

Traditional/local Knowledge and Community Sustainability at Huslia on the Koyukuk



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Cultural differences in Alaska and location of community of Huslia



Language map adapted from ANLC University of Alaska at Fairbanks

Traditional Native Knowledge and Wisdom from the Koyukuk

- Documentation of TNK&W on climate change indicators have been successful within the Koyukuk drainage, and are in our Tribal Archive
- Our Native Elders and western scientists have met and concluded that climate change is a fact in the Arctic
- We realize that we can and have to adapt quickly to this change by using short-term and long-term strategies
- The State and Federal governments are likely to be far behind our current efforts at adaptation
- What can we do to enhance current adaptation efforts
- What is the best way include everyone in our decisions
- Most rural village populations in Alaska are getting smaller, except for communities like Huslia
- With the knowledge we have now, how do we prepare and educate the next generation for climate change

Using workshops and a tribal archive to document climate change on the Koyukuk at Huslia

- Winter ice is much thinner now
- Snowfall extremes are common
- Consistently warmer temperatures all year
- Severe wildfire intensity
- Animals and fish, and their behavior are changing
- Declining permafrost
- Prolonged drought
- Riverbank erosion has increased
- Lakes drying out
- Grasses growing more, and plant distribution changes constantly
- Flooding events have changed
- Weather is no longer predictable
- Prophecies of change were supported



What are some short-term adaptive strategies we can use?



- Using fire to reduce fuel loads was never common along the Koyukuk. But it makes sense now that extremely hot summer weather creates very unsafe wildfire conditions in and around our village.

We are always trying to find alternative subsistence use sites

- Many lakes don't flood annually anymore, so we look for new subsistence sites that our Native Elders suggest where there may be fish along the river, or where animals may be during the seasonal hunting times. A few of the old sites still work.



We select dogs that are practical with warmer temperatures



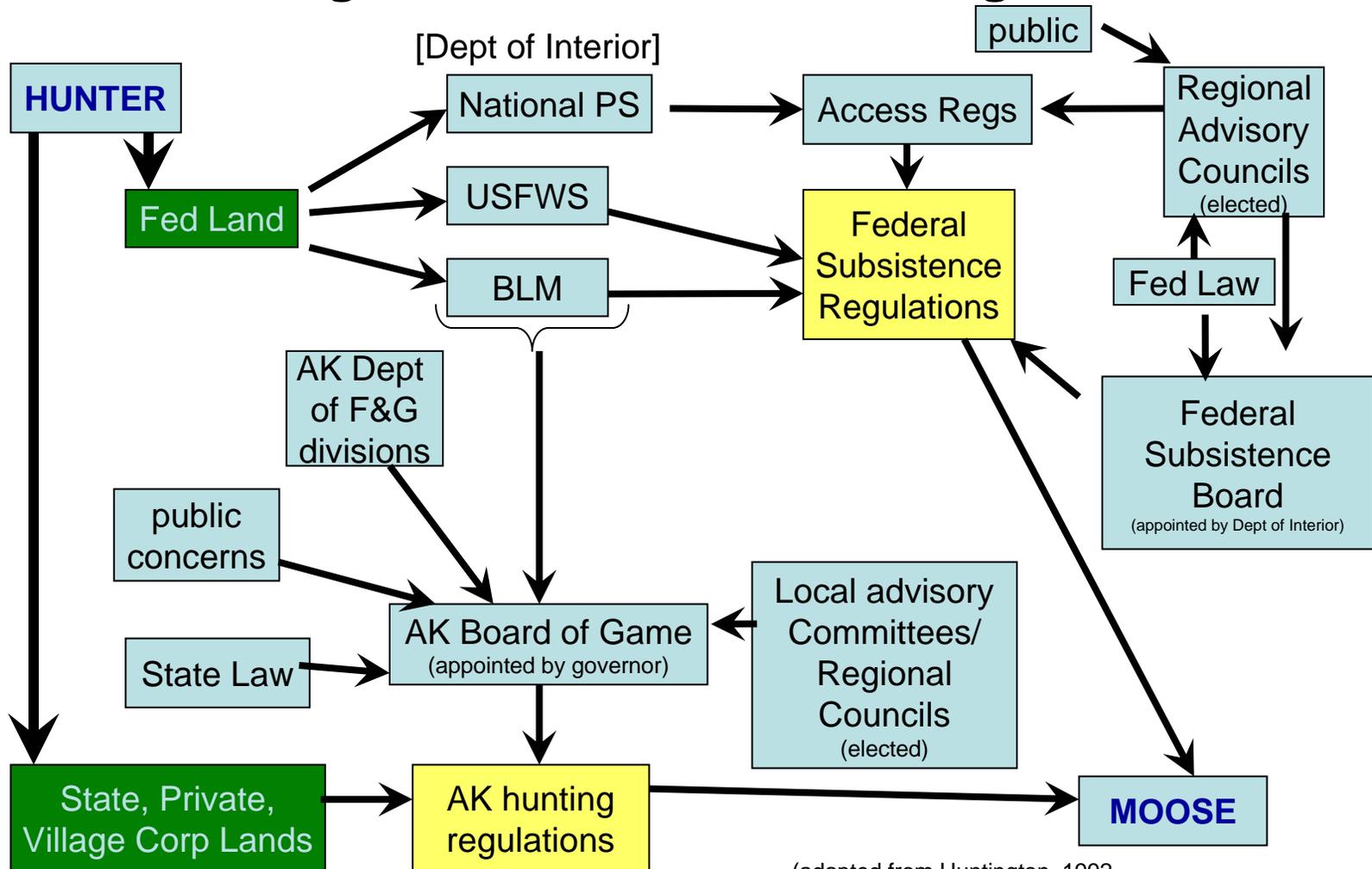
- Traditionally our dogs were used as pack or sled dogs and for surviving at remote traplines in severe winter conditions. But now thin haired hounds bred for racing are the preferred breed.

