

First Foods and Climate Change

Indigenous populations in North America face significant threats from climate change. One area of great concern is how first foods will be impacted by climate change. Because of the vital role that first foods play in the physical, mental and spiritual health of native communities, impacts from climate change on first foods may negatively affect tribal culture and livelihood. This profile explores the challenges that indigenous peoples face in maintaining their historically important relationships with first foods in the context of climate change. The profile also outlines the impacts that climate change may have on many first foods, describes challenges facing indigenous peoples in continuing their relationship with first foods, and explore ways in which they have adapted or responded to these challenges.

First Foods

Indigenous peoples throughout North America have historically depended on a wide variety of species for food. These traditional foods are widely referred to as first foods in native communities. First foods have provided sustenance and promoted health in native communities for countless generations. First foods formed the backbone of many indigenous societies by virtue of their religious, cultural, economic and medicinal importance, in addition to their role in feeding native peoples. First foods nourished indigenous societies in every aspect, helping to create vibrant, healthy native communities (CINE 2011).

The relationship between indigenous peoples and first foods is reciprocal. First foods serve the people by providing cultural and physical health, and the indigenous communities reciprocate by maintaining the health of first foods. In this way, both people and food provide and are provided for. Climate change presents a new challenge in this relationship, potentially compromising the ability of first foods to nourish the people, and the ability of native peoples to protect their foods.

Many indigenous peoples continue to depend on first foods for subsistence. Inupiaq people of northern Alaska rely on marine life, such as seals and fish, as well as polar bears, for much of their diet (ITEP 2010). First foods are not only important food items for native communities, they are also a staples of native culture, spirituality, medicine and overall well being. The Swinomish Climate Change Adaptation Plan (2010) describes the traditional relationship with salmon and shellfish as being vital to the health of their tribal community.

First foods are also a central aspect of the traditions of the peoples of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). In 2006, the CTUIR Department of Natural Resources (DNR) implemented the First Foods Program, aimed at protecting first foods. This plan, based off of the traditional first foods ceremonies of the CTUIR, provides an indigenous framework for restoring culturally important foods; each branch of the program covers one of the first foods important to the people. In addition to protecting important species, the program seeks to give tribal members better access to these first foods. Prior to harvesting first foods, tribal members hold ceremonies as a way to help people remember the promise that each food made to take care of the people and to reinforce the relationship between the people and their first foods. In turn, this reminds the people to reciprocate, and care for the food (Jones et al. 2008).

Impacts of Climate Change on First Foods

Climate change is likely to affect first foods in various ways. Changes in weather systems and increased instances of natural disasters pose a direct threat to the gathering of first foods. Climate change is also likely to amplify the effects of other, indirect threats to first foods, such as loss of access to gathering places and hunting grounds, and pollution of the environment. The damming and course alteration of the Nisqually River, in western Washington, and its tributaries have significantly depleted salmon populations. As the impacts of climate change warm these waters, additional stress will be put on fish populations, further depleting them (Kaufman 2011). In concert with other threats, such as pollution and damming, climate change, poses a formidable set of challenges for salmon populations (Kaufman 2011). Traditional relationships with the land and first foods depend on constancy and stability (Swinomish 2010). The uncertain nature of climate change threatens the food security of indigenous peoples by making access to first foods less predictable (Guyot et al. 2006).

Changes in Climate

Native species are carefully attuned to particular climates and ecosystems. Changes in climate have the potential to affect these delicate balances, throwing ecosystems, and first foods, into disarray. For the Deh Gah Got'ie and White River First Nations peoples of western Canada, summer storms have made fishing an increasingly dangerous activity (Guyot et al. 2006). Furthermore, less predictable rains and dry spells have had an impact on berry and other plant harvests (Guyot et al. 2006). Predictability is a necessity for those sustaining themselves on first foods. As weather systems become less reliable and predictable, the ability of indigenous peoples to sustain themselves with first foods may be compromised.

However, it is not just the unpredictability of some weather systems that makes climate change such a threat to first foods. Predictable, steady changes also have the potential to impact first foods. For example, Inupiaq people of northern Alaska use food cellars dug into the permafrost to store easily spoiled meat and fish. However, with the gradual warming of temperatures, the permafrost is thawing, making the food cellars less reliable for keeping the food fresh and edible (Brubaker et al. 2009).



