



Climate Change and Subsistence

What It Means to Alaskans and How We Can Adapt

How does climate change affect subsistence?

Rural Alaskans harvest more of their food from the sea and land than other Americans. Subsistence activities provide important cultural connections to nature and community, as well as nourishment. The warming climate is causing a host of environmental changes that affect Alaska's subsistence culture.

What are Alaskans observing?

- Ice covers less area and is thinner on seas, rivers, and lakes.
- Ice cellars (underground freezers in permafrost) are thawing.
- More wildfires are changing wild game forage and habitat.
- Animal abundance, distribution, and behavior are changing.
- Permafrost is thawing.
- The health of some subsistence fish, birds, and mammals appears compromised.
- Shrubs and trees are expanding northward.

What are scientists telling us?

- The average temperature in the Arctic has increased by 3 degrees F in the last century, and in some parts of Alaska by as much as 5 degrees F.
- A warmer climate is altering the distribution and abundance of fish, birds, mammals, and plants that subsistence users need.



U.S. FISH AND WILDLIFE SERVICE

Subsistence fish camp on the Koyukuk River, Alaska.

How is climate change affecting us now, and what can we expect in the future?

- Decreased ice cover makes winter subsistence activities more difficult, expensive, and dangerous. Ice fishing opportunities are fewer.
- Traditional subsistence resources have become harder to find and often require longer travel and greater expense.
- In some cases new subsistence resources are becoming available. In other cases nuisance animals or predators that compete with people have hampered the success of subsistence activities.

- Thawing permafrost reduces tundra access, and makes summer travel harder and more destructive to the environment.

What is causing climate change?

Atmospheric scientists say that the worldwide use of fossil fuels (coal, oil, natural gas) releases gases into the air that trap heat, which would otherwise escape into space. Some scientists also point to the earth's natural climate cycle as a factor in increasing atmospheric temperatures. Though there remains some debate about the causes, scientists agree that the earth is warming.

What can subsistence users do to halt or reverse these changes?

Individuals can't do much to reverse global trends on their own, but they can join a worldwide effort to reduce use of fossil fuels. Even if this happens it will be decades before results are apparent.

How can subsistence users adapt?

- Be flexible with subsistence harvest time and effort.
- Hold local discussions on how changing temperatures and ice affect the family and community. Encourage elders to offer suggestions on how to adapt.
- Take advantage of new subsistence opportunities as they present themselves.
- Be open to utilizing new species coming to the area that usually have not been part of the traditional diet.
- Meet with subsistence hunters, fishermen, and gatherers from other parts of the state to learn how they use the biological resources that are becoming more abundant and how they have dealt with scarcity.

For more information or assistance

Climate Change Adaptation, Alaska Sea Grant Marine Advisory Program
<http://www.marineadvisory.org/climate>

Alaska Center for Climate Assessment and Policy (ACCAP)
http://ine.uaf.edu/accap/alaska_arctic.html

Alaska Department of Fish and Game, Division of Subsistence
<http://www.subsistence.adfg.state.ak.us>

Federal Subsistence Board
<http://alaska.fws.gov/asm/board.cfm>

Community temperature charts, Scenarios Network for Alaska Planning
<http://www.snap.uaf.edu/community-charts>

U.S. Fish and Wildlife Service, Office of Subsistence Management
<http://alaska.fws.gov/asm/osm.cfm>

- Engage elders to teach children and youth the values of adaptability, and to temper expectation with appreciation of the resources that are available.
- Expand use of traditional ecological knowledge and community-based monitoring to track changes and develop adaptation strategies.
- Increase use of co-management bodies, including federal, state, local, and

regional rural representation, that can respond rapidly to setting seasons and bag limits on fish and wildlife.

- Make full use of available federal, state, and local agency assistance to help locate and fully utilize subsistence foods, and push for resource management plans that increase subsistence access to the available resources.

This Alaska Sea Grant Marine Advisory Program (MAP) project is supported by the Alaska Center for Climate Assessment and Policy (ACCAP). MAP is a statewide outreach and technical assistance program that helps Alaskans sustain economic development, traditional cultural uses, and conservation

of marine and coastal resources. ACCAP's mission is to assess the socioeconomic and biophysical impacts of climate variability in Alaska, make this information available to local and regional decision-makers, and improve the ability of Alaskans to adapt to a changing climate.

