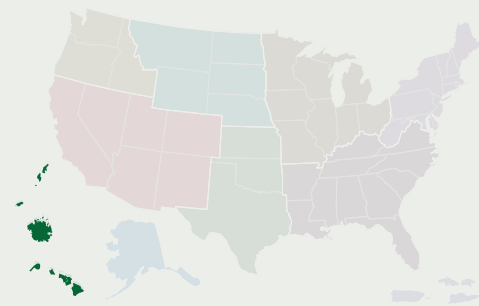


# Preparing for the Health Impacts of Climate Change in Hawaii and U.S.-Affiliated Pacific Islands



## Temperature-Related Death and Illness

The number of hot days has increased across the Pacific islands. Climate change–driven hot weather causes heat-related illness and increases hospitalizations and deaths; 82% of heat-related deaths in Honolulu are already attributable to climate change. Those more likely to experience heat-related illness include young children, older adults, outdoor workers, those who are economically burdened, and people with little access to cooling or healthcare, military personnel whose duties require heavy gear and vigorous activity, and non-acclimated visitors. Additionally, heat worsens health outcomes for people with noncommunicable diseases (NCDs), such as heart disease, cancer, stroke, and diabetes. Increased temperatures also create challenges for the management of obesity and other diseases because exercise is more difficult to do safely in hot weather. This is of particular concern as overweight and obesity in young children are at a higher prevalence in American Sāmoa, Northern Mariana Islands, and Guam than globally.

## Air Quality Impacts

Climate change will likely alter precipitation patterns and potentially increase the wildfire risk for Pacific islands [1]. While wildfires pose an inherent physical risk to citizens, as seen by the impacts of the 2023 Hawaiian wildfires, smoke creates air quality hazards that can be equally deadly. Human exposure to air pollutants in smoke is associated with mortality, asthma, and other respiratory problems, as well as worse outcomes for birth, COVID-19 infection rates, and emotional well-being. Research regarding the respiratory health impacts of the 2023 Hawaiian wildfires is still underway.

## Extreme Events

Extreme weather events are expected to increase and continue to aggravate social and geographic inequities. The rate of global average Sea Level Rise (SLR) has accelerated and has become very damaging in the region. Impacts include coastal erosion, episodic flooding, permanent inundation, heightened exposure to marine hazards, and saltwater intrusion to surface water and groundwater systems. Already apparent on many shorelines, these problems endanger human communities by negatively impacting basic societal needs, such as food and freshwater availability, housing, access to healthcare facilities, energy and transportation infrastructure, and access to government services. Given the limited

emergency infrastructure and evacuation options, extreme weather events create high risks for the mental and physical health of island populations, with individuals with low income, older adults, children, and persons with disabilities at disproportionately higher risk.

## Vector-Borne Diseases

Outbreaks of mosquito-borne diseases such as dengue, chikungunya, and Zika are increasing in frequency, extent, and duration across the Pacific islands, with other vector-borne diseases potentially emerging in the future. In this region, the incidence growth of these vector-borne diseases has been linked to climate variability and is expected to increase further. Primary exacerbating factors include changes in rainfall and temperature, combined with environmental and demographic changes. Presently, resources for vector control and managing outbreaks are limited on small tropical islands, and outbreaks sometimes overwhelm health systems.

## Water-Related Illness

Dependable and safe water supplies for Pacific island communities and ecosystems are threatened by rising temperatures, changing rainfall patterns, waterborne pathogenic bacteria, sea level rise, and increased risk of extreme drought and flooding. Islands are already experiencing saltwater contamination due to sea level rise, which is expected to catastrophically impact food and water security, especially on low-lying atolls. Additionally, chronic water shortages are possible as rainfall decreases and both evaporation and the water requirements of a growing human population increase.

## Food Safety, Nutrition and Distribution

Away from urban areas, many island communities rely on food gathered from the ocean and land. Rising sea surface temperatures are shifting the location of fisheries further out to sea, increasing the difficulty for traditional fishers. Ocean warming and acidification, coupled with damaging watershed and reef practices, converge on island shores to increasingly limit the food resources gathered from the sea. In Hawaii, climate change impacts, such as reduced streamflow, sea level rise, saltwater intrusion, and long periods of drought threaten the ongoing cultivation of taro and other traditional crops. These kinds of climate impacts lead to an increased



dependence on imported food, which come with complex and sometimes hidden environmental, financial, social, cultural, and nutritional costs. This reliance is a public health concern for Hawaii and the U.S.-Affiliated Pacific islands, as Indigenous Pacific Islanders have the highest rates of obesity and chronic diseases, such as diabetes, in the region.



## Mental Health and Well-Being

Climate change directly and indirectly affects the mental health of Pacific Islanders. Firstly, the sea surrounding Pacific island communities continues to rise faster than the global average. As Indigenous People in the Pacific are strongly connected to place, and place is central to conceptions of cultural identity, sudden ecological devastation or gradual change to the environment can create considerable stress. Further, instability caused by voluntary and involuntary migration is expected to be a continuing source of anxiety, although evidence indicates that social cohesion and reducing

disparities can counter negative impacts. Across the Pacific region, studies show that rural populations, groups which are socioeconomically disadvantaged, and people with disabilities experience more severe mental health consequences from various climate impacts.



## Populations of Concern

Indigenous communities of the Pacific have an inseparable connection to and derive their sense of identity from the lands, territories, and island resources. Climate change threatens this familial relationship with ancestral resources and is disrupting the continuity required for the health and well-being of these communities (this is a common experience to many tribal and Indigenous communities across the United States). Women have also been identified as a population more vulnerable to regional climate risks due to the role they have in terms of economic activities, safety, health, and livelihoods.



# CDC Success Stories

## Commonwealth of the Northern Mariana Islands

### Commonwealth Healthcare Corporation

To bolster capacity to address the public health threats associated with climate change, the Commonwealth of the Northern Mariana Islands (CNMI) Commonwealth Health Care Corporation planned and executed a climate change training for staff throughout the agency. This helped to build knowledge and expertise locally. In addition, the project team also developed a CNMI-specific health impact scoping report to assess the local risk of various impacts. Throughout the project, the team also identified and built relationships with key partners outside of public health, including other governmental agencies, who can provide expertise and input on climate and health work across CNMI.

## The Federated States of Micronesia

### Department of Health and Social Affairs

In 2017, the Federated States of Micronesia-Department of Health and Social Affairs received a mini-grant from the CDC via the Association of State and Territorial Health Officials (ASTHO) to equip the people of the low-lying islands, such as Chuuk and Pohnpei, with knowledge, skills, and techniques to maintain a healthy island diet in a changing environment. The project consisted of educational workshops and hands-on exercises that paired local agricultural and diet-related knowledge and practices with outside technical assistance (i.e., geographic information system training provided by CDC and ASTHO) to empower the communities on the low-lying islands to adapt to the climate impacts on food security and water management.

This fact sheet was prepared by the CDC Climate and Health Program, which empowers communities to protect public health from a changing climate. Information on the health impacts of climate change is provided by the Fifth National Climate Assessment. For more information on the CDC Climate and Health Program, visit <https://www.cdc.gov/climate-health/index.html>, and the Fifth National Climate Assessment, visit <https://nca2023.globalchange.gov/>.