

## Climate Change

### Issue Statement

Climate change is happening and is occurring globally. It affects almost everything in our environment and communities, including Tribal communities. Climate change not only poses threats to the health of our environment and the ecological health of the biological population, it also poses threats to the health of our community, especially to our elders and children who are more sensitive to adverse impacts than the general population. Tribes are disproportionately impacted by climate change. Tribes and Native Alaskans have a deep-rooted connection to the environment in direct correlation to their culture. Most Tribes do not have a plan to mitigate and/or adapt to climate change and many communities have little scientific knowledge regarding its occurrence. Traditional lifeways may be drastically affected by environmental changes. Climate change presents a tremendous threat to the health of Tribal environments and communities.

### Explanation of the Issue

Climate change has altered many of our traditional ways of life. The Tribal and Native Alaska people have been observing various changes in their environment, such as the reduction of Tribal natural ecosystems and biodiversity.

Seasons are changing. In some part of the country, the rainy season has shifted to later in the year. Gathering periods for native plants and animal migration patterns also have been altered. Winters are longer. For example, a few years ago, southeast Alaska Villages experienced a cold front that killed all of the blooming berries during the spring. Summers are hotter and drier. Moreover, heavy winter rain storms resulted in storm damage. Parts of the southwest Tribes experienced prolonged drought and enhanced threat from wildfires.

Native plants and habitats are also affected. Tribal elders and communities still gather their food according to the traditional knowledge with respect to seasons. Climate change may adversely impact the health of these communities and alter their traditional way of life by shortening and/or eliminating growing seasons for native plants and damaging habitats. Alaskan Tribes are encountering new and invasive plant and animal species that threaten native species. Tribes in California have noticed that production of native food sources, such as acorns, has been significantly lower for several years in a row. Native plants seem less available, and trees, such as Tan Oaks, are suffering from sudden oak death. Lastly, populations of wild animals, such as deer, northern spotted owl, and quail are significantly reduced and less prevalent on Tribal lands. Other concerns include the indirect impacts on drinking water supplies caused by rising sea levels, and new migration patterns of animals traditionally hunted and harvested for foods.

### What do Tribes and Alaska Villages Specifically Need from EPA to Address the Issue?

Tribes need technical assistance and resources to develop and implement adaptation/mitigation plans to address climate change. These needs will vary from resources to support education,

outreach, and program implementation to research and technical assistance on specific scientific questions.

### **Proposed Implementation Strategies and Potential Measures of Success**

Proposed implementation strategies are:

- Education and outreach:
  - Build capacity of Tribal scientists through workshops and training (e.g., courses of varying levels of detail on adaptation that are specific to the needs of the tribes; courses on various expertise that will be needed to plan and implement adaptation, such as hydrology, technology, energy, engineering, storm water, forestry, and predictability of future environmental, social, cultural, agricultural, and economic consequences)
  - Integrate climate change education curriculum into selected Tribes as a pilot to empower Tribal communities to take positive actions to reduce the impacts of climate change
  - Provide educational outreach on climate change issues to Tribal communities
  - Advocate Tribal participation in national landscape cooperatives
  - Act as a climate change portal to connect the Tribes to other federal agencies
  - Use Tribal-specific and culturally sensitive methods to communicate climate change and train the Tribes
  
- Program implementation:
  - Conduct an emissions inventory to determine the impacts of climate change on air quality
  - Prepare an air quality sampling plan and perform air quality monitoring on Tribal land
  - Provide tools to connect environmental decisions with public health that are specific to individual tribes (i.e., not aggregated national data) through epidemiology, public health surveys, and baseline information
  - Recognize the variability of climate change issues among individual Tribal communities
  
- Science/research:
  - Document the impacts of climate change on Tribal and Native Alaska communities and their ecosystems
  - Conduct research on climate change in Tribal and Native Alaska communities
  - Study other possible potable water sources to address depleting water supplies
  - Facilitate access to the most current and relevant science and best available technology via a clearinghouse of information (e.g., access to experts)
  - Promote the science of data (including collection, storage, and maintenance) so that Tribes have legally defensible data and evidence to protect their natural resources

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- Develop methodologies and tools to include climate change approaches in grant applications
- Provide climate change modeling expertise to the Tribes (e.g., air, ecological, water, future scenario)
- Continue development of decision tree screening tools (e.g., T-FERST)
- Consider all aspects of water in addition to quality: quantity, storage, conservation, reusability
- Quantify and mitigate the social science aspects of climate change: reverse Tribal migration, economic collapse, influx of non-Tribal members to Tribal lands (environmental refugees), permanency of Tribal reservations, health and social service issues
- Provide tools and methodologies to allow the Tribes to perform their own longitudinal studies (e.g., to understand potential changes in traditional practices)

Potential measures of success are:

- Documentation of the impact on climate change on Tribal and Native Alaska communities and their ecosystems
- Report on climate change educational outreach and adaptation activities within Tribal and Native Alaska communities
- Ownership of climate change adaptation plans specific for Tribes and Native Alaska
- Share and present research, studies, and success stories at community, professional, academic, government, and inter-government meetings and conferences
- Observe behavioral changes due to implementation of climate change measures