Opportunity Title: USGS Fellowship in Salt Marsh Conservation & Restoration
Opportunity Reference Code: USGS-2022-10

Organization U.S. Department of the Interior (DOI)

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How to Apply ***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!

A complete application package consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Selected candidate must provide proof of completion of the degree before the appointment can start. Click **Here** for detailed information about acceptable transcripts.
- A current resume/CV
- Two educational or professional recommendations. At least one recommendation must be submitted in order for the mentor to view your application.

All documents must be in English or include an official English translation.

Application Deadline 7/20/2022 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.***

USGS Office/Lab and Location: Two research opportunities are currently available with the U.S. Geological Survey (USGS) located in Amherst, Massachusetts, or Woods Hole, Massachusetts.

The USGS mission is to monitor, analyze, and predict current and evolving dynamics of complex human and natural Earth-system interactions and to deliver actionable intelligence at scales and timeframes relevant to decision makers. As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems.

Research Project: This opportunity will be for a joint selection of two post-doctoral fellows who will collaborate on shared research goals. The selected fellows should have expertise in saltmarsh ecology and saltmarsh geomorphology. The fellows will collaborate with Principal Investigators specializing in coastal geomorphology to develop a decision framework for salt marsh restoration and conservation.

The Ecologist Fellow will research alongside PIs affiliated with the USGS Northeast Climate Adaptation Science Center (NECASC) and the Fish and Wildlife Service Atlantic Coastal Joint Venture to synthesize and statistically evaluate the currently available data on occupancy, abundance, and patterns for key saltmarsh species.

The Geomorphologist Fellow will collaborate with NECASC PIs and partners at the USGS Woods Hole Coastal and Marine Science Center to geospatially integrate and assess new proxies for salt marsh integrity that include but are not limited to wetland above ground biomass, normalized

marsh elevation, and sediment-based lifespan. The fellow will also contribute research towards integrating preexisting NE CASC projects and assessments on the efficacy of various salt marsh restoration techniques (e.g. runnels), potential impacts from shoreline hardening, and lifespan projections based on representative sea level rise and mitigation scenarios.

The objective of this project as a whole is to develop geospatially referenced products made available via USGS online portals with associated tools to support a decision framework for evaluating strategic conservation and restoration that incorporates the value of saltmarshes within the NE CASC region in terms of the use, density and diversity of species use compared to a state-of-the-art quantification of current marsh integrity and projected lifespans with and without restoration.

Learning Objectives: Under the guidance of a mentor, learning activities considered for the ecology/biostatistics fellow include, but are not limited to:

- Compilation and synthesis of pre-existing data sets on saltmarsh species habitat use, distribution and density within NECASC coastal region (Virginia-to-Maine) in combination with updated and refined metrics on key habitat types including low saltmarsh, high saltmarsh and fresh-water vegetation.
- Development of geospatially referenced products of habitat type and species occupancy, abundance, and associated usage trends.
- Biostatistical assessment of habitat use/value relative to updated salt marsh integrity indexes developed by a corresponding geomorphologist fellow

Under the guidance of a mentor, learning activities considered for the participating coastal-geomorphology/GIS fellow include, but are not limited to:

- Development and quantitative assessment of new potential indices for salt marsh integrity including wetland above ground biomass, elevation relative to tidal range, and sediment-based lifespan.
- Integration of new integrity indexes with current metrics including Unvegetated-to-Vegetated ratios (UV/VR).
- Development of geospatially referenced saltmarsh lifespan projections based on representative sea level rise scenarios and lateral marsh change/open water conversion potentials based on newly available numerical model results of back-barrier and estuarine wave energy.
- Inclusion of restoration techniques into lifespan assessments with a focus on ongoing NECASC supported projects related to the efficacy of runnels and shore-line hardening impacts.
- Assessment of lifespan distributions between natural and impacted salt marshes

Mentor: The mentor for this opportunity is Michelle Staudinger (mstaudinger@usgs.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: August 1, 2022. Start date is

flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be extended for a second year upon recommendation of USGS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. **The current stipend amount for each fellowship is $68,299 per year. Full insurance benefits are provided as well as funding for supplies, travel, and publications fees.**

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals.

ORISE Information: This program, administered by 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 USGS. Participants do not become employees of USGS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: If you have questions about the application process please email USGS@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields listed in the eligibility requirements section.

For the ecology/biostatistics Fellowship: A degree in Fisheries and Wildlife, Natural Resource Conservation, Ecology, Marine or Coastal Science, Environmental Science, or Biology is preferred.

For the coastal-geomorphology/GIS Fellowship: A degree in Civil, Environmental, or Ocean Engineering, Coastal or Marine Geology, Marine or Environmental Science, Physical Geography, Coastal Dynamics, Remote Sensing, or Artificial-Intelligence/Machine-Learning is preferred.

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (2 👁)
  - **Earth and Geosciences** (6 👁)
  - **Engineering** (3 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (48 👁)
  - **Mathematics and Statistics** (11 👁)