

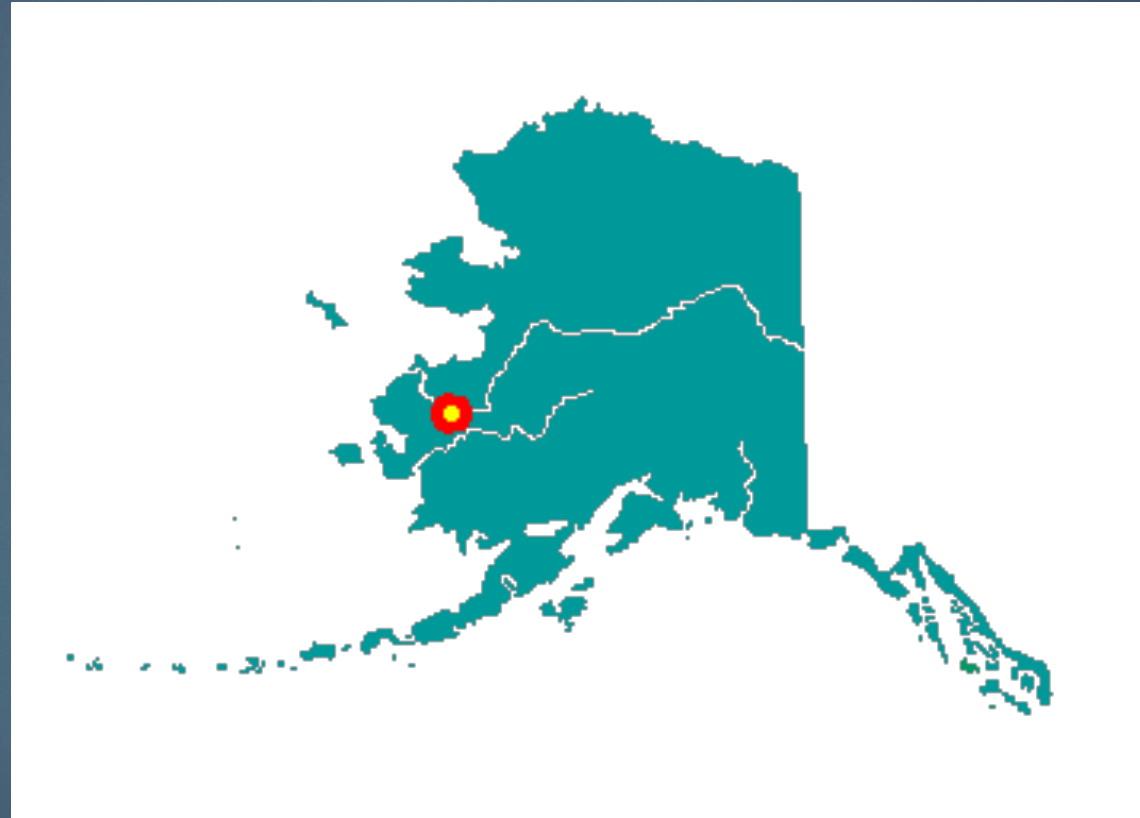
# Increasing Community Capacity & Long Term Sustainability in Times of Climate Change: A Demonstration Project Documenting and Adapting to Food Insecurity in Lower Kalskag, Alaska (2012)



Arctic Biodiversity Congress  
Trondheim, Norway  
December, 2014

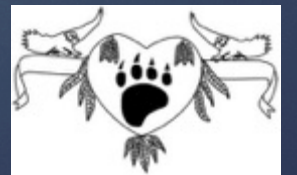
NASTASIA LEVI & BETH KERSEY  
VILLAGE OF LOWER KALSKAG, ALASKA

# Lower Kalskag



# Purpose of Project & Presentation's Organization

1. To explore and document the climate change impact on subsistence harvests and food security;
2. To share our efforts in enhancing community residents adaptive capacity by teaching participants to grow their own food and learn different forms of food preservation.



