

**REQUEST FOR STATEMENTS OF INTEREST
W912HZ-19-SOI-0021**

Project Title: USCRP Research Topic 3: Understanding the Cross-Roads of Human and Ecosystem Health

Responses to this Request for Statements of Interest will be used to identify potential investigators for studies to be sponsored by the U.S. Army of Engineer (USACE) Engineer Research and Development Center (ERDC) Coastal and Hydraulics Laboratory (CHL). The intent of this request is seek researchers interested in performing applied research to advance understanding of the interaction of human and ecosystem health. Researchers will analyze data (and collect additional data if needed) to characterize and quantify the magnitude of the physical, biological and chemical processes impacting human and ecosystem health and their relationship to each other. Researchers will communicate findings, guidance, and lessons learned on the interaction of human and ecosystem health to inform coastal communities on best practices for community planning. Proposed research may consider a range of timescales ranging from storms, to seasonal, to long-term decadal interactions of human and ecosystems. This research topic was identified as one of three primary needs by the Nearshore Processes Community and championed by the US Coastal Research Program. Estimated award amounts for individual proposals of \$50,000 to \$250,000 may be accepted. Multiple awards may be funded. Possibly no awards will be made if the submitted proposals do not meet the objectives outlined in this RSOI.

Background:

The U.S. Coastal Research Program (USCRP) is a partnership of the coastal research community to coordinate Federal activities, strengthen academic programs, and build a strong workforce. Three primary research needs identified by the USCRP's nearshore coastal community are to improve understanding of: 1) long-term coastal evolution due to natural and anthropogenic processes; 2) extreme events, including flooding, erosion, and the subsequent recovery; and 3) the physical, biological and chemical processes impacting human and ecosystem health. The USCRP addresses societal needs along the coast through a coordinated effort backed by researchers from Federal agencies, academia, industry, and non-governmental organizations. Awards will be made with the intent of assisting academic institutions in funding coastal and nearshore processes graduate students to address critical research needs within the coastal community, advancing the state of knowledge, and building the future U.S. workforce.

Public Benefit:

These results will benefit the public through development of guidance and best practices that can be utilized by coastal communities to understand risks to public use of beaches, how human actions on watersheds affect the health of nearshore ecosystems, and the resulting impacts of human activities on coastal communities.

Brief Description of Anticipated Work:

This research is envisioned as a 1 to 2-year study with three main objectives as outlined below.

Objective 1: In order to achieve the main objective of this study of understanding and quantifying physical, biological and chemical processes impacting human and ecosystem health, the researcher should first summarize the present state-of-knowledge concerning how human activities affect specific types of human and nearshore ecosystem health including recreational use, aquaculture, and water quality. This topic is multi-disciplinary, examining the feedback and coupling between the physical, biological, and chemical interactions that control environmental conditions such as water quality and beach, marsh, or bay health. Data to be collected and analyzed on human activities might include dredging, storm water management, or the use of private septic systems in or around coastal communities. From the data analysis, the researcher should summarize known and unknown physical science that control human or ecosystem health for this topic (e.g., dispersion of pollutants, harmful algal blooms), the policies or regulations governing the human activities, the economic implications to coastal communities (based on anecdotal and measured data), describe the research infrastructure that is lacking (e.g., lacking models to couple physical and biological processes), and include research recommendations to address the unknown elements. Products from this objective will include: a journal article that documents the state-of-knowledge; and a Community Fact Sheet that succinctly synthesizes these findings (2-4 pages).

Objective 2: Recommend numerical, laboratory, analytical (e.g., analysis of historical data), and/or field experiments to address gaps in knowledge. Document gaps and recommended actions in a journal article.

Objective 3: Based on knowledge synthesized in this study, develop a Guidebook to help communities understand mitigative and/or adaptive actions to address storm, seasonal, and long-term human impacts on ecosystem health. Develop a white paper on future research needs and gaps. The primary product from this objective will be the Community Guidebook and a white paper identifying research needs.

Annual products from this work will include Community Fact Sheets (2-4 pages each) that summarize advancements each year; and Annual contribution to the USCRP Quarterly Bulletin (1/2- 1 page for each article). Journal articles that are co-authored with a practitioner are anticipated at the end of Objectives 1 and 2, and at the conclusion of the study. If numerical models are utilized in the study, open-source modeling systems are preferred so that all coastal researchers can benefit from advancements.

Base Period Tasks:

Objectives 1-3 and associated products will be addressed in the base period work effort and summarized in the summary report for this period.

Government Participation:

The university researcher(s) will work in close coordination with the USACE technical lead who will provide technical assistance as appropriate in determining parameters, tools and methods for the study. The USACE will review reports and offer technical advice and opinion on the research/investigation findings. The USACE will also facilitate and participate in coordination efforts and meetings either in person or by webinar. The USACE will ultimately incorporate the research and documentation by the researcher(s) into a technical report.

Materials Requested for Statement of Interest/Qualifications:

Please provide the following via e-mail attachment to: Stacy.D.Thurman@usace.army.mil
(Maximum length: 2 pages, single-spaced 12 pt. font).

1. Name, Organization and Contact Information
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 proposed budget is NOT requested at this time.

Review of Statements Received: Based on a review of the Statements of Interest (SOI) received, an investigator or investigators will be invited to prepare a full study proposal. Statements will be evaluated based on the specific experience and capabilities of the investigator(s) in areas related to the study requirements. Additionally, the evaluation method and selection criteria for research and development awards must be: (1) the technical merits of the proposed research and development; and (2) potential relationship of the proposed research and development to the Department of Defense missions.

Please send responses or direct questions to:

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ERDC Contracting Office (ECO)
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Vicksburg, MS 39180
Stacy.D.Thurman@usace.army.mil

Timeline for Review of Statements of Interest: Review of Statements of Interest will begin after the SOI has been posted to all units on the CESU website for 10 working days.