

Unique Challenges Facing Southwestern Tribes

“In some cases, modern land-use policies circumvent the ability of Native people to practice traditional adaptation strategies.”

Key Messages

1

Vulnerability of southwestern tribes to climate change is higher than that for most groups because it is closely linked to endangered cultural practices, history, water rights, and socioeconomic and political marginalization.

2

Tribes are taking action to address climate change by instituting climate-change mitigation initiatives, including utility-scale alternative-energy projects, and energy conservation projects.

3

Already observed climate-change impacts are compounding the effects of marginal living conditions and extreme climatic environments.

Water levels have been declining in Pyramid Lake, which is part of the 740-square-mile Pyramid Lake Indian Reservation in Nevada, and water quality has been impacted by upstream discharges. Photo by Dan Mosley.

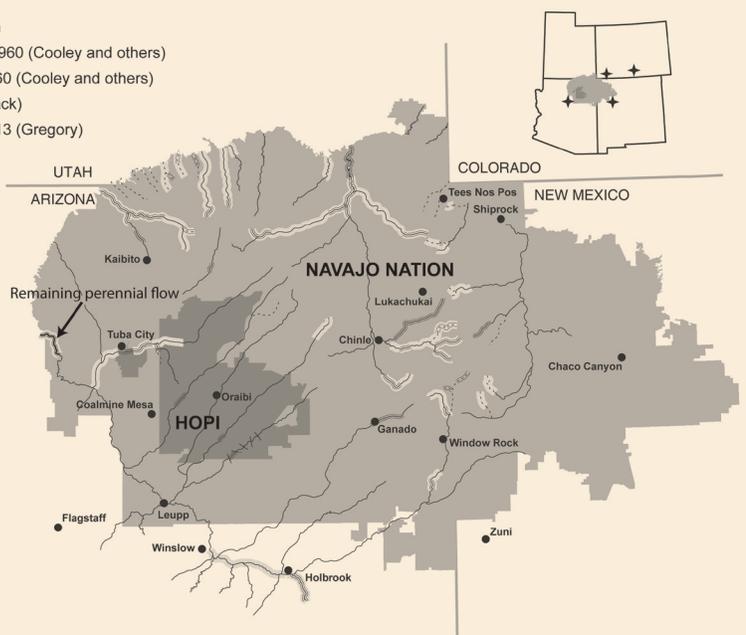
The seventeenth chapter of the *Assessment of Climate Change in the Southwest United States* evaluates observed climate effects on Native American lands and discusses the intersection of climate and the unique cultural, socioeconomic, legal, and governance contexts for addressing these issues in Indian Country. “Unique Challenges Facing Southwestern Tribes” highlights some preparedness, mitigation, and adaptation planning initiatives currently underway in the Southwest.

Southwestern tribes are situated in many different ecosystem and climatic zones and face varied climate-change challenges. Special issues confronting most, if not all, tribes include cultural and religious impacts, impacts to sustainable livelihoods, population emigration, and threats to the feasibility of living conditions.

- Current Perennial stream
- Current Intermittent stream
- Intermittent stream 1950-1960 (Cooley and others)
- ==== Perennial stream 1950-1960 (Cooley and others)
- +++ Perennial stream 1942 (Hack)
- Perennial stream 1909-1913 (Gregory)

Historic changes in streamflow on Navajo and Hopi lands.

The bold black line (shown with arrow) indicates where perennial streamflow exists today. Inset map shows location of Navajo lands; black diamonds specify locations of sacred mountains on the perimeter of Navajo traditional homelands.



Sovereignty and History

As separate sovereign governments, tribes have the authority to address the impact of climate change on their lands, resources, and traditional practices. Since climate operates across jurisdictional boundaries, an awareness of tribal rights to water and cultural resources, located both on and off the reservation, is important to evaluate the impacts of climate change. Since reservations were often established in regions with extreme environments where the sustainability of acceptable living conditions is already a challenge, tribes in the Southwest already grapple with environmental challenges. This includes tribal lands in Arizona and Utah that are situated in regions with limited rainfall and water sources of poor quality.

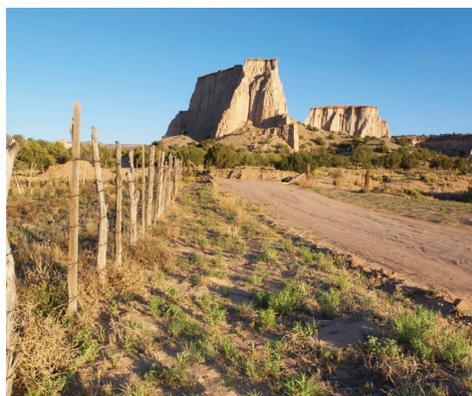
Water Rights

Water rights are closely linked to the vulnerability and adaptive capacity of tribes. Though many tribal governments are senior water resource users with significant water rights, litigation for a determination of water rights on paper is an expensive and lengthy process. Some tribal governments have negotiated settlement agreements, foregoing a significant percentage of their legal claims to water in exchange for secure allocations and infrastructure funding.

Observed Impacts

Interviews with Navajo elders provide accounts of observed climate change impacts such as declines in snowfall, surface water features, and water availability, and the disappearance of plants and animals found near water sources or in high elevations. Though studies of climate change impacts to Native people are limited, climate-related impacts already include:

- Decline in ability to grow corn, which is central to many Native cultural practices
- Increase in wildfire severity affecting Native foods and resources
- Climate-related stresses to rangeland affecting tribes dependent on livestock
- Increase in erosion of sand dunes, leading to wide-scale movement of sand dunes which are inundating housing and impacting endangered native plants and grazing land



Socioeconomic Conditions

Limited resources and poor economic conditions reduce the resilience of tribes to climate change and increase the vulnerability of southwestern tribes to climate change impacts. More than one-quarter of the American Indian and Alaska Native populations live in poverty—a rate more than double the general US population.

Adaptation Challenges

In the past, Native peoples in the Southwest adapted to natural hazards through unique strategies guided by their cultural beliefs and practices. Despite a lack of adequate funding, there is a concerted effort by many tribes to forge ahead with climate-change adaptation plans, such as the Yurok Tribe Environmental Program that monitors water, air, and fisheries to understand the local impacts of climate change. However, lack of funding and conflicting jurisdictions on neighboring lands continue to pose challenges for the development of flood and disaster planning as well as drought-mitigation planning. Often modern monitoring, forecasting, and adaptation techniques can ignore or be inconsistent with traditional Native values, knowledge, and practices.

Moving Forward

Climate-change mitigation and energy conservation is also seen by many as a great financial opportunity that may help address current economic woes and the challenges of a limited resource base, such as the utility-scale solar project in New Mexico being built by the Pueblo of Jemez.

Despite many challenges, Native communities have much to offer the climate-science community. Native communities have persisted and adapted during periods of wide-ranging natural climate variability. The role of indigenous environmental knowledge has received increased attention, and studies of local environmental knowledge show that it contributes greatly to our understanding of ecosystem change.

For the past four years, Jemez Pueblo has been planning and negotiating a contract to sell the electricity to be produced from a four-megawatt solar power plant now under development on Jemez land. This commercial-scale solar power plant will be the first in the nation on tribal lands.

Information from: Redsteer, M. H., K. Bemis, K. Chief, M. Gautam, B. R. Middleton, and R. Tsosie. 2013. "Unique Challenges Facing Southwestern Tribes." In *Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment*, edited by G. Garfin, A. Jardine, R. Merideth, M. Black, and S. LeRoy, 385–404. A report by the Southwest Climate Alliance. Washington, DC: Island Press.

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