REQUEST FOR STATEMENTS OF INTEREST
W912HZ-19-SOI-0019

Project Title: USCRP Research Topic 5: Nearshore Sediment Transport and Sediment Budgets over Decadal Scales

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 to quantify the connection, feedback mechanisms, and the longer term processes of nearshore shoal migration and available sediment sources. Proposals will focus on identifying and understanding both natural processes and potential dredging impacts to the geology, the nearshore, and the ecosystem, and consider present-day processes and how sea level change may evolve the nearshore sediment budget. Outcomes from this research will provide practical information that can inform long-term sediment management strategies being considered by coastal communities and federal agencies. This research topic was identified as a research need by the Nearshore Processes Community and championed by the US Coastal Research Program. Estimated award amounts for individual proposals of $50,000 to $400,000 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 for nearshore and beach sediment management, with consideration of the local and regional setting, relative sea level change, and engineering actions in the region. Outcomes will be utilized by coastal communities and federal agencies to understand the most important processes and human actions that influence long-term sediment budgets in their area, and provide guidance for management and mitigation strategies.

Brief Description of Anticipated Work:
This research is envisioned as a 2-year study.

Objective 1: In order to achieve the main objective of this study of quantifying the connection and longer term processes of nearshore shoal migration and sediment sources to the nearshore and associated necessary feedback mechanisms, the researcher should first summarize the state-of-knowledge of natural and anthropogenic processes that influence long-term (years to decades to century) coastal sediment budgets. In accomplishing this objective, the researcher should consider feedbacks and interactions between processes over time scales ranging from storm cycles (hours to days), to seasons (months) to sea level rise (years to decades), and summarize how quantitative conceptual and/or numerical models have incorporated geological constraints and ecological processes into these long-term predictions. 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: Based on findings summarized in Objective 1, the researcher will develop a method to evaluate the uncertainty associated with long-term sediment budgets that incorporates variability in short- and long-term forcing, including geological and ecological constraints and processes. Document methodology and example applications in a journal article.

Objective 3: An example of a product from this objective could be a community guidance document that provides guidance for coastal communities to evaluate their long-term (years to decades to century) coastal morphodynamic response. This guidance may recommend use of existing data sets that quantify vulnerability and associated uncertainty based on formulation of a long-term sediment budget, relative sea level change, and anthropogenic activities. The product from this objective will be a Community Guidebook for Evaluating Response to Long-Term Coastal Morphologic Change.

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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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.