# Do this by sharing two Sets of Information/Data

1. Photos from 2012, documenting subsistence activities on Kuskokwim River

# Types of Data Con't

2. Survey results from 27 households: concerns/ observations about climate change impact on subsistence practices & food security.

Funded by the U.S. Environmental Protection Agency & the Alaska Tribal Health Consortium's Environmental Program

# Specifically for the survey

Gain an understanding of community observations about:

- Climate change
- Impact on subsistence harvests
- How this affects household food security

Discover community driven definitions of the following:

- Food security
- Wellness from a cultural/traditional perspective



# Environmental/Climate Change

- 3.8 degrees (F) change since the late 1940s<sup>1</sup>
- 2011 summer was one of the wettest remembered
- 2010 summer was one of the driest



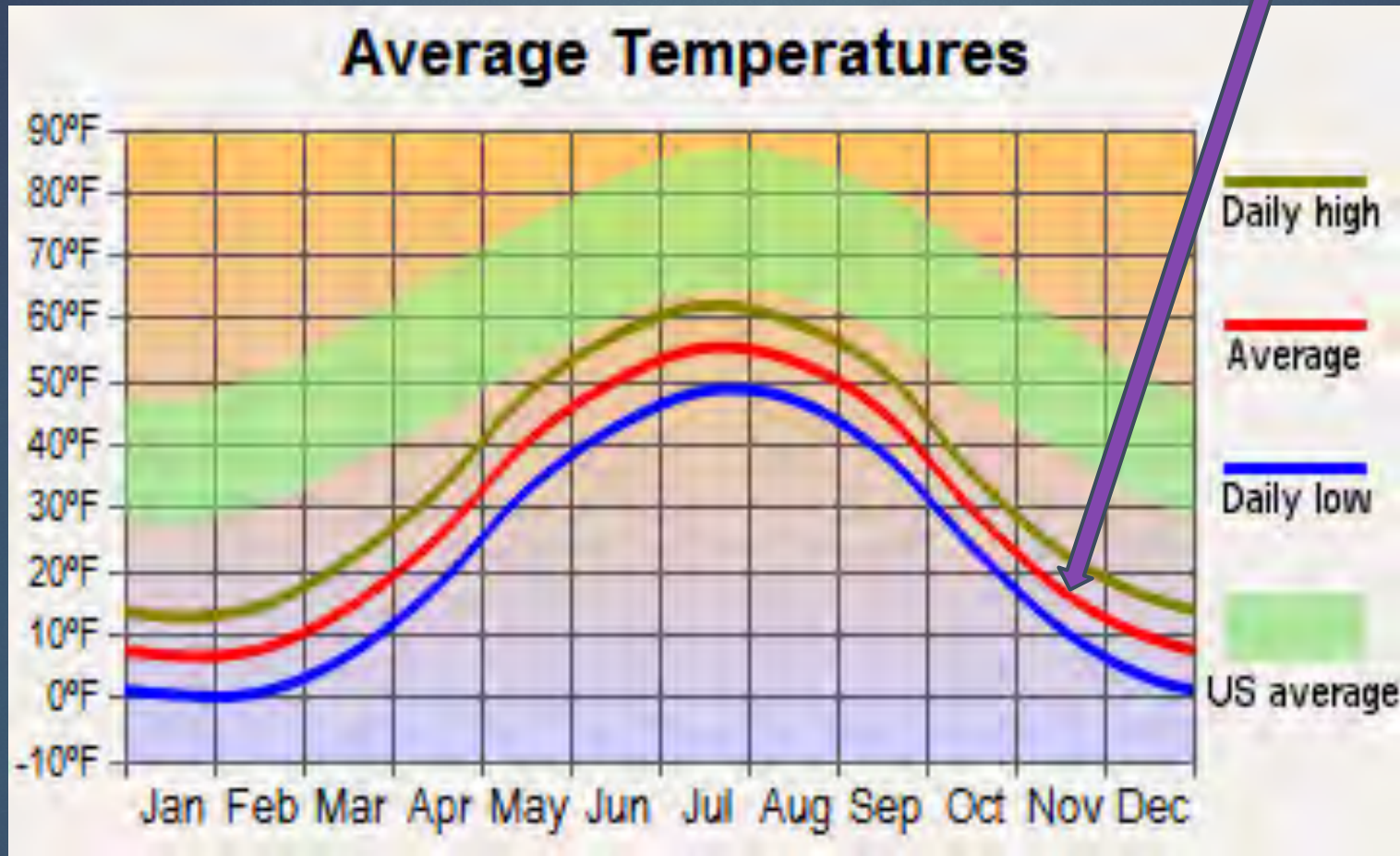
<sup>1</sup>Shulski & Wendler, 2007. *The Climate of Alaska*. University of Alaska: Fairbanks

