



DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
819 TAYLOR STREET
FORT WORTH, TX 76102

8 June 2021

REQUEST FOR STATEMENTS OF INTEREST
NUMBER W9126G-21-2-SOI-4384
Project to be ROJECT TO BE INITIATED IN 2021

*Applicants must be members in one of the following Cooperative Ecosystem Studies Units (CESU):
Gulf Coast, Piedmont-South Atlantic Coast, or South Florida-Caribbean*

Project Title: Monitoring Alligator Status as a System-wide Ecological Indicator of Everglades Restoration, Florida

Responses to this Request for Statement of Interest will be used to identify potential investigators for a project to be funded by the U.S. Army Corps of Engineers (USACE), Jacksonville District, which will monitor American Alligator abundance, distribution, and health in the Florida Everglades in accordance with 10 U.S.C. § 2358 - Research and Development.

Approximately **\$145,053.00** is expected to be available to support this project during the **base period**. Additional funding may be available for follow on work in subsequent fiscal years to the successful Recipient/Awardee.

Background:

The Water Resources Development Act (WRDA) of 2000 authorized the Comprehensive Everglades Restoration Plan (CERP) as a framework for modifications and operational changes to the Central and Southern Florida Project needed to restore the South Florida ecosystem. Provisions within WRDA 2000 provide for specific authorization for an adaptive assessment and monitoring program. A Monitoring and Assessment Plan (MAP) (RECOVER 2004, 2006) has been developed as the primary tool to assess the systemwide performance of the CERP by the REstoration, COordination and VERification (RECOVER) program. The MAP presents the monitoring and supporting research needed to measure responses of the South Florida ecosystem to CERP implementation.

The Florida Everglades is the only place in the world where both alligators and crocodiles occur. Crocodilians (American alligator, *Alligator mississippiensis*, and the American crocodile, *Crocodylus acutus*) are indicators of ecosystem health and restoration success, because at all life history stages, crocodilians integrate biological impacts of hydrologic conditions (Mazzotti and Brandt 1994, Rice et al. 2004, Mazzotti 1999, Mazzotti and Cherkiss 2003, Mazzotti et al. 2009). Research has linked three key aspects of Everglades' ecology to crocodilians:

- (1) Top predators such as crocodilians are directly dependent on prey density, especially aquatic and semi-aquatic organisms, and thus they provide a surrogate for status of many other species.
- (2) Drier (nests) and wetter (trails and holes) conditions created by ecosystem engineers like alligators provide habitat for plants and animals that otherwise would not be able to survive. This increases diversity and productivity of Everglades marshes (Kushlan and Kushlan 1980, Palmer and Mazzotti 2004) and, therefore, alligator monitoring can indicate overall health of the marsh.
- (3) The distribution and abundance of crocodilians in estuaries is directly dependent on timing, amount, and location of freshwater flow (Dunson and Mazzotti 1989, Mazzotti and Dunson 1989); crocodiles and alligators exhibit an immediate response to changes in freshwater inputs into the estuaries. Regionally, lack of fresh water due to saltwater intrusion has been correlated with lower growth and survival of crocodiles (Moler 1992, Mazzotti and Cherkiss 2003, Mazzotti et al. 2007).

The short-term objective of the MAP is to obtain baseline documentation and understanding of alligator estimated abundance and body condition for long-term assessment by sampling new and historic sites. Long-term objectives include quantifying changes in alligator estimated abundance and body condition in relation to changes in water delivery and prey abundance; assessing long-term patterns of alligator nesting and relationship to hydrologic conditions; and linking trends in alligator estimated abundance, body condition, and nesting. This project will monitor and assess ecological response of alligators to changing hydrology within Water Conservation Area 3 (WCA3). This project will provide resource managers with results that are directly applicable and necessary to effectively evaluate CERP project objectives, as well as assess effects of hydrology on alligator estimated abundance and body condition in WCA3.

Type of Award:

Authority to enter into a Cooperative Agreement: 10 U.S.C. § 2358 - Research and Development for Monitoring Alligator Status as a System-wide Ecological Indicator of Everglades Restoration.

