

US Caribbean

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Key Message 23.1

Climate-Driven Extreme Events Exacerbate Inequities and Impact Human Health and Well-Being

Traditionally underserved and disadvantaged communities suffer disproportionate impacts from climate change because they have been systematically excluded from social services, secure livelihoods, quality education, and other social benefits that help sustain health and well-being (*high confidence*). Hurricanes and other climate-related extreme events have been associated with higher rates of disease, mental illness, and overall mortality, as well as loss of cultural heritage that is central to community identity (*high confidence*). As extreme weather events become more intense and more frequent, residents will continue experiencing increasing levels of noncommunicable diseases, excess mortality, behavioral health challenges, and loss of quality of life (*high confidence*). The frequency of heat episodes and the severity of hurricanes are both expected to increase in the region due to human-induced climate change, which will affect public health unless adaptation measures are taken (*high confidence*).

Key Message 23.2

Ecology and Biodiversity Are Unique and Vulnerable

Coastal and terrestrial ecosystems provide a large number of goods and services that are vital to the islands' economies and to the health and well-being of their residents (*high confidence*). These essential systems are degraded by human actions and climate change, thereby reducing the benefits they provide to people, as well as their functionality as habitats for protecting biological diversity (*high confidence*). Climate change is expected to exacerbate the degradation of ecosystems (*very likely, high confidence*). The success of climate adaptation strategies will depend on reducing all sources of stress on ecological systems (*medium confidence*).

Key Message 23.3

Climate Change Threatens Water and Food Security

US Caribbean food and water systems are becoming increasingly vulnerable to the escalation of climate change, including stronger hurricanes, more severe drought, warmer air temperatures, and other extreme weather (*likely, high confidence*). Because the territories are heavily reliant on imported foods, they are affected by climate changes occurring both within and outside of the region (*high confidence*). Reductions in average annual rainfall, increasing air temperatures, and rising sea levels will adversely affect freshwater availability in the future (*medium confidence*). Improved adaptation efforts would benefit from a better understanding of the ways food and water systems interrelate and of the cascading impacts generated by climate change (*medium confidence*).

Key Messages 23.4

Infrastructure and Energy Are Vulnerable, but Decentralization Could Improve Resilience

Climate change has created profound risks for the US Caribbean's critical infrastructure, already weakened from years of disinvestment and deferred maintenance (*high confidence*). Increasingly powerful storms, along with rising sea levels, are severely impairing infrastructure systems, with increasing damage projected in future years (*likely, high confidence*). Dependence on fossil fuel imports increases energy insecurity (*high confidence*). Infrastructure improvements, coupled with a new paradigm focused on decentralization, adoption of distributed solar, and shared governance, could help limit residents' vulnerability to health and other risks associated with loss of essential services (*likely, medium confidence*).