How do we maintain our access to cultural subsistence resources

- We have to work closely with all land managers and make our cultural needs known. This ensures that subsistence hunting and fishing regulations work for us.



Land Management and moose hunting in Alaska



(adapted from Huntington, 1992
by Annette Watson with Huslia
Tribe, 2004)



When there is an opportunity we can use what is already there



- There was a small fire on the old airport. And we used fire to reduce fuel load and create a firebreak around the length of the old runway. That is where most of our homes are.

We can and have to adapt quickly because the safety of our community depends on it

- By using existing firebreaks around Huslia, such as the old and new runway and lakes, we can create fire safety zones within and surrounding the community of Huslia.



What can happen even when we adapt to climate change



- Many climate change impacts are related to weather, such as thin ice and hunters falling through. Fire itself has changed and become much more severe as the climate has changed.

An example: Wildfires and our response in Huslia

- This 60 acre wildfire occurred on May 29, 2005 and was within two miles of Huslia. It started from a contained landfill where there was a new wildfire fuel reduction project, that we started in 2004 to prevent this type of event from happening.



We worked with the DOI USFWS and BLM and reduced wildfire fuel load around the Huslia landfill



- At the landfill the fuel reduction crew had created a 100 foot buffer zone all around the landfill the week before. But the extreme spring heat created very dry Caribou Moss that was like kindling. The cut brush piles stacked around the area were also fire fuel.

The heat and drought created stress in the spruce trees

- A couple of days before the wildfire I checked the fuel reduction efforts around Huslia. I noticed that the spruce were very stressed, and any fire created would travel fast if there was a wind.



Fuel reduction project looked good



- On the ground at the fuel reduction areas there appeared to be adequate effort to stop or slow fire if there were one. Near the new airport and around the landfill, the spruce trees were cut and removed, and placed in piles around the project area.

