

Opportunity Title: NOAA Fellowship Opportunity in Coral Reef Health and Restoration

Opportunity Reference Code: NOAA-2024-04A

Organization National Oceanic and Atmospheric Administration (NOAA)

Reference Code NOAA-2024-04A

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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. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV
- Two educational or professional recommendations

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

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

NOAA Office/Lab and Location: A research opportunity is currently available with the National Oceanic and Atmospheric Administration (NOAA), within the Coral Health & Disease Program that resides in the NCCOS Stressor Detection and Impacts Division (SDI), Key Species and Bioinformatics (KSB) Branch at the Hollings Marine Laboratory in Charleston, South Carolina.

The National Oceanic and Atmospheric Administration (NOAA) formed the National Centers for Coastal Ocean Science (NCCOS) within the National Ocean Service (NOS) research arm in 1999 as the focal point for NOAA's coastal ocean science efforts. The NCCOS uses cutting-edge research and high-tech instrumentation to provide citizens, coastal managers, public health officials, and other decision makers with reliable information needed to determine how best to protect environmental resources and public health, preserve valued habitats, and improve the way communities interact with coastal ecosystems. The NCCOS is headquartered in Silver Spring, MD but also has research labs across the nation. The NCCOS also has many assets including research programs, vessels, laboratories, and a vast pool of distinguished scientists and experts.

The Coral Health and Disease Program brings a health perspective, patterned after evidence-based medicine and public health, to scientific investigations that address coastal issues affecting the health of our marine resources. The goal is to bring relevant, science-based information to decision-makers and the public to assist them in choosing effective actions to reduce threats to our coral reef resources and help restore damaged reefs. This is accomplished through field and laboratory investigations that adapt or develop advanced technologies to investigate the underlying causes of impairments, establish biological benchmarks suitable for management, and assist in devising solutions to reduce threats to the nation's coral reef ecosystems.

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Research Project: Are you a driven master's/PhD scientist passionate about advancing knowledge in bottlenecks to recovering and restoring coral reef ecosystems and defining molecular underpinnings of resilience? This fellowship will use biomedical and ecotoxicological approaches to conduct strategic research to elucidate the physical, chemical and/or biological threats to NOAA's Mission Iconic Reefs Program (MIR) with the goal of formulating threat reduction strategies. MIR is an unparalleled effort in scope to restore seven iconic reef sites in the Florida Keys National Marine Sanctuary. Through this cutting-edge research, you will play a role in determining the health status of these reef sites and their suitability for supporting coral restoration efforts.

As a master's/PhD Fellow, you will participate in transdisciplinary research projects aimed at unraveling the complex interactions between environmental stressors, organismal fitness and toxicological impacts on coral reef ecosystems. Through a combination of laboratory exposure-response experiments, bioassay analyses, and advanced data interpretation, you will contribute valuable insights into the susceptibility, resilience and vulnerability of key reef habitats.

Project Activities:

- **Characterization of Restoration Sites:** Conduct sequential toxicity identification evaluation (TIE) studies of sediment porewater guided by multi-species bioassays to determine toxicological effects and identify putative causes of observed effects. This activity will involve learning to culture photosynthetic and non-photosynthetic non-model organisms, identify growth and developmental life stages and associated abnormalities, and the opportunity to contribute to the development of new bioassays to refine effects endpoints and better understand species sensitivity distributions.
- **Assay Development:** Employ state-of-the-art analytical/bioanalytical techniques to characterize endpoints of effect and/or exposure within reef environments targeting various anthropogenic stressors (e.g., nutrients, contaminants) that are affecting the health of key reef taxa.
- **Data Integration and Modeling:** Integrate field observations, toxicological, and bioassay data to develop predictive models of reef health and resilience. Utilize advanced statistical methods and spatial analysis techniques to areas of habitat suitability within the MIR sites in the Florida Keys.
- **Collaborative Research and Knowledge Exchange:** Engage with transdisciplinary research teams, including invertebrate biologists, biochemists, molecular/cellular biologists, environmental chemists, toxicologists, and resource managers, to foster collaboration and knowledge exchange. Contribute to scientific publications, conference presentations, and stakeholder workshops aimed at disseminating research findings and informing conservation strategies.

Learning Objectives:

- Participate in innovative research at the intersection of biomedicine,

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biochemistry, toxicology and coral reef ecosystem management.

- Gain hands-on experience in advanced laboratory techniques with non-model organisms including coral and other reef organisms in experimental exposure-response studies.
- Collaborate with leading experts in coral reef science and conservation.
- Make meaningful contributions to the understanding of reef resilience and restoration strategies.
- Develop critical skills in data analysis, scientific writing, and interdisciplinary communication.

Mentor: The mentor for this opportunity is Jeff Guyon (jeff.guyon@noaa.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: October 2024. 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 renewed upon recommendation of NOAA 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.

Citizenship Requirements: This opportunity is available to U.S. citizens.

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 NOAA. Participants do not become employees of NOAA, 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 NOAA@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a master's or doctoral degree in one of the relevant fields of study for the opportunity (e.g. biochemistry, cell biology, physiology, ecotoxicology, marine biology, marine science, environmental microbiology, or another relevant field). Degree must have been received within the last five years.

Preferred skills:

- Experience with relevant statistical software (e.g., SAS, SPSS, MATLAB, R-studio, etc.) for data analysis and interpretation is highly desired.
- Coursework and laboratory experience in chemistry, biochemistry, cellular and molecular analyses, developmental biology, ecotoxicology,

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environmental microbiology, and/or risk assessment is desired.

- Excellent technical writing skills, and evidence of high scholarly activity (e.g., scientific presentations) demonstration of keen written and verbal communication skills are preferred.
- Strong organizational skills, attention to detail and keeping a detailed laboratory notebook suitable for repeating the work.

Eligibility

- **Citizenship:** U.S. Citizen Only

Requirements

- **Degree:** Master's Degree or Doctoral Degree received within the last 60 month(s).
- **Overall GPA:** 3.50
- **Academic Level(s):** Postdoctoral or Post-Master's.
- **Discipline(s):**
 - **Chemistry and Materials Sciences** ([7](#))
 - **Communications and Graphics Design** ([1](#))
 - **Computer, Information, and Data Sciences** ([2](#))
 - **Engineering** ([5](#))
 - **Environmental and Marine Sciences** ([6](#))
 - **Life Health and Medical Sciences** ([21](#))
 - **Mathematics and Statistics** ([2](#))
 - **Other Non-Science & Engineering** ([1](#))