Key Message 23.5

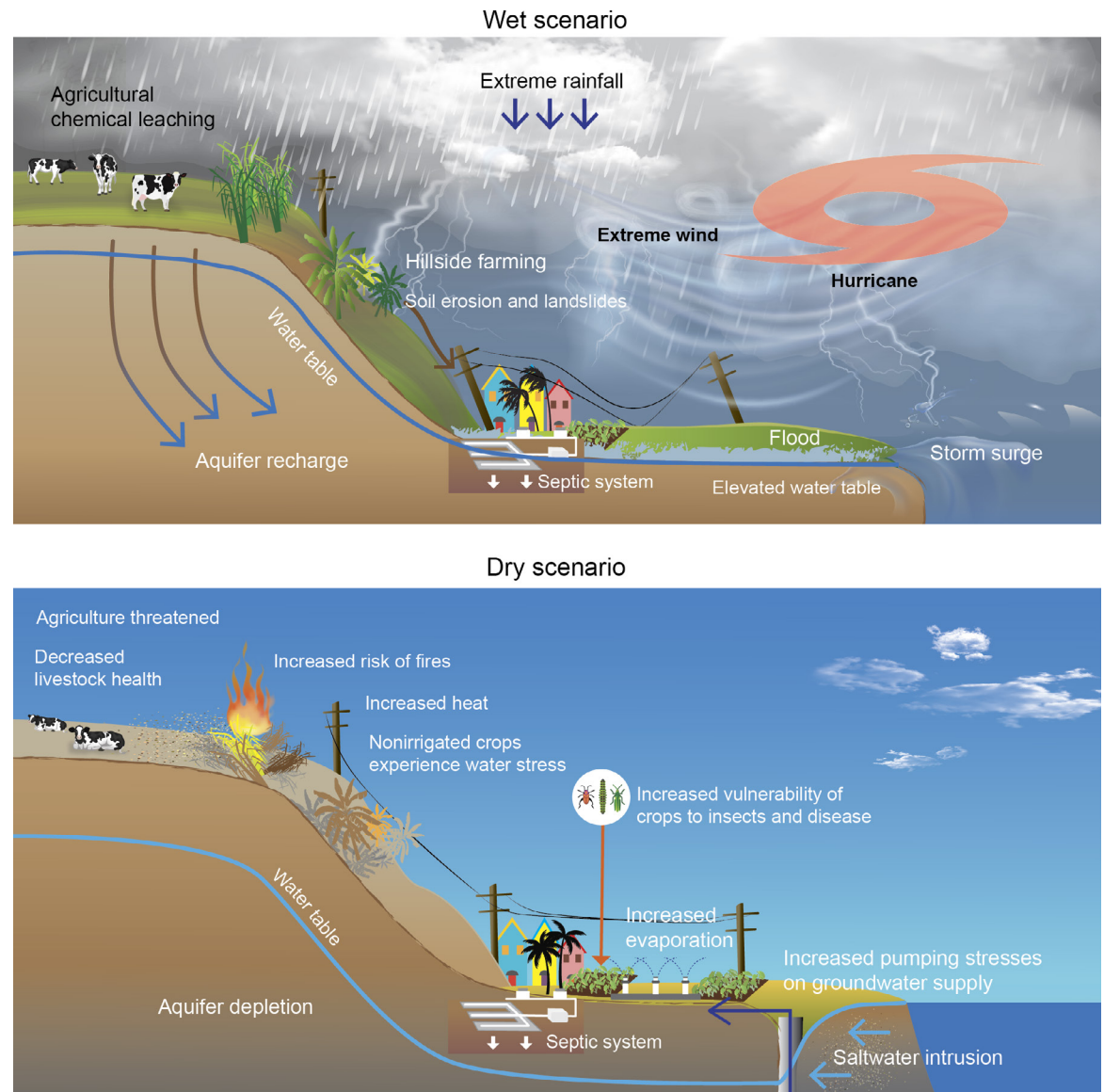
Adaptation Effectiveness Increases When Coupled with Strategic Governance and Planning

Climate adaptation in the US Caribbean is challenging because of multiple interacting factors, including high risk exposure, limited or misaligned funding, insufficient institutional and organizational capacity, and siloed approaches to risk reduction and resilience (*high confidence*). Effective adaptation to support resilience in the US Caribbean could be enhanced through co-development and integration of robust global, regional, and local climate science and risk-based knowledge into planning and implementation, as well as improved governance arrangements (*high confidence*). US Caribbean capabilities in planning and adaptation could be enhanced by strengthening partnerships across the wider Caribbean region and the US mainland (*medium confidence*).

Climate Impacts on Food and Water Systems from Ridge to Reef

Risks to food and water systems differ under wet and dry scenarios.

Figure 23.8. (top) In periods of wet conditions, saturated soils coupled with heavy rainfall from hurricanes and storms can lead to flooding and, in turn, soil erosion and vegetation and crop destruction. Strong winds and floods can also damage infrastructure needed for food and water distribution. Excessive rain combined with higher sea levels affects water quality through the leaching of agricultural chemicals and wastewater from septic systems. **(bottom)** Dry conditions, on the other hand, increase groundwater pumping for irrigation. When combined with sea level rise, these conditions can also lead to saltwater intrusion into coastal aquifers. Figure credit: University of Puerto Rico, North Carolina State University, USDA Forest Service, University of Arizona, and University of the Virgin Islands.



Recommended Citation

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