

Climate Adaptation by Pacific Islanders: Integrating Physical and Social Sciences to Support Decision Making about Complex Systems on Multiple Timescales

Melissa L Finucane, PhD, Nancy D Lewis, PhD, East-West Center; Cheryl Anderson, PhD, Kevin Hamilton, PhD, Aly El-Kadi, PhD, Maxine Burkett, JD, University of Hawai'i; James C Weyman, NOAA NWS Weather Forecast Office Honolulu; John Marra, PhD, NOAA; Stephen Anthony, US Geological Survey; Deanna Spooner, JD, Pacific Islands Climate Change Cooperative



Background

Climate variability and change pose unique challenges for Pacific Island Countries and Territories. Fresh water is critical for all islands; when climatic events affect water supplies, then food security, livelihoods, and public health are threatened. In addition, most regional climate change information to date has been based on the use of Coupled Atmosphere-Ocean General Circulation models that do not adequately capture the effects of complex topography and land surface characteristics which modulate the climate signal at fine scales over long time periods. Consequently, the predicted changes in climate variables from such models are not really useful as the basis for planning adaptation measures. Decision making about complex, coupled natural-human systems need to be supported with research, assessment, and outreach activities that integrate physical and social sciences.



Scope

The NOAA-funded Pacific Regional Integrated Science and Assessment (RISA) program is designed to engage scientists, governments, businesses, and communities in Hawaii and the US-Affiliated Pacific Islands (American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Republic of the Marshall Islands, Republic of Palau). The program emphasizes integrated activities that use multiple methods to address real-world problems posed by a changing climate.



Source: Adapted from the Secretariat of the Pacific Community's original map design by iWave Solutions, Inc. for the Pacific RISA.

Objectives and Prototype Projects

OBJECTIVE 1: Conduct place-based assessment of risk and vulnerabilities and develop adaptation strategies.

- Climate Projections for Hawaii and Other Pacific Islands:** This research provides new capacity for projecting climate impacts linked to adaptation planning capabilities at an island level.
- Assessing Sustainability of Ground Water Resources Under Future Climate Conditions:** This research uses projections of climatic conditions together with hydrologic models to assess the sustainability of ground water resources.
- Hazards and Climate Risk and Vulnerability Assessment:** This project helps communities to incorporate Climate Risk Assessments into Multi-Hazard Risk Assessments.
- Human Dimensions of Drought on Pacific Islands:** This research develops qualitative analyses of the social and cultural impacts of drought, societal adaptation to drought, characterization of water users, and factors affecting water-use decisions.
- Developing Regional Assessment Services through RISA-Agency-Stakeholder Collaborations:** This research supports regional climate assessment services regarding climate-sensitive decisions about the sustainability of ground water resources in Pacific Island settings.