The landfill looked OK from the air

- Also, during our aerial flights we observed the thinning at the landfill, and it looked like the fuel reduction effort would work to prevent any wildfire near the landfill south of the community.



Day of the Huslia wildfire



- It was beginning to be a typical day, and the weather was very hot as is common now. I estimated the wind conditions to be moderate and variable. When I went to the landfill earlier that day, it was just as hot there.

The fire burned through the buffer

- When I arrived at the wildfire, locals had contained the immediate area but didn't realize the fire had spread to 30 plus acres in minutes. The fire blew through our buffer over the dry Caribou Moss and through the brush piles. We called in for smoke jumpers, retardant planes and a helicopter with a water bucket to work with our local front-end loader operator.



The day after the fire



- This area hasn't been burned for over seventy years, and the Native Elders said it never burned as severely as this. Only by acting quickly on our own, did we prevent further spread of this wildfire to our community.



Erosion is steady now and rivers are growing wide



- As the Koyukuk rises and floods with spring snow melt, there is immediate and continuing erosion because of the lack of any permafrost. Also, the erosion is much worse now because snowmelt in Interior Alaska happens so quickly because of very warm spring temperatures.



Warmer water and temperatures

- The water temperature now is warmer in rivers and lakes, it creates very unsafe ice conditions in winter. Also, the warmer water in spring and summer widens the river and makes for more erosion in most of the Interior Alaska.



An example: The erosion at Huslia is steady now



- Because the permafrost is now no longer as widespread, the riverbank cuts at a steady pace with no big chunks to slow the river current.

We can and have to move our possessions far from the riverbank

- As is common in the village, the entire community turns out to help move someone's personal lifelong belongings, (logs, smoke house, cache, etc...) and often their homes father back away from the eroding Koyukuk bank. It takes a long time and is a lot of hard work.



We can also use TNK&W



- When we are under stress we often rely on our Native Elders Wisdom, and use what is known to work for the moment. In this case roped trees and brush slow the river current and eddies.

Subsistence along the Koyukuk

- Our subsistence efforts along the Koyukuk were always spiritually based, and we humbly accept the fish and wildlife the creator provides. To practice that way of life now is difficult at best, and requires a very proactive approach to deal with all fish and wildlife managers.



Our subsistence efforts at fishing are difficult because of joint State and Federal Management, and climate change impacts.



- Many years our salmon runs are not healthy, due to climate change, and our subsistence fishing periods are reduced. This can make it really hard to get enough fish for the coming winter months. The fish also are not always healthy and some are sick from heat stress.

We may have to make new fishing regulations that work for us in fall

- The long warm fall weather now with a lot of rainfall, has all but eliminated our ability to normally fish with nets under the ice in late-fall and early-winter. An option is dip-netting for Choho salmon if we need to.



Limited agriculture can work in Huslia, and may be a long-term strategy we can consider



- With known warming of the climate in the Arctic and longer summer growing season, we have to now seriously consider practical agriculture. This will help to replace some of our declining subsistence use resources.

Domestic animals vs. wild animals in the Koyukuk country

- Our efforts to work with domesticated animals have met with little success. We are born hunters and gathers and respectfully teach that to our children, but the transition from wild animals doesn't work well for most of us.



What are some long-term adaptive strategies we can use? I think we may not be there yet.



- We could move our homes as far back from the river as possible, but our Native Elders like to be near the river. Some are willing but others are not.

Government responses to climate changes are very slow

- Current erosion control efforts have not met the needs of Huslia. This old erosion control project failed the first year after it was built. We have to work with our legislature to find solutions to these types of long-term problems.



Climate change impacts vary



- Flooding events were common and associated with river ice breakup in the past. Now the floods are sparse and come in late spring. We have to adapt our subsistence activities to match what nature provides.

Weather is very unpredictable now

- As we are in the field hunting and gathering, or in the classroom, we need to really teach the next generation what important climate change indicators to look for and how to adapt, as things in nature continue to change.

