6.5 Impacts of Climate Change on the Mono Lake Kootzaduka'a Tribe of California and Nevada

Changes in air temperature, drought, and hydrology have impacted Mono Lake, the Kootzaduka'a homelands (*Kootzagwae)*, plants, animals, and the health of the Kootzaduka'a.

This document is written by Dean Tonenna, Tribal Elder of the Mono Lake Kootzaduka'a Tribe of California and Nevada and is based on his observations of climate change in Kootzagwae.

The Mono Lake Kootzaduka'a Tribe of California and Nevada have resided in the Mono Lake–Yosemite region since time immemorial. The Kootzaduka'a Tribe's homelands are based around Mono Lake and extend north to Bodie Hills, south to the Mono Divide, east into western Nevada, and west into the Yosemite region. The Tribe has worked towards federal recognition since the mid-1970s and continues efforts to obtain land in the Mono Lake area.

Mono Lake is the heartland of their territory and the islands in the Lake are their place of origin. This saline, terminal Lake is the physical, cultural, and spiritual center of the Kootzaduka'a. Mono Lake and the natural resources within are important resources for the Kootzaduka'a. Alkali flies (*Ephydra hians)* and both residential and migratory birds inhabit the Lake and surrounding areas and have long served as important food sources for the Kootzaduka'a. The Kootzaduka'a name means "The ones who eat kootzabe". Kootzabe is the pupa of the alkali fly, an important, nutritious, protein-rich, and clean food source for the Tribe. The Kootzaduka'a also use Lake water for healing and cleaning.

The Los Angeles Department of Water and Power began diverting water from the tributary streams of Mono Lake in the early 1940s. Water diversions have caused several environmental issues and made the region more vulnerable to the effects of

climate change. Mono Lake has experienced lower water levels, exposed dry lakebed, increased salinity, and higher water temperature.

Figure 6.5.1. Exposed *Kootzabbaa* (Mono Lake) Lakebed and Loss of Habitat for the *Kootzabe* at Black Point.



Photo by Dean Tonenna

Lower Lake levels leave dry lakebed exposed, posing a health hazard to the Kootzaduka'a (**Figure 6.5.1**). Particulate matter in dust picked up from the dry lakebed by wind can cause respiratory issues and aggravate certain respiratory conditions. The windiest days have the most potential for dangerous air quality, yet they are the most favorable days to harvest kootzabe. Tribal members are increasingly faced with a conflict: protecting their physical health or preserving their spiritual and cultural practices.

Lower Lake levels impact alkali fly and bird habitats and populations. Shallow-water tufa towers (mineral formations) are used by the alkali fly throughout their life cycle. More tufas are now out of water, reducing egg-laying sites and drying areas used for harvesting and processing kootzabe. Falling water levels have also created land bridges to bird nesting islands, increasing their vulnerability to predators. Severe droughts and

water exports have increased Lake water salinity, which has impacted the productivity of alkali flies by slowing growth, reducing body size, and decreasing survival. This reduces the food supply for birds that rely on the Lake as a seasonal and year-round habitat. The increased salinity also poses a hazard to human health, as Lake water has been traditionally used as medicine and is now unsafe for consumption and contact.

Warmer air temperatures and increasingly extreme swings between wet and dry conditions affect every aspect of the Tribe. Having limited access to cooling centers, Tribal members report that recent heat in the Mono Basin is unlike anything they've experienced before. At the same time, intensified wet–dry swings and more variable snowpack and snowmelt runoff make it harder for the Tribe and ecosystem to adapt. Prolonged droughts and hotter conditions contribute to depleted groundwater, stressed plants and wildlife, larger wildfires, and low water levels at Mono Lake.

Pinyon pine trees are a culturally significant resource affected by drought. Drought hinders sap production and thus their defense against pests like bark beetles. The Kootzaduka'a use sap for medicine and Pinyon nuts, an important food for the Tribe, are smaller and not as plentiful.

Tribal members have a harder time coping with more frequent and intense wildfires and wildfire smoke (**Figure 6.5.2**). Their homes are very susceptible to damage in moderate fire conditions and do a poor job keeping wildfire smoke out. Tribal members cannot escape the smoke and its health hazards by staying inside, and it can be difficult to travel somewhere else for relief. There is also generally no infrastructure to help efficiently fight fires and brush engines must be used in these areas. High intensity wildfires can also destroy native plant communities that the Tribe uses for food, medicine, and for other cultural practices.

The Mono Lake Kootzaduka'a Tribe relies upon their homeland and the environments contained therein to satisfy their physical, spiritual, and cultural health across generations. Climate change impacts on the totality of the environment in the region affect the direct connection between the Tribe, the plants, the animals, Mono Lake, and the whole environment itself.

Figure 6.5.2. Wildfire Smoke Traveling South to *Kootzagwae.*



Photo by Dean Tonenna

For more information, contact:

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