

**Opportunity Title:** ERDC Coastal Hydraulics Laboratory: Development of Long-term & Regional Shoreline Evolution under Interacting Longshore & Cross-shore Processes

**Opportunity Reference Code:** ERDC-CHL-2024-0011

**Organization** U.S. Department of Defense (DOD)

**Reference Code** ERDC-CHL-2024-0011

**How to Apply** Click on *Apply* now to start your application.

**Description** The Coastal and Hydraulics Laboratory (CHL, est. 1996) multi-disciplinary team of scientists, engineers and support personnel is internationally recognized for its world-class research. This laboratory includes more than 150 engineers and scientists and a number of contractors, including more than 60 doctorate and master's degrees. Along with access to unique, cutting-edge facilities, these team members have the experimental and computational expertise needed to solve water resource problems worldwide. CHL addresses an entire spectrum of water resource challenges in groundwater, watersheds, rivers, reservoirs, estuaries, harbors, coastal inlets and wetlands.

**Project:**

The research of this position focuses on development of USACE shoreline evolution simulation capability on subaerial cross-shore (SACS) profile under interacting of longshore and cross-shore sediment transport. It includes collection and analysis of data, formulation of coastal sediment processes, implementation of the processes into the GenCade shoreline evolution model, and publication of research results. The processes to be implemented and validated are mainly subaerial beach morphological processes such as dune erosion and recovery driven by wind, and interaction between subaqueous cross-shore transport and longshore transport.

**What will I be doing?**

Under the guidance of mentors, you will conduct research alongside CHL staff and other primary researchers in applying the simulation models to real problems of coastal erosions. You will gain knowledge in the following:

- Coastal sediment transport processes, shoreline evolution modeling, and CHL's nearshore processes simulation tools such as GenCade, Aeolis, CMS, etc.
- Literature review and formulation of sediment transport processes on long-term and regional shoreline evolution under interacting cross-shore and longshore transport (e.g. aeolian processes, dune erosion and recovery, berm and bar exchange, etc.).
- Collection and analysis of data for validation of the simulation model.
- Implementing the mathematical formulation of those processes into the existing simulation models (e.g. GenCade shoreline model).
- Verification and validation of the newly implemented process models using observation data.
- Communication of research results through reports, conference presentation, and scientific publications.

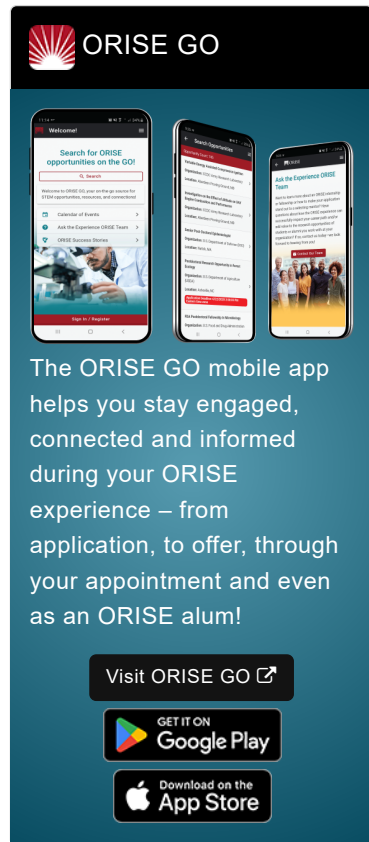
**Why should I apply?**

This fellowship provides the opportunity to independently utilize your skills and engage with experts in innovative ideas to move the proposed research forward.

**Where will I be located?** Location Varies


**What is the anticipated start date?**


ERDC-CHL is ready to make an appointment immediately. Exact start date will be determined at




**ORISE GO**

The ORISE GO mobile app helps you stay engaged, connected and informed during your ORISE experience – from application, to offer, through your appointment and even as an ORISE alum!

Visit ORISE GO 

GET IT ON  
 **Google Play**

Download on the  
 **App Store**

**Opportunity Title:** ERDC Coastal Hydraulics Laboratory: Development of Long-term & Regional Shoreline Evolution under Interacting Longshore & Cross-shore Processes

**Opportunity Reference Code:** ERDC-CHL-2024-0011

the time of selection and in coordination with the selected candidate.

**What is the length of the appointment?**

This ORISE appointment is a full-time ten-month opportunity. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

**What are the appointment provisions?**

You will receive a stipend to be determined by ERDC-CHL. Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other provision may include the following:

- Health Insurance Supplement. Participants are eligible to purchase health insurance through ORISE
- Relocation Allowance
- Training and Travel Allowance

**About ORISE**

This program, administered by Oak Ridge Associated Universities (ORAU) through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and DoD. Participants do not enter into an employee/employer relationship with ORISE, ORAU, DoD or any other office or agency. Instead, you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. For more information, visit the [ORISE Research Participation Program at the U.S. Department of Defense](#).

**Qualifications** The ideal candidate will have computer programming experience in data processing and model development. Knowledgeable in programming languages such as Python (or MATLAB) is preferred. Additionally, candidates will have experience with fluid mechanics, earth and geosciences, coastal engineering, basic statistics and other physical sciences related to coastal processes driven by waves, winds, and currents.

A complete application consists of:

- Zintellect profile
- Essay Questions - The application includes questions specific to the opportunity.
- Academic Records - An official transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted.
- One (1) recommendation - We encourage you to contact your recommender(s) as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can always log back in to your Zintellect account and check the status of your application. The status will go from Started to Submitted and then to Completed once the required recommendations have been received.

Submitted documents must have all social security numbers, student identification numbers, and/or

**Opportunity Title:** ERDC Coastal Hydraulics Laboratory: Development of Long-term & Regional Shoreline Evolution under Interacting Longshore & Cross-shore Processes

**Opportunity Reference Code:** ERDC-CHL-2024-0011

dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system. If you have questions, send an email to [usace@orise.orau.gov](mailto:usace@orise.orau.gov). Please list the reference code of this opportunity in the subject line of the email. All documents must be in English or include an official English translation. Please understand that ORISE does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the "Apply" button at the bottom of this opportunity listing. Please do not send application materials to the email address above.

*Connect with ORISE...on the GO! Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!*

**Point of Contact** [Debbie at ORISE](#)

- Eligibility Requirements**
- **Citizenship:** LPR or U.S. Citizen
  - **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or currently pursuing.
  - **Minimum Overall GPA:** 3.00
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** ([12](#) 👁)
    - **Computer, Information, and Data Sciences** ([17](#) 👁)
    - **Earth and Geosciences** ([21](#) 👁)
    - **Engineering** ([27](#) 👁)
    - **Environmental and Marine Sciences** ([14](#) 👁)
    - **Life Health and Medical Sciences** ([51](#) 👁)
    - **Mathematics and Statistics** ([11](#) 👁)
    - **Physics** ([16](#) 👁)
  - **Age:** Must be 18 years of age