In accordance with section 6305 – *Using cooperative agreements* of the *Federal Grant and Cooperative Agreements Act of 1977* (31 U.S.C. § 6301 et seq.), all CESU projects must carry out a public purpose of support or stimulation, instead of acquiring goods or services for the exclusive direct benefit of the United States Government.

In accordance with section 6305 – *Using cooperative agreements* of the *Federal Grant and Cooperative Agreements Act of 1977* (31 U.S.C. § 6301 et seq.), substantial involvement is expected between the federal partner and the nonfederal partner when carrying out the activities specified in the project agreement. The exact nature of the government's involvement will be defined in the statement of objectives, issued with a request for full proposal.

As a result, it is anticipated that a cooperative agreement through the CESU program will be awarded. Such awards may be administered through a CESU only upon mutual agreement and official authorization by both parties of the acceptance of the application of the CESU Network IDC rate (17.5%).

Note: Must be a non-federal partner in the *South Florida-Caribbean, Piedmont – South Atlantic Coast, Gulf Coast* CESU Unit Region.

Brief Description of Anticipated Work:

The purpose of this project is to fulfill monitoring objectives in the MAP (RECOVER 2004 and 2006):

- I- Determine the status and trends of the alligator populations over short (body condition), medium (distribution and relative density) and Long-term (demography) temporal scales.
- II- Detect unexpected responses of the ecosystem (alligator ecosystem attribute) to changes in stressors resulting from CERP activities
- III- Support scientific investigations designed to increase ecosystem understanding, cause and effect, and interpret unanticipated results in alligator performance

Project Tasks:

(1) Kick-off Meeting

The Principal Investigator (PI) shall conduct a Kick-off Meeting with the USACE within ten (10) business days of contract execution. This meeting shall be an informal discussion between the PI and USACE. At this meeting the PI will introduce the project team and define the project chain of command. The USACE will communicate to the PI any methodological requirements to be used when sampling and reporting tasks as outlined. The MAP Assessment Strategy (RECOVER 2006) provides guidance in assessment methodologies. The Kick-off Meeting shall provide the opportunity for the PI and USACE to coordinate the project's tasks that outlined below.

Within ten (10) days following the Kick-off Meeting, the PI shall submit an electronic summary (Draft Work Plan) of the meeting. The Project Manager (PM) will respond with comments to the PI within ten (10) business days after the receipt by the USACE of the Draft Work Plan. The PI shall address comments and submit a Final Work Plan, which will be submitted to the USACE ten (10) days of its receipt by the PI. Upon its approval in writing by the USACE's PM, the Final Work Plan shall become the working document for this work order. The PI shall proceed with the performance of the work order in accordance with the approved Final Work Plan and the requirements of this CA. In the event of any conflict between this CA and the Final

Work Plan, the Final Work Plan shall take precedence. The Final Work Plan will be updated as necessary at the beginning of each new Option Year.

The PI shall also begin preparations to execute field sampling within ten (10) days of work order execution. This includes acquiring and assembling any specialty equipment needed and working with USACE staff to become familiar with sampling protocols and equipment provided to the PI by the USACE.

(2) Alligator Surveys

The PI will survey four (4) routes (WCA3A-N41, WCA3A-Tower, WCA3A-Holiday, WCA3B; see **Figure 1**) for alligators as established in Mazzotti et al. 2010 and updated in Hart et al., 2012. Surveys along these routes will be performed by airboat. Alligator locations will be recorded using GPS equipment. Surveys will be conducted in marshes, in the dry (spring) and wet season (fall). Spotlight surveys for relative density in each area will be conducted twice each season at least 14 days apart to achieve independent counts (Woodward and Moore 1990, Mazzotti et al. 2010). Capture surveys will be conducted in the same general locations. Relative condition of alligators will be determined by conducting a condition factor analysis (Zweig 2003, Mazzotti et al. 2009).

(3) Data Analyses

The PI will summarize, analyze, and report trends in both relative density and body condition of alligators on an annual basis for inclusion in USACE reporting including, but not limited to, CERP System Status Reports (SSR). Any additional survey data generated during the base year or subsequent option years must be summarized, analyzed, and reported in Annual and Final Reports.

