CONTRACT POSITION TO SUPPORT FACILITATING ACCURATE AND EFFECTIVE APPLICATION OF MARSH MODELING OUTPUTS

I. SCOPE OF PROJECT
Coastal marshes protect and support our coastal communities and economies by providing protection from storm surge, buffering pollutants, and providing recreational opportunities. Rising water levels and salt water inundation threaten marshes and jeopardize the benefits they provide. To preserve these benefits, coastal resource managers need short- and long-term understanding of how marshes could change in response to rising sea levels. Researchers will work with marsh model developers and coastal natural resource managers to understand which models are best suited for different types of management decisions. The available choices of marsh models can be overwhelming to coastal land managers. This work will develop clear guidance on which models are best suited for specific types of management decisions.

There are a number of marsh model options and while options can be beneficial, the similarities and differences in model capabilities and the resulting implications for marsh management are not well understood. Furthermore, the predictions of these models have not been robustly compared to historical data to assess their skill at describing changes in the marshes as sea levels rise. Researchers will convene the primary marsh modelers in the U.S. to (1) develop an agreed-upon method for comparing the model outputs to each other and to historical data and (2) generate a common dataset of model inputs so that comparisons among model outputs will highlight differences in model skill and not the data sources. Researchers will also work with natural resource managers on (3) summarizing the different capabilities of each model and how this information can be used when selecting a model for management actions.

Products that the contractor will be expected to participate in developing include an inventory of marsh-associated datasets, a workshop summary report and technical manuscripts, and interactive web products that detail the established methods for marsh models inter-comparison and evaluation, and the appropriate utility of each model for relevant management actions.

II. DESCRIPTION OF WORK
Contractor support is requested for gathering marsh-associated datasets and the development of a workshop to work with subject matter experts. The applicant will need to assist in the execution of a workshop and develop three primary products with the project team. Expected products include a workshop summary report and technical manuscripts that detail the established methods for comparing marsh model intercomparison, evaluation, and describe the appropriate utility of each model for relevant management actions. The workshop report will set the stage for the development of a more rigorous assessment of marsh models and will identify locations for where the comparisons could occur.

III. QUALIFICATION REQUIREMENTS
1. Strong communication and team member skills: The successful applicant will need to work with the project team and external partners (such as subject matter experts from the
modeling community) in a constructive and efficient way. Strong oral and written communication and the ability to work independently in a self-directed environment is preferred.

2. **GIS Expertise:** The successful applicant will need experience working with geospatial data, metadata, and data compilation. It is preferred that the applicant is well versed in use of ESRI software (Arc map and/or Arc Pro) and spreadsheet usage (such as Microsoft Excel).

3. **Technical proficiency in general modeling principles:** The applicant will need to be capable of understanding the technical intricacies of different model approaches when described.

4. **Interest in communicating applied science:** Excellent scientific writing skills, editing, and oral communication skills and the ability to effectively disseminate information to scientific and lay audiences; ability to interact with diverse individuals and groups, including a wide range of stakeholders.

5. **Past performance of formal writing:** The applicant will need to be able to lead the execution of a workshop report.

### IV. PREFERRED QUALIFICATIONS

1. **Outreach and dissemination of findings through web and other venues:** Successful applicant will assist the team in transitioning aspects of the report into more interactive products.

2. **Experience in workshops:** Experience in the planning, execution and oversight of research projects and/or workshops focused on estuarine/coastal issues and the transition or application of results to coastal managers and stakeholders. Experience coordinating technically and geographically diverse and dispersed groups.

### V. DELIVERABLES

**Estimated Base Period (June 1st, 2020 – January 28th, 2021)**

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<th>Task 1: Compile preliminary Data and Workshop Materials leading up to the workshop. Identify a set of data sources, representing the best available science, to be used as data inputs for future cross-model comparisons. The spatial extent of these data will be dependent on data availability and may span the entire targeted southeastern United States region or smaller targeted areas/sites.</th>
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<td>Task 2: Attend and support workshop facilitator in a workshop that includes the project team and subject matter experts. Help document key input and outcomes.</td>
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<td>Task 3: Develop a detailed report outlining a method for comparing marsh model outputs using identical inputs. This report will address model comparisons between models as well as to historical data. By standardizing inputs across models the results of this analysis will highlight true difference in model skill and not input data sources. Further, by comparing the</td>
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results to historical data we will gain a better understanding of the accuracy of the model to ‘real-world’ conditions. This report will be adapted by the Project Team to pursue additional resources for FY20 to conduct the retrospective analysis.

Task 4: Work with the team to develop communication materials detailing the appropriate utility of existing model outputs for relevant management actions. Opportunities to use multiple model approaches simultaneously from an ensemble model approach will also be addressed. Combining multiple outputs via an ensemble marsh model will improve understanding of the future range of conditions as well as the certainty of those conditions under sea-level rise. The role will principally focus on helping to translate the report to a more dynamic and interactive format. i.e., GOMMarsh.com

VI. ADDITIONAL CONTRACT DETAILS
Period of Performance: One calendar year, start date TBD.

Contract Amount: This is a fixed price contract, not to exceed $37,500.

Applications from individuals and firms are welcomed. Individuals will have the option to be classified as an intermittent worker with Mississippi State University or to invoice for completed work.

Project has been selected for funding; however, position is dependent upon successful completion of contract execution with funder.

VII. HOW TO APPLY
To apply, submit the following by 5 p.m. central time June 12, 2020:

- CV and/or Documentation of Qualifications
- Cover letter
- Writing sample of published work to demonstrate communication skills. Extension publications, webpages, and other non-formal/informal communication accepted.
- Three references

Please direct all questions and applications to:
Renee Collini
Program Coordinator | Northern Gulf of Mexico Sentinel Site Cooperative
Instructor | Mississippi State University
Resilience Specialist | Mississippi-Alabama Sea Grant Consortium
228-546-1044
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