

Pacific Islands Climate Adaptation Science Center Postdoctoral Fellowship

Future of Aquatic Flows in the Pacific Islands: Towards a National Synthesis Under a Changing Climate



APPLICATIONS DUE: 5:00 pm HST on Friday, May 28, 2021

This will be a dual competition seeking individual applications from postdocs and mentors (research principle investigators). Applications do not have to be coordinated, but postdocs who wish to indicate a specific mentor and vice versa may do so. All potential mentors must submit a separate application. At this time, only mentor applications are being solicited. Postdoctoral applications will be sought in spring 2022.

Focus of this Fellowship

Humans, wildlife, plants, and all components of ecosystems depend on aquatic flows for water, food, habitat, and well-being. Aquatic flows are also integral to Indigenous Peoples' sovereignty, and cultural, spiritual, and natural resource needs. The relationships between climate and aquatic flows demonstrates that there is substantial evidence that our changing climate is having and will have major implications for aquatic flows and the highly integrated and dynamic environments in which they function.

However, there is considerable local-to-regional heterogeneity in the observed and projected changes, driven by the increased frequency of extreme events, the interaction of climate changes and their effects on ecosystems, and the role of humans and natural-resource management practices in affecting those trajectories. Decision makers in natural-resource management increasingly require information about potential future changes in aquatic flows to effectively prepare for and adapt to climate change impacts. An effective forward-looking aquatic flows synthesis is urgently required to reflect the changing dimensions of hydrological management of both ground and surface water flows, recognizing that the effects, impacts, and management of aquatic flows are all interrelated components of a social-ecological-hydrological system with the potential for profound ecological transformation.

To meet this need, we seek applicants to conduct a synthetic research assessment of changing aquatic flow dynamics in Hawai'i and/or specific U.S.-Affiliated Pacific Islands (or both) and to relate these changes to natural and or cultural resource management, with specific emphasis on developing science-based climate change adaptation strategies.

We seek applications in support of a research principle investigator (research PI) to 1) synthesize the state of the science (and potentially traditional knowledge systems information) on how climate change is affecting aquatic flows, and subsequent impacts on valued natural/cultural resources; 2) provide a scientific foundation for adaptive decision making in the context of climate change; and 3) help managers consider potential alternative futures, intervention actions, and the consequences of their decisions. A follow-on competition will identify a postdoctoral candidate to work with the PI on these endeavors. Products will include one or more peer reviewed manuscript(s) on the regional findings; one or more peer reviewed manuscripts placing these regional findings in a broader national context; and public facing documents and/or communication activities (e.g., webinars, meetings, workshops, etc.) to engage managers and other relevant community members with the results of this work. Outcomes may also

include hydrological management-climate change adaptation plans developed at the local, state, or national scale (USAPI nation states, or working in conjunction with other regional CASC teams, to develop a US-scale hydrological adaptation plan).

The research PI will lead this research program, and will conduct an assessment of: 1) the state of the science on how climate change is currently affecting and projected to transform aquatic flows and hydrological processes in the region; 2) how projected changes fit within the context of current and predicted local, regional, and national patterns and trends; 3) the implications of these changes for natural and cultural resource management and climate change adaptation efforts.

In addition to developing a regional body of work, both the research PI and the postdoctoral fellow will be expected to actively participate in the CASC network effort to produce a national synthesis of science, information, and tools to inform adaptation strategies to changing aquatic flow regimes and to work collaboratively with local and regional investigators conducting research in this field.

Sponsored by PI-CASC, this fellowship provides a unique educational and work opportunity for PIs and post-doctoral fellows whose academic background has focused in hydrology, stream ecology, drought, or other related climate sciences that have prepared them to appropriately address the furthering of knowledge and understanding of aquatic flows under a changing climate. The selectee will be hired through the University of Hawai‘i at Mānoa and be provided a 2-year paid fellowship (\$5,000 per month) that includes health benefits.

[This current solicitation will not provide a monetary award directly to the mentor. Additional information regarding postdoctoral fellow eligibility, salary and expenses, length of assignment, and detailed application process will be provided under separate cover during the Spring of 2022.](#)

Mentor/Research PI Eligibility

Researchers at institutions of higher education, federal or state research institutions, or non-governmental organizations in Hawai‘i or the USAPI conducting research related to **assessing the impacts of climate change on aquatic flows, evaluating the impacts of altered aquatic flow regimes on fish, wildlife, the hydrological cycle and/or ecosystem services, examining the interactions of climate change and/or other stressors (e.g., invasive species, drought, land use change), or addressing the social science components of management, response, and recovery of changing aquatic flow regimes and hydrological dynamics** are encouraged to apply. Examples (demonstrative and by no means exhaustive) of proposed research may include foci on terrestrial regimes or the terrestrial/marine nexus including:

- Impacts of changing precipitation patterns on stream flow (biota, chemistry, physics)
- Contrasting steep slope vs shallow slope challenges (high vs. low islands)
- Tradeoffs by sector in a changing climate (nature, agriculture, urban/suburban development, etc.)
- Impacts of changing aquatic flows on cultural resources
- Changing precipitation patterns and storm frequency/intensity, sea level rise, salt water intrusion, inundation, and storm surge impacts on ground and surface water, contaminant dynamics, managed ecosystems, and associated ecosystem services (including cultural resources and other provisioning services)

- Mauka to Makai, with emphasis on sustainable solutions for taro, wetlands, traditional fish ponds, aquaculture, and coral and herbivore diversity and resilience
- Direct and Indirect climate change related challenges to freshwater and coastal ecosystem dynamics, from Mauka to Makai, to include compounding climate driven effects of invasions, fire, and erosion, etc.

Applicants must demonstrate a high level of excellence in research, experience as a postdoctoral mentor or supervisor for junior researchers, availability of ongoing grants/funding in support of field and/or laboratory research and other necessary supplies and support for the fellow to conduct research over the two-year fellowship. Although an official matching sum is not required, applications demonstrating the availability of at least \$35,000 annually is strongly encouraged.

Mentor/Research PI Application Process

A complete application will include:

1. Curriculum vitae (two pages maximum, 12-point font, 1-inch margins)
2. A brief overview of your research program and your vision for how your program and the research you will conduct with a postdoctoral scholar will advance the regional and national synthesis objectives as provided above (two pages maximum, 12-point font)
3. Current and Pending Support (please indicate which project(s) would engage the postdoctoral fellow).

How to Submit Application

Applications should be submitted to picasc@hawaii.edu no later than **5:00 PM HST on Friday, May 28, 2021**.

Late applications will not be considered.

Selection

Selection will be made based on reviews of written application materials and/or interviews (in person, Skype, or phone). Selection criteria include:

1. **Postdoctoral Fellow:** Information to be provided under separate solicitation during Spring 2022
2. **Mentors/Research PI:** Demonstrated excellence in a research program appropriate for the areas described above including a strong record of peer review publication, student/postdoc mentorship and stakeholder engagement commensurate with years of experience since degree.

Contact

For additional information, please contact: picasc@hawaii.edu; 808-956-7031.