# Subsistence as food source

- ▶ 35% Unemployment in Community  
(State of Alaska data)
- ▶ May not easily have other food security choices



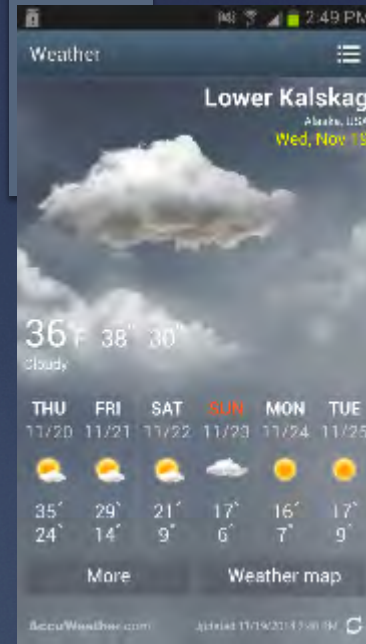
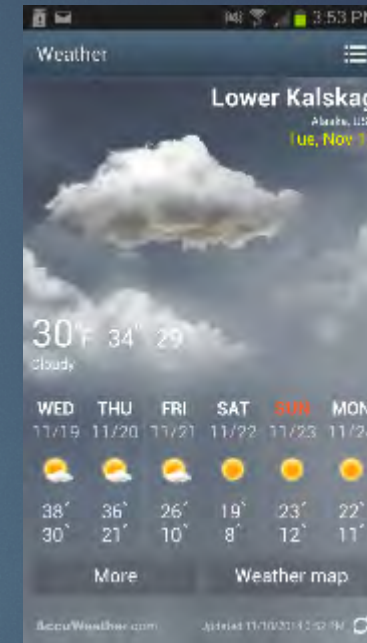
Average daily temperature historically is a bit less than 20 degrees (F) -7.7 (C)



