**Opportunity Title:** Ecological Modeling - Environmental Laboratory
**Opportunity Reference Code:** ERDC-EL-2023-0012

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| **Organization** | U.S. Department of Defense (DOD) |
| **Reference Code** | ERDC-EL-2023-0012 |
| **How to Apply** | Click on *Apply* now to start your application. |
| **Description** | The Environmental Laboratory (EL) is one of the seven laboratories of U.S. Army Engineer Research and Development Center (USACE-ERDC), which is the Army Corps of Engineers' integrated research and development (R&D) organization. EL provides solutions to environmental challenges for the U.S. Army, the Department of Defense and the Nation through environmental science and engineering research and development. Researchers in EL conduct research in ecosystem science and technology, environmental resiliency, environmental sensing, ecological modeling and forecasting, risk and decision science, environmentally sustainable material, systems biology, climate change, computational chemistry, environmental chemistry and environmental security. |

USACE projects directly influence a diversity of ecological outcomes such as restoration of habitat, impacts to imperiled species populations, movement of migratory organisms, and nutrient dynamics. However, assessments of ecological outcomes typically focus on habitat impacts and benefits (often with 30–40-year-old model USFWS "blue book" models). Although habitat models are useful in many contexts and applications, ecological modeling methods have grown to include dozens of approaches that could improve USACE project outcomes from planning through operation. These approaches include statistical methods, systems models, and inductive (machine learning) tools that have been applied to different types of relevant ecological outcomes related to physical processes, population dynamics, community effects, and other outcomes. These ecological modeling tools often more directly measure project objectives and may improve communication regarding restoration benefits. This study examines the next generation of ecological modeling approaches that would help USACE improve decision-making and better "tell the story" of its restoration programs.

**What will I be doing?**

Under the guidance of a mentor, you will collaborate with multidisciplinary USACE and external teams to research and compile cutting-edge ecological modeling approaches and facilitate an ecological modeling workshop with USACE and external scientists working on parallel topics and applied decision context. These activities would help the development of a road map to transitioning methods into USACE practice. You will also review population models and demonstrate their use on an existing USACE project. Results of this research will be documented and communicated through government reports, a journal paper and webinars.
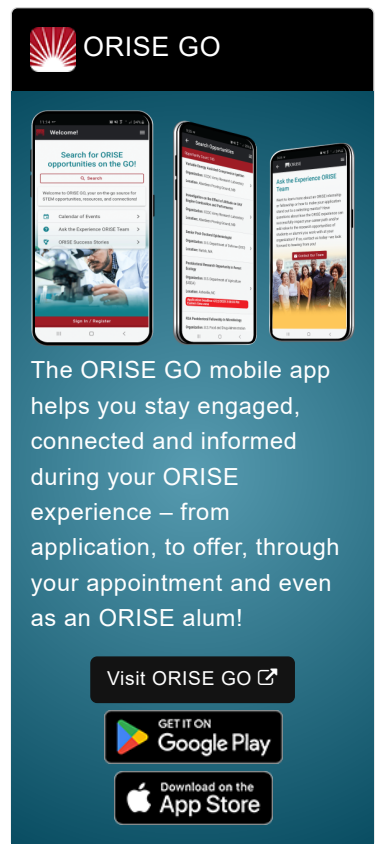
**Why should I apply?**

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?**

Exact start dates will be determined at the time of selection and in coordination with the selected candidate.

**What is the appointment length?**

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

**What are the benefits?**

You will receive a stipend to be determined by ERDC-EL. Stipends are typically based on a participant's academic standing, discipline, experience, and research facility location. Other benefits 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](link).

Qualifications   The candidate is required to be pursuing or have completed a doctoral degree in natural sciences (e.g., biology, ecology) with studies focused on species population dynamics in response to environmental conditions that may be affected by natural resource management actions (e.g., infrastructure installation or removal, restoration, conservation) or natural disturbances (e.g., hydrological or temperature extreme events). The selected participant will also need prior experience developing, testing, and evaluating numerical ecological models that would advance current USACE practices in the context ecological restoration project decision-making and have authored in at least 1 peer-reviewed publication presenting model application.

Preferred skills and experience:

- Intermediate or advanced proficiency in computational language R or Python
- Code and visualization documentation in a markdown
- Science communication to multidisciplinary audiences

**Application Requirements**

A complete application consists of:

- Zintellect Profile
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)

- Transcripts/Academic Records - For this opportunity, 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. Click here for detailed information about acceptable transcripts.
- One recommendation. Your application will be considered incomplete and will not be reviewed until one recommendation is submitted. 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.

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system. All documents must be in English or include an official English translation. If you have questions, send an email to USACE@orise.orau.gov. Please list the reference code of this opportunity in the subject line of the email. 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!

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| **Eligibility Requirements** | - **Citizenship:** LPR or U.S. Citizen <br> - **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 12/29/2023 12:00:00 AM. <br> - **Discipline(s):** <br>    - **Chemistry and Materials Sciences** (12 👁) <br>    - **Engineering** (6 👁) <br>    - **Environmental and Marine Sciences** (14 👁) <br>    - **Life Health and Medical Sciences** (48 👁) <br>    - **Mathematics and Statistics** (1 👁) <br>    - **Science & Engineering-related** (1 👁) <br> - **Age:** Must be 18 years of age <br> - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s). |