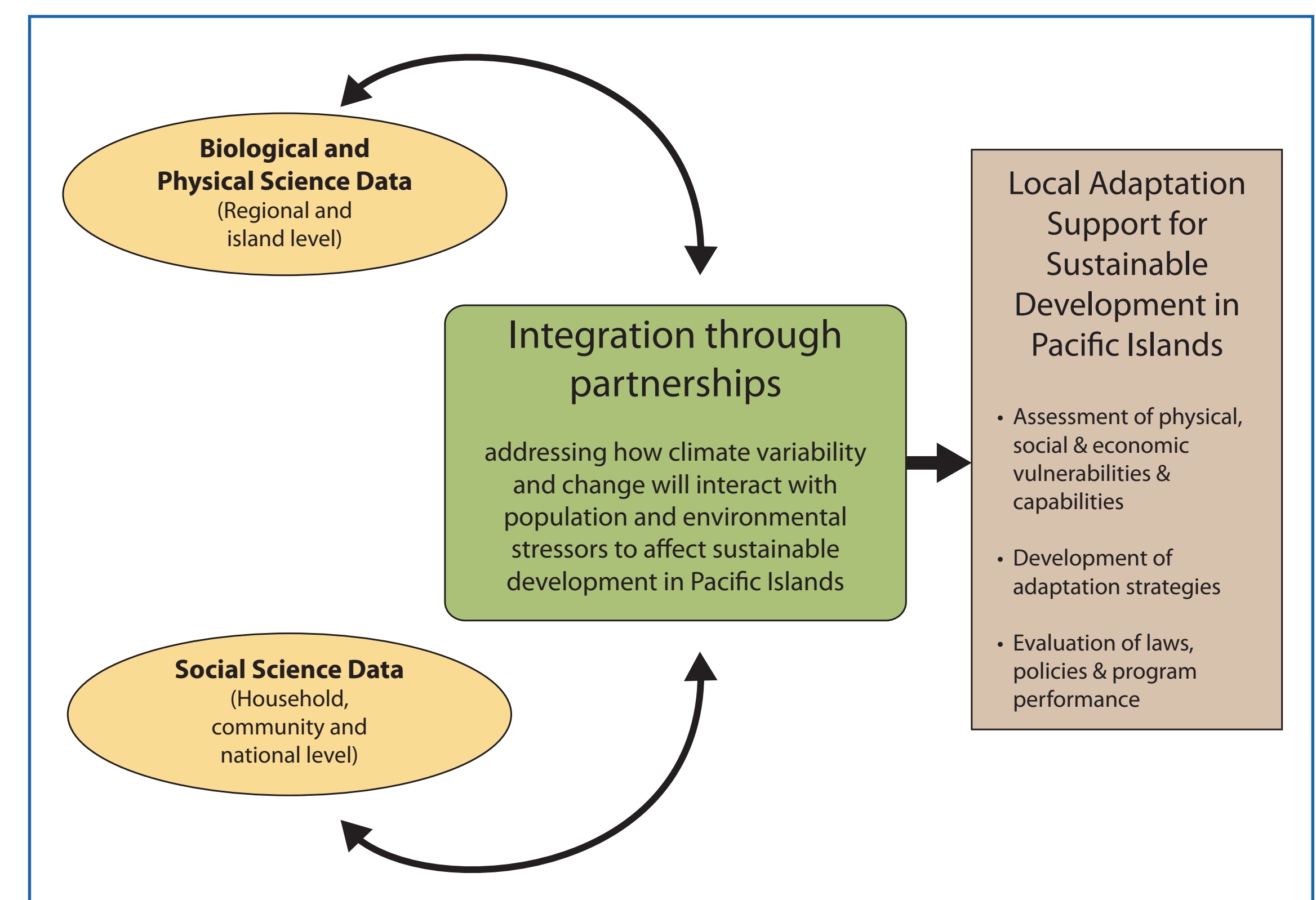
OBJECTIVE 2: Support the implementation of adaptation strategies for Pacific Island communities.

- Portfolio-Based Climate Services for Hazards Communities:** This project builds capacity in the development, analysis, and delivery of climate information tailored to the needs of disaster management communities.
- Stakeholder Workshops on Adaptation to Climate Change:** The workshops bring together key stakeholders from across the region to discuss prototype projects and solicit further input to ensure applicability to real-world decisions. They also ensure an understanding of climate risk reduction planning and establish mechanisms and protocols for engaging in the RVA process.

OBJECTIVE 3: Evaluate adaptation plans and policy making in the Pacific region.

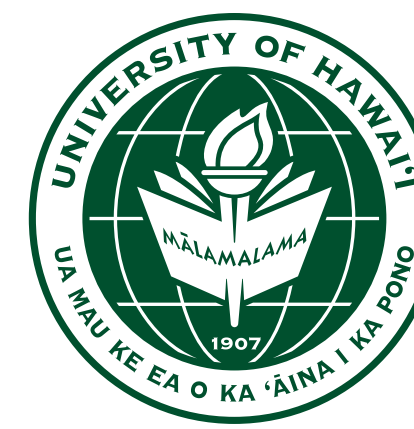
- Evaluating Climate Adaptation Law and Policy Implications:** This project assists governments in preparing and adopting laws and policies that facilitate cost-effective, efficient, and equitable adaptation strategies.
- Evaluating Pacific RISA Performance:** This work develops measurement tools to evaluate the role of Pacific RISA in advancing adaptation planning in the Pacific region and to assess the value of the Pacific RISA program overall.