Historical Temperature Averages for Lower Kalskag, Alaska

<http://www.city-data.com/city/Lower-Kalskag-Alaska.html>

# 2014 Temperature: November



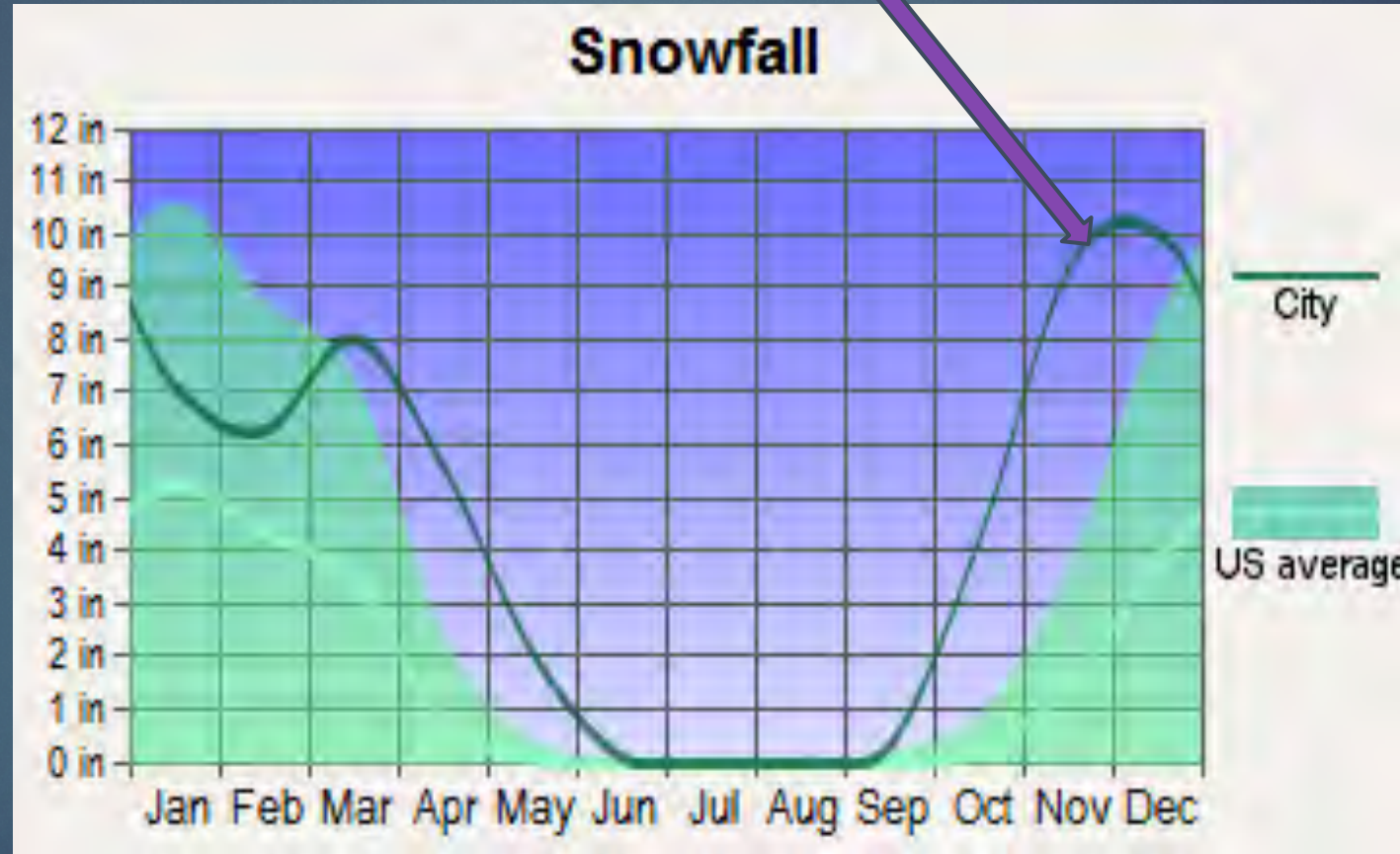
Range from 30 – 40 degrees above zero (F)  
-1.1 to 4.4 degrees (C)