Inupiaq Food Cellar. Source: Brubaker et al. 2009

Rising Sea Levels

Rising sea levels along the Pacific

Northwest coast pose another threat for first foods. Traditional shellfish gathering places have been carefully maintained over many generations to create an environment rich in shellfish and easily accessible to coastal peoples. As sea levels continue to rise, access to these areas is being lost (Swinomish 2010). In addition to the loss of traditional fishing sites, rising sea levels are threatening estuaries along the coast. Estuaries are incredibly productive ecosystems that provide valuable habitat for many first foods plant and animal species, most notably salmon. The shifting state of estuaries has the potential to radically diminish important first foods populations (Swinomish 2010). Damaged estuaries could mean a loss of gathering grounds for indigenous peoples up and down the Pacific Northwest coast, as well as a massive loss of a critically important ecosystem type. These areas represent not only access to productive fishing, but also the knowledge accumulated over time about how local populations of fish behave in

particular places. Loss of these fishing places constitutes a loss of interaction between indigenous peoples and specific species populations.

Impacts of Climate Change on Marine and Freshwater Ecosystems

Warming waters also pose a threat to first foods, and some plant first foods are also unable to migrate or adapt well to changes in their ecosystems. In the Great Lakes region, wild rice is struggling to adapt to the warmer, shorter winters that climate change is inducing. Warming winters and changes in water level are crippling wild rice's ability to grow and thrive in its traditional range. Without a freezing cold winter, plants do not have the opportunity to gestate as they normally would (Minnesota, 2008). Wild rice is considered to be a pillar of cultural health for the Anishnaabeg people, and any decline in wild rice negatively affects the tribe's well being (Minnesota 2008).



Source: Indian Country Today Media Network. 2011.

Some effects of climate change directly harm ecosystems, reducing their capacity to provide first foods. For example, warming temperatures in Alaska have begun to melt glaciers. In addition to raising the temperature of rivers and streams, thereby harming fish populations, these melting glaciers are releasing harmful compounds into the local ecosystem. Many Persistent Organic Pollutants (POPs), used in pesticides and herbicides in the 1950s and 60s, were deposited from the atmosphere onto glaciers. Trace amounts of POPs have leaked from the glaciers into the food chain in the past. However, increased glacial melting may lead to increased exposure to POPs. This possibility has led to concerns that first foods in contaminated areas may no longer be safe to eat (Verbrugge 2010).

In some cases, changes in climate seem to be favoring some species over others. Members of the White River community have attributed an influx in beaver populations to changes in the climate. These beavers have had an impact on the local water system, in turn affecting fish and other species (Guyot et al. 2006). Additionally, the same changes that have increased the number of beavers have had a negative effect on many bird populations upon which the people depend. These impacts are negatively affecting biodiversity. Without stable, healthy and diverse populations of first foods to rely on, people are worried about how they will continue to practice traditional ways. The White River people have also attributed changes in species and ecosystem function to pollution (Guyot et al. 2006).

Shellfish are facing additional pressure due to climate change induced acidification of oceans. Shellfish populations are sensitive to changes in ocean pH levels. Moreover, many shellfish populations have already been stressed by ocean pollution. In such a stressed state, populations might not be able to adjust to the challenge of more acidic water (Swinomish 2010).

Effects of Climate Change on Culturally Important Species

As a response to climate change, many first foods species are experiencing changes in habitat. Indigenous gathering rights are already limited by treaties or other agreements, and may be even further limited by the changes in the composition and distribution of culturally important species.

As some first foods species are migrating out of historical sites, other species are “moving in.” The introduction of invasive species to an ecosystem can have detrimental consequences. In the Pacific Northwest, warming temperatures are projected to expand the range of fungi and pests such as bark beetles, posing serious threats to first foods plant species. As temperatures continue to rise, these pests will represent yet another challenge for first foods species to face as they attempt to adapt (Swinomish 2010).

Another example of changes in species composition is berries, which require a specific season to grow well. The erratic weather systems induced by ongoing climate change can result in less prolific berry yields. While this doesn’t necessarily reflect an actual change in species distribution, a change in the harvest timeframe can affect indigenous traditions. Non-productive berry patches, or erratically productive ones, cannot be relied upon. Consistency and predictability are important to first foods, and climate change potentially threatens both of these with respect to berries (CIER 2007).