The conceptual framework for data integration in the Pacific RISA program is shown below.



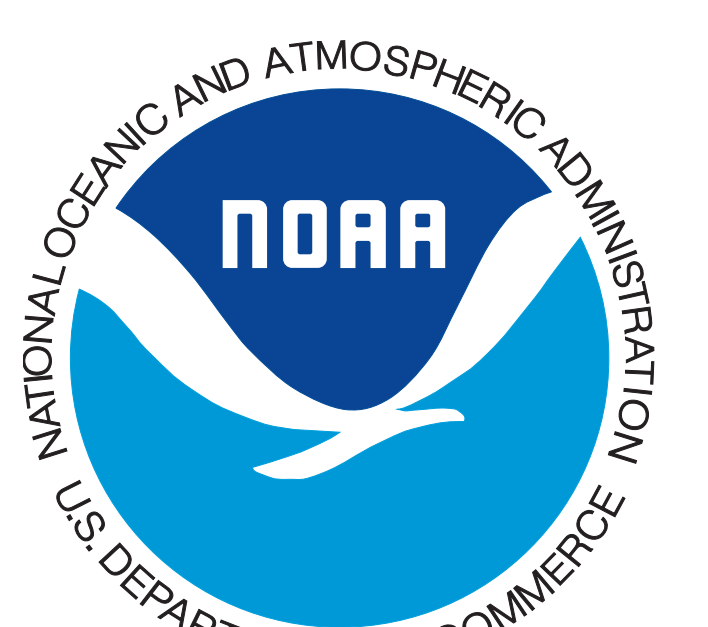
Sample Partners

The East-West Center is partnering with multiple institutions including: the University of Hawai'i's International Pacific Research Center, Water Resources Research Center, Social Science Research Institute, and Center for Island Climate Adaptation and Policy; Pacific ENSO Applications Center; National Weather Service; NOAA Integrated Data and Environmental Applications Center; US Geological Survey; Pacific Islands Climate Change Cooperative; Pacific Climate Information System; Hawaii Drought Council; Hawaii Climate Change Task Force; University of Guam Water and Environmental Research Institute; Pacific Risk Management Ohana; Pacific Regional Environment Programme; Pacific Disaster Center; Office of Environmental and Emergency Management, Office of the President, Federated States of Micronesia; and the Office of Environmental Response and Coordination, Office of the President, Palau; National Drought Mitigation Center at the University of Nebraska; and Climate Assessment for the Southwest; and local community groups throughout the region.



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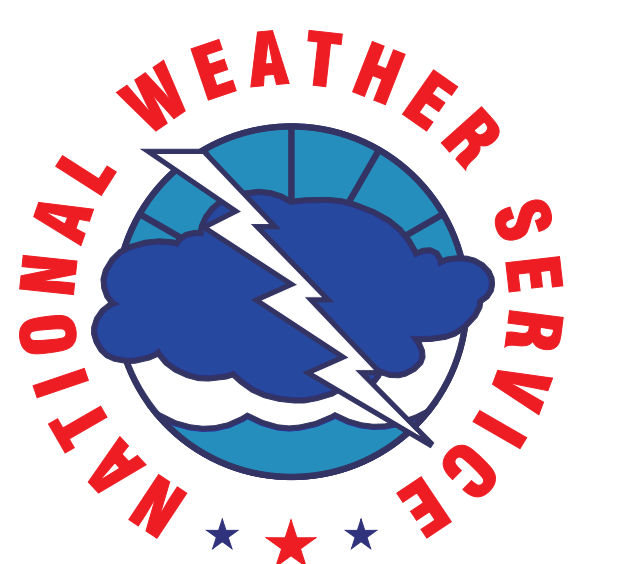


CENTER FOR ISLAND CLIMATE ADAPTATION & POLICY



PACIS
PACIFIC CLIMATE INFORMATION SYSTEM

USGS
science for a changing world



For further information:

Melissa Finucane: Melissa.Finucane@EastWestCenter.org

www.PacificRISA.org

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