pictures





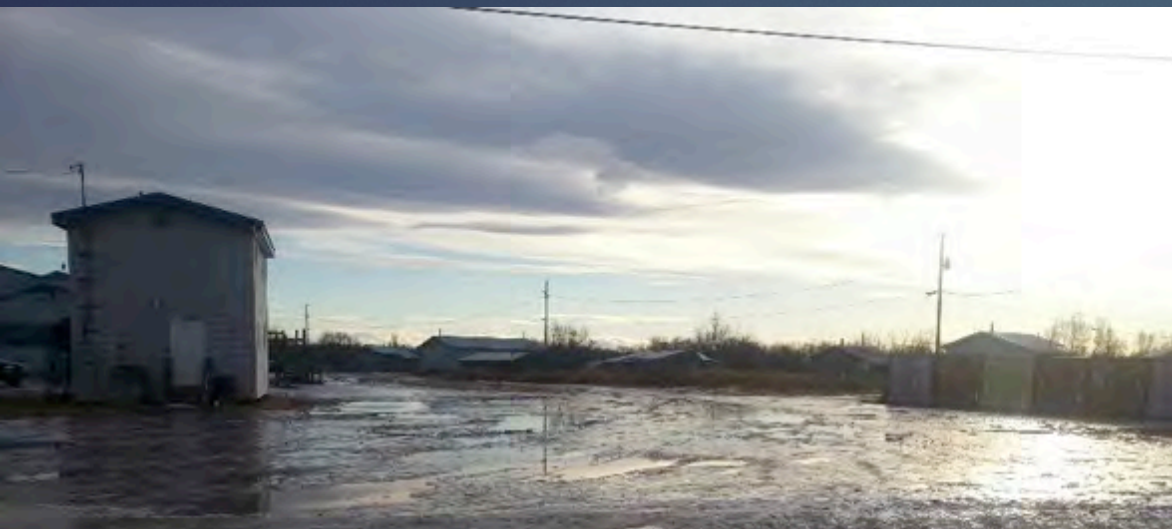
# Historically—9 to 10 inches of snow



Source: <http://www.city-data.com/city/Lower-Kalskag-Alaska>







