



DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

23 January 2015

REQUEST FOR STATEMENTS OF INTEREST

NUMBER W9126G-15-2-SOI-0008

PROJECT TO BE INITIATED IN 2015

Project Title: Reagent less Environmental Water Hazard Sensor Research

Responses to this Request for Statements of Interest will be used to identify potential investigators for a project to be funded by U.S. Navy which provides professional and technical support studies within Navy Region Southwest in order to facilitate successful implementation of a comprehensive assessment of a reagent less environmental water hazard sensor to protect military forces and or any forwardly deployed organization in need of safe water resources. Approximately \$50,000 is available to support this project with the potential of an additional \$60,000 available for follow on work in subsequent fiscal year to the successful Recipient/Awardee.

Background:

The DoN is part of the Department of Defense which is a participant of the CESU Network. The DoN is responsible for compliance with a suite of federal environmental and natural resources laws and regulations, including the Endangered Species Act (ESA), Clean Water Act (CWA), and the National Environmental Policy Act (NEPA)/Executive Order 12114 (EO 12114), Invasive Species Management (EO 13112) and the Sikes Act (16 USC 670).

Contamination of oceans, sediments, and lakes is a global concern not only to safety for agriculture and aquaculture, but also to swimmers, divers, and submariners. In addition, identification of biologic threats and securing of safe drinking and potable water is critical in expeditionary and irregular warfare missions along with forward operations for Humanitarian Aid and Disaster Relief (HADR) efforts. As a result, proper preparation and identification of biologic threats and monitoring of contaminated water is a continuing issue of concern for not only the Navy and Marines but for any forwardly deployed organization in need of safe water resources. Currently, the most reliable assessments of contaminants of concern require ex situ laboratory analysis using one or more reagents – a process which requires hours, if not days, to complete. As a result, Navy, Marine, and Expeditionary personnel could be unknowingly exposed to potentially unsafe biological or chemical hazards.

SSC Pacific is involved in ongoing research to ultimately protect U.S. military personnel from environmental water hazards. Specific to this effort, Navy divers may be subject to hazardous chemical conditions during underwater operations. Knowing in advance of the chemical and biological hazards in the water would allow selection of the correct level of diver protection

onsite. Current methodology requires sample collection and analysis at a remote physical laboratory, which may delay diving operations for several days. A real-time sensor operated in the field would improve diver safety and eliminate operational delays due to chemical analysis. To address this issue the office of Naval Research (ONR) funded a reagent less sensor development program. In support of that program SSC Pacific is conducting a comprehensive assessment of that technology to detect both biologic and chemical contaminants of concern in diverse aquatic environments. As part of this comprehensive assessment, microbial culture and characterization of a variety of aquatic pathogenic microbes and non-pathogenic microbes will be required under a variety of conditions. It is expected that this understanding will be critical for achieving sensitivity and specificity in a dynamic heterogeneous aquatic environment. This ongoing research will provide the basis for assessing validity of continuation of technology development and further development needs relative to biologic contamination detection for ONR. No human or animal use is expected with this effort.

Type of Award:

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 CEU Unit to be qualified to be considered.

Brief Description of Anticipated Work:

This collaborative effort is focusing on Sample Characterization Analysis On Environmental Relevant Microbes for on-going Reagent less Water Hazard Sensor efforts at the Space and Naval Warfare Systems Center, Pacific.

Specific tasks include:

- 1) Task 1: Conduct studies using SSC Pacific laboratory space and materials to determine prototype sensor capacity to detect target pathogens and characterize pathogenicity and protein expression. Scope of tasking anticipated includes sample characterization analysis on environmental relevant microbes.
- 2) Task 2: Comparison to standard methods: A comparative analysis of sensor to standard analytical methods to detect environmental microbes will be conducted. Both quantitative and qualitative means of detections will be compared and contrasted and comparison relevant to standard Environmental Protection Agency (EPA) recommended Standard Test Organisms (STO) methods for detection of virus, bacteria, and protozoa.
- 3) Task 3: Statistical analysis of characterization analysis Interim Report: Perform appropriate statistical analysis of characterization analysis from experiments conducted in task 1 and 2 for support toward interim report generation.
- 4) Option Task 1: Sample Characterization Analysis On Environmental Relevant Microbes- Down Selection. Continuation of Task 1, year 1 but based on a down selected microbial population with more targeted characteristics of interest (e.g. physiochemical properties, mutagenicity, and expression).
- 5) Option Task 2: A comparative analysis of sensor to standard analytical methods to detect environmental microbes will be conducted. Both quantitative and qualitative means of detections will be compared and contrasted.
- 6) Option Task 3: Statistical analysis of characterization analysis final report Perform appropriate statistical analysis of characterization analysis from experiments conducted in task 1 and 2 for support toward final report generation.

Period of Performance: The base year of agreement will be 12 months from award. One option period extending for one year pending funds.

Materials Requested for Statement of Interest/Qualifications:

Please provide the following via e-mail attachment to: lucille.r.smith@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 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:

USACE

Lucille Smith, Contract Specialist

CESWF-CT

Email: lucille.r.smith@usace.army.mil

Office: 409-766-3845

Fax: 409-766-3845

Timeline for Review of Statements of Interest: The RSOI are required to be out for a minimum of 10 working days. Review of Statements of Interest will begin **9 Feb 2015**.