, and all intact, half, and partial seagrass seeds will be removed, identified, and quantified. The number of intact and half seed/m<sup>2</sup> by species will be calculated.
3. Provide the raw data, data summaries, and final report from Tasks 1 and 2 to PPBEP in formats determined by PPBEP.

**Budget**

The total funds requested for a period of performance of February 1, 2022–December 31, 2022 are \$49,574.

		<b>Year 1</b>		<b>CUMULATIVE</b>
<b>SALARY</b>	Monthly Pay Rate	# of Mos		
Kelly M. Darnell	\$7,083	2	14,166	<b>14,166</b>
Technician, TBD	\$2,500	3	7,500	<b>7,500</b>
Technician, TBD	\$2,500	3	7,500	<b>7,500</b>
	<b>Sub</b>		<b>29,166</b>	<b>29,166</b>
<b>FRINGE</b>				
Kelly M. Darnell	32.46%		4,598	<b>4,598</b>
Technician, TBD	9.00%		675	<b>675</b>
Technician, TBD	9.00%		675	<b>675</b>
	<b>Sub</b>		<b>5,948</b>	<b>5,948</b>
<b>TOTAL PERSONNEL</b>			<b>35,114</b>	<b>35,114</b>
<b>MATERIALS AND SUPPLIES</b>			1,800	<b>1,800</b>
<b>TRAVEL</b>			2,669	<b>2,669</b>
<b>COMMUNICATIONS</b>			200	<b>200</b>
<b>OTHER: BOAT USE</b>			3,325	<b>3,325</b>
<b>SUBCONTRACTS</b>			0	<b>0</b>
<b>TOTAL DIRECT COSTS</b>			<b>43,108</b>	<b>43,108</b>
F&A	Rate =	15.0%	<b>6,466</b>	<b>6,466</b>
<b>TOTAL PROJECTS COSTS</b>			<b>49,574</b>	<b>49,574</b>

## **Budget Justification**

### ***Personnel***

Salary is requested for 2 months for PI K. Darnell at a monthly rate of \$7,083, and 3 months each for two technicians at a monthly rate of \$2,500 to implement Tier 2 monitoring, collect and process sediment cores for dormant seagrass seed densities, data entry, data analysis, and reporting.

### ***Fringe***

Fringe benefits are requested at 32.46% for K. Darnell and 9.00% each for the two technicians.

### ***Materials & Supplies***

A total of \$1,800 is requested for field and laboratory supplies such as Rite in the Rain waterproof paper, clipboards, sediment corers, sieves, coolers, Ziploc bags, bottles and filters for collection and processing of total suspended solids, as well as calibration solutions for the handheld datasonde and calibration of the spherical quantum PAR sensors.

### ***Travel***

A total of \$2,669 is requested for travel to implement Tier 2 monitoring and collect sediment cores, as follows:

Roundtrip mileage from Ocean Springs, MS to Navarre, FL: 278 miles @ 0.56/mile x 2 round trips = \$311

Hotel: 2 rooms x 6 nights @ \$109/night = \$1,308

Per diem: 3 people x 7 days @ \$50/day = \$1,050

### ***Other: Boat Use***

A total of \$3,325 is requested for 7 days of boat use at the rate of \$475/day for Tier 2 monitoring and collection of sediment cores for dormant seagrass seed densities.

### ***Subcontracts***

None requested.

### ***Indirect Costs (F&A)***

Indirect costs are calculated at 15% of total direct costs.

## **Schedule**

January 2022: Project begins

February–April 2022: Discussions with PPBEP to identify the area of interest for Tier 2 monitoring within Pensacola and Perdido Bays, then iterative (if needed) site selection using the stratified hexagonal tessellation method to achieve the coverage needed by PPBEP.

May–August 2022: Hire technicians, order supplies, calibrate photosynthetically active radiation sensors, create datasheets.

September–October 2022: Conduct Tier 2 monitoring, collect sediment cores for dormant seagrass seed reserves, process samples for total suspended solids with 10 days of collection.

September–December 2022: Data entry and analysis, processing cores for dormant seagrass seed reserves

December 31, 2022: Submission of final report and deliverables

### **Deliverables**

Deliverables for this project will include:

1. Raw data and data summaries for Tier 2 monitoring in a format determined by PPBEP
2. Raw data and data summaries for dormant seed densities in a format determined by PPBEP
3. Map products or other visuals requested by PPBEP
4. Final report in a format determined by PPBEP

### **References**

Darnell KM, BT Furman, KL Heck Jr., D Byron, L Reynolds, KH Dunton. 2021. Seed reserve hot spots for the sub-tropical seagrass *Halodule wrightii* (shoal grass) in the northern Gulf of Mexico. *Estuaries and Coasts* 44: 339-351

Handley LR, CM Lockwood, K Spear, M Finkbeiner, J Kenworthy (2018) Gulf-wide seagrass monitoring needs and assessment workshop report for the Gulf of Mexico Alliance. Gulf of Mexico Alliance Star Award, Contract No. 121701-00, 89pp.

Meiman J (2019) Field Measurements – Version 1.0. Gulf Coast Network Standard Operating Procedures NPS/GULN/SOP – SEA04. Gulf Coast Network, Lafayette, Louisiana.

Neckles HA, BS Kopp, BJ Peterson, PS Pooler (2012) Integrating scales of seagrass monitoring to meet conservation needs. *Estuaries and Coasts* 35: 23-46.