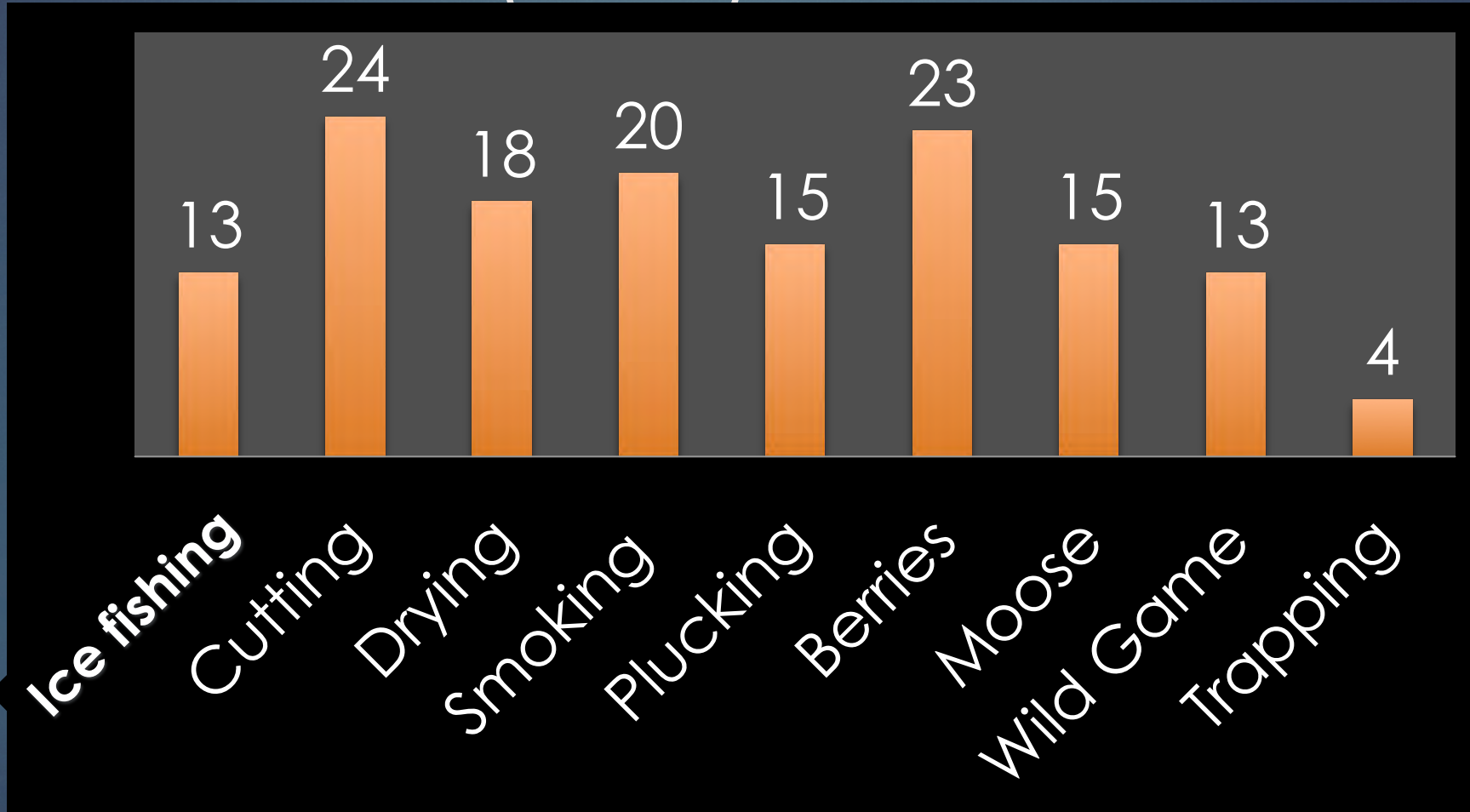


# Household Survey Results....



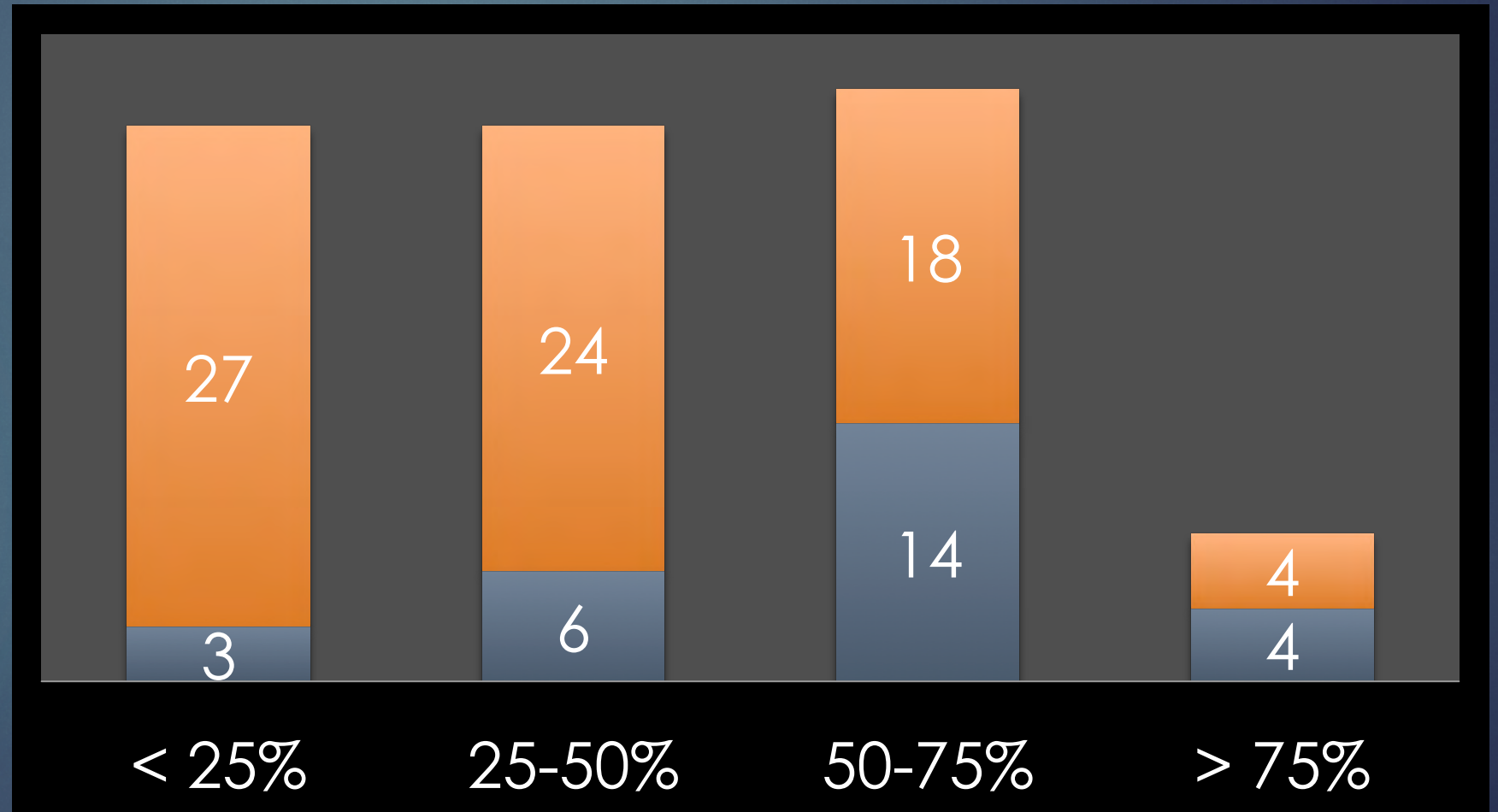
Boreal Forest  
Situated on Kuskokwim River