Some species may not be able to migrate or may simply change distribution in the face of climate change. Salmon populations in individual rivers and streams throughout the Puget Sound, for example, are expected to decline considerably as water temperatures warm (Kaufman 2011, CPR 2011). This has significant implications for indigenous peoples who have traditionally relied on salmon. Many other species are being threatened as their habitat decreases and they are unable to adjust or migrate. Winter sea ice landmass has been heavily affected by climate change, and the loss of this habitat is hurting Pacific walrus populations (Verbrugge 2010). Marine mammals such as walrus form a critical part of native Alaskan diet (Verbrugge 2010), and a decrease in their populations is a direct threat to Alaskan first foods.

Changes in Gathering Sites

Cultural factors are also important in regards to access to first foods. Negotiations with government agencies or private landowners for access to first foods play an important role in ensuring tribal access to these resources. Indigenous peoples may lose access to first foods because of a changing distribution of culturally important species as a result of climate change. Athabascan peoples in central Alaska are experiencing changes in moose habitat. Moose form an important staple food for these people, and the disappearance of moose has put stress on peoples’ traditional diets. In addition to observed changes in where moose are living, hunters have noticed that the moose seem to be less healthy. Just as the hunters are having trouble adapting to the changes in climate, so are the moose (ITEP 2011).

A major emphasis of the Coast Salish Gathering, an organization of tribal leaders in the Northwest, is on maintaining rights to gather and care for first foods (Swinomish 2010). The gathering has examined first foods that will be affected by climate change in the Salish Sea (a region comprised of the Puget Sound, Juan de Fuca Straight and Georgia Basin), as well as how Salish people can work together to adapt the projected changes (Coast Salish 2011).

Retaining Traditional Knowledge

One great concern for native peoples continuing to harvest and eat first foods is how to keep their knowledge about these foods vibrant in the face of environmental change. Traditional Ecological Knowledge (TEK) is highly specific. Indigenous methods of first foods harvest and relationships with first foods species have been slowly forged over a long time span. Rapid changes threaten the integrity of this knowledge by making it less applicable. TEK has always been based on dynamic, changing relationships with the surrounding environment. However, climate change poses a significant challenge by altering the environment too quickly for people

to adjust their knowledge. Without time to adjust, indigenous knowledge could lose some applicability to an environment rapidly affected by climate change (Duerden 2004).

Revitalizing First Foods

There are some tribes using TEK to preserve access to first foods in the face of climate change. The people of the Tesuque Pueblo of New Mexico have traditionally cultivated plants and are reviving their indigenous agricultural techniques in an effort to reintegrate first foods into their daily lives (Kahneratokwas). By re-establishing traditional cultivation practices, Tesuque people are ensuring that their first foods will be taken care of in the future. Moreover, the farm is educating young people about traditional foods and ways of life, a vital component in maintaining a healthy relationship between first foods and indigenous peoples. The Mvskoke Food Sovereignty Initiative (MFSI), based out of Okmulgee Oklahoma, is pursuing a similar goal. Also traditional farmers, the Mvskoke are working to revitalize the cultivation of their first foods as a way of preserving cultural heritage and promoting the peoples' health.



Source: Mvskoke Food Sovereignty Initiative

Many indigenous peoples are recognizing the threats posed to first foods by climate change, and are confronting these challenges in a variety of ways. The potential loss of first foods has spurred many native communities to revitalize their already struggling relationship with first foods. Conversely, native communities with a strong, ongoing relationship with the first foods are taking this challenge as an opportunity to assert the importance of first foods for their communities and the health of the land. First foods continue to nourish indigenous peoples, as they have always done. Even as they are jeopardized by climate change, first foods are inspiring cultural, physical, and ecological health in native communities.

Resources

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Tribal Climate Change Profile Project:

The University of Oregon and the USDA Forest Service Pacific Northwest Research Station are developing tribal climate change project profiles as a pathway to increasing knowledge among tribal and non-tribal organizations interested in learning about climate change mitigation and adaptation efforts. Each profile is intended to illustrate innovative approaches to addressing climate change challenges and will describe the successes and lessons learned associated with planning and implementation. For more information about the initiative, visit: <http://tribalclimate.uoregon.edu/>.

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