

Request for Letters of Research Interest (LOI)

Project Title: Characterize and model abiotic factors associated with sea turtle nesting success at Assateague Island National Seashore

Background

The first successful loggerhead sea turtle (*Caretta caretta*) nest at Assateague Island National Seashore (ASIS) in Maryland occurred in 2017. This was followed by successful nests in 2019, 2020, and 2021. A total of nine nests have been documented, five with hatchling emergences. ASIS is at the northern range of the species, and successful nesting in the park is important for the species' recovery and northern range expansion. Loggerhead sea turtles have strong site fidelity, so it is reasonable to expect that nest activity will increase. However, inundation and substrate temperature contribute to nest success (or failure), and the phenological sensitivity of *C. caretta* to these factors are unknown at this latitudinal extreme and other parts of the mid-Atlantic region. Analyzing the effects of inundation and temperature on egg/hatchling mortality will allow ASIS to identify the likelihood and timing of nest failure (if it occurs) and support science-based decision making within a future management plan for sea turtles, with considerable input from the U.S. Fish and Wildlife Service's Ecological Services Program.

Objectives

The specific objectives to be addressed with this project are:

- To quantify inundation and substrate temperature at active loggerhead sea turtle nests on Assateague Island, to generate baseline information about species tolerance
- To develop a model from this data that will assist NPS managers in determining:
 - Whether nest failure has likely occurred
 - If nest failure should be anticipated
 - If the nest is viable, a potential hatching window range
 - Which management interventions are most appropriate for increasing nesting success by reducing egg/hatchling mortality

This information and model framework will improve our understanding of nest viability and incubation times at this latitudinal extreme. In addition, it will better assist NPS managers with the timing and extent of beach driving closures in the park's recreational Off-Sand Vehicle (OSV) zone to protect this listed species.

Final products

The final products to be developed from this project are:

- Standard Operating Procedure (SOP)
 - Prior to fieldwork commencement, a SOP will be finalized for sensor calibration, sensor installation, downloading data, and data management for this project.
- Statistical model code and framework
 - Use the inundation and temperature data collected during this study and any other

pertinent covariates to develop a statistical model of egg/hatchling mortality at this latitudinal extreme.

- Use the model to make predictions about nest viability and provide recommendations to guide management actions into the future in a manner that is specific to location and expected conditions.
- Provide the documented statistical code for repeating the analysis and refining the model based on future years of data.
- **Reports and Data**
 - An annual accomplishment report (one paragraph; 300 words) and a final accomplishment report (one paragraph; 300 words) will be submitted during the project.
 - A Final Completion Report will be submitted at the end of the project. This report must be submitted to the [NPS Natural Resource Report Series](#). Manuscripts in this series must adhere to a set of minimum standards and are peer-reviewed to ensure that information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.
 - A database and metadata with the data used to generate the report will be submitted along with the report. The database and metadata will be provided in a mutually agreed-upon format.

Project Timeline

This is a funded project, and funds will be released during FY23, likely in the summer of 2023. The timeline of the project is as follows:

- Winter 2022 – Spring 2023: Identify CESU university partner, receive and finalize proposal, and initiate task agreement and Financial Assistance (FA) package.
- Spring 2023 – Fall 2023: Finalize FA package with CESU partner, develop SOPs for field data collection, and NPS will purchase supplies/equipment (once funding is released). Annual accomplishment report due 9/30/23.
- Fall 2023 – Spring 2024: CESU partner begins to develop statistical model, code, and framework. NPS staff will begin to develop interpretive products and messaging for the project.
- Spring 2024 – Fall 2024: NPS staff and/or CESU partner collects field data for Year 1. CESU partner incorporates field data and submits annual accomplishment report to the NPS by 9/30/24.
- Spring 2025: Final completion report will be delivered to the NPS by 4/1/25. NPS staff will continue to collect field data (per SOPs) and sea turtle management plans for future years will be developed.

PI requirements

This project requires a principal investigator(s) with extensive statistical modeling and data analysis expertise. In addition, a background in species and/or land management is required. Specific experience with sea turtles is preferred.

Funds Available

The project is funded by the National Park Service in Fiscal Year 2023 (FY23).

Project funds available are up to \$36,000 in FY23; this includes the CESU overhead rate of 17.5%. Only CESU partners with an NPS Master Cooperative Agreement are eligible to apply.

Government-Furnished Equipment

Supplies and equipment to support data collection associated with the project was estimated at \$20,000 and will be purchased by the NPS.

The specific equipment (such as kind of datalogger) for purchase will be recommended by the researcher. NPS staff will install and monitor sampling equipment while conducting work on other resource projects, thereby limiting the need for partner field personnel costs. If available, partner interns/students/staff could be involved in field data collection.

Letters of Interest

Send Letters of Research Interest (LOIs) to the e-mail address in the “contact” section. A panel will review the LOIs and select the top candidate(s) for full proposal development.

The LOI should describe your research interest(s) in the project, similar past projects, your proposed approach for conducting the project (including any additional data you think would be relevant and your planned statistical approach), and any additional relevant experience. Please include your name, affiliated institution, and contact information. Page limit is four pages, and curriculum vitae for key personnel can be submitted as attachments.

The deadline for responding to this letter of interest is **1/13/23**.

Evaluation for Letters of Interest

Based on a review of the Letters of Interest received, an investigator will be invited to prepare a full study proposal, schedule, and detailed budget. Letters will be evaluated based on the following criteria and scoring:

1. Soundness and validity of the proposed approach for meeting project objectives (15 points maximum)
2. Demonstrated experience studying sea turtles (5 points maximum)
3. Demonstrated ability to produce technical reports within schedule and budget and demonstrated record of professional publications (10 points maximum)

Contact

Responses to this request for LOIs should be directed before the closing date to Lindsay Ries (Lindsay_Ries@nps.gov). Additional questions can be answered by contacting Lindsay Ries, Supervisory Biologist, Assateague Island National Seashore at 410-629-6071.