# Reported subsistence activities by household (n=27)

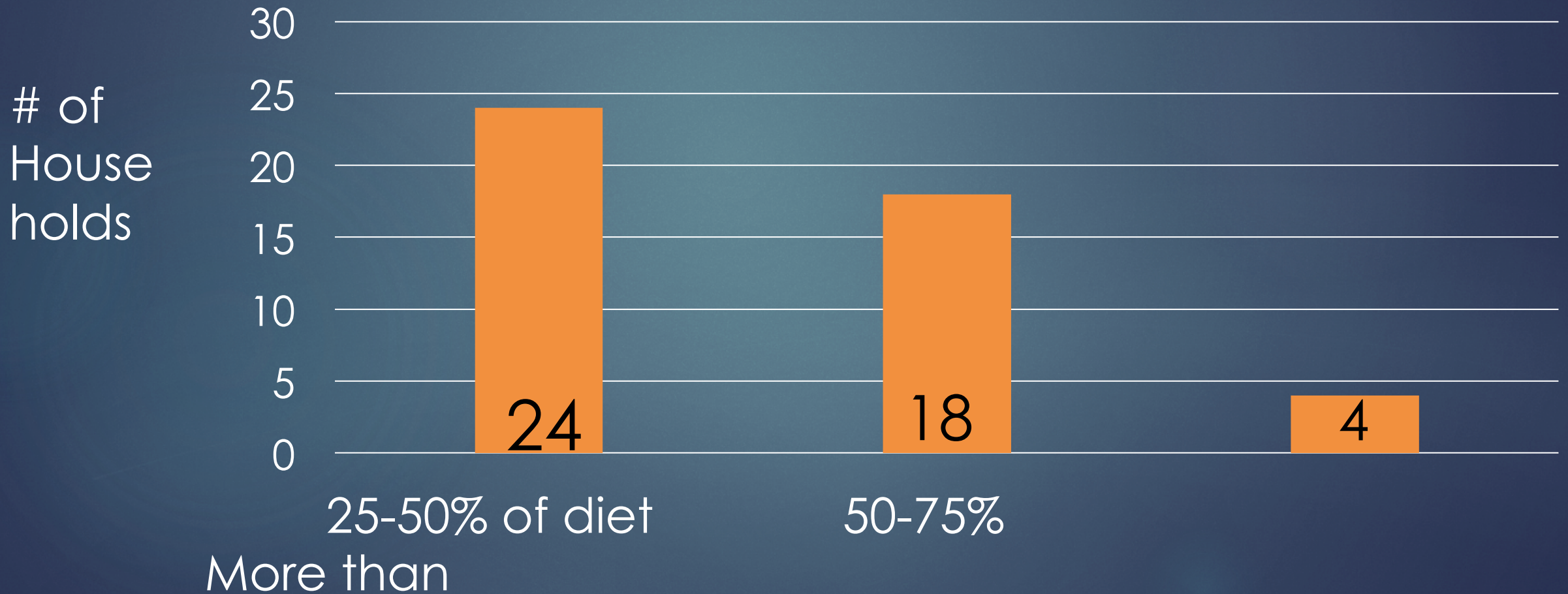


# What percentage of household food per year is subsistence foods?

Blue = each household's self report;  
Red = cumulative frequency count



# Percent of diet from subsistence foods for 27 households