(4) Participation in RECOVER Regional Team Support

The PI shall be required to work with the Greater Everglades Regional Team and the Regional Coordinator(s) to assist in the development of upcoming SSRs. The PI will also provide a presentation to the Regional Team or other science meetings as directed by the USACE PM during the course of the contract. This presentation shall include an MS PowerPoint presentation that summarizes all work that has been done including data analysis and interpretations that highlight all spatial and statistical relationships found. Finally, the PI shall list recommendations for further data analysis and/or collection.

The PI shall provide up to ten (10) days to work with the Regional Coordinator(s) to assist in the development of the SSR as applicable. The majority of information provided will be drawn from the Annual Report submitted for Task 4. The USACE PM will provide clear and concise instructions for the PI to guide efforts for assistance with development of SSR.

The PI will attend a Regional Team or other science meeting when scheduled by the Greater Everglades Regional Coordinator(s) after the conclusion of field monitoring executed under this proposed CA. A presentation of the project will be made. The PI shall provide the USACE an electronic copy of the MS PowerPoint presentation made at the scheduled Regional Team meeting. If electronic files are too large to submit via email, the PI may choose to transfer such files through an FTP site or to provide it on a compact disc.

The PI shall attend and participate in RECOVER Greater Everglades Regional Team meetings (approximately three [3] in each fiscal year). The PI shall attend and participate in landscape sub-team meetings (approximately five [5] in each fiscal year).

Subject to funding availability and consultation with USACE, the following tasks may also be executed during the PoP:

(5) Expand Spatial Scope of Crocodilian Monitoring

Additional surveys of alligator and American Crocodile abundance and body condition, as outlined in Task 2, at locations considered relevant to CERP projects at the discretion of USACE in consultation with the PI. The capacity to conduct additional surveying is subject to funding availability. Specific (task-level) objectives will be identified, reviewed, and approved by USACE and the PI prior the initiation of this Task.

(6) Modeling of CERP project performance

PI will assist the modeling efforts of CERP projects by utilizing the American Alligator Abundance, Body Condition, Hole Occupancy, and Production Suitability Index performance measure to quantitatively compare project alternative scenarios.

(7) Performance Measure Updates

Information generated from Tasks 2-4 outlined above may be used to update current RECOVER Performance Measures (Greater Everglades Wetland Trophic Relationships – American Alligator Abundance, Body Condition, Hole Occupancy, and Production Suitability Index). Initiation of this task is subject to the availability of funding and must be submitted as part of the annual project work plan.

Period of Performance. The base period of agreement will extend 12 months from award.

Option Period: Four option periods extending for 12 months each subject to availability of funds.

Materials Requested for Statement of Interest/Qualifications:

Please provide the following via e-mail attachment to: Alisa.Marshall@usace.army.mil and Gregory.W.Bonnell@usace.army.mil (Maximum length: 2 pages, single-spaced 12 pt. font).

1. Name, Organization, Cage Code, Duns number, and Contact Information, **EMAIL**
2. Brief Statement of Qualifications (including):
 - a. Biographical Sketch,
 - b. Relevant past projects and clients with brief descriptions of these projects,
 - c. Staff, faculty or students available to work on this project and their areas of expertise,
 - d. Any brief description of capabilities to successfully complete the project you may wish to add (e.g. equipment, laboratory facilities, greenhouse facilities, field facilities, etc.).

Note: A full study proposal and proposed budget are NOT requested at this time.

Review of Statements Received: All statements of interest received will be evaluated by a board comprised of one or more people at the receiving installation or activity, who will determine which statement(s) best meet the program objectives. Based on a review of the Statements of Interest received, an investigator or investigators will be invited to prepare a full study proposal. Statements will be evaluated based on the investigator's specific experience and capabilities in areas related to the study requirements.

Please send responses or direct questions to:

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Timeline for Review of Statements of Interest: The RSOI is required to be posted for at least 30 days prior to the Government making a decision and requesting full proposals. Responses due by 5:00 P.M. Central Time, on **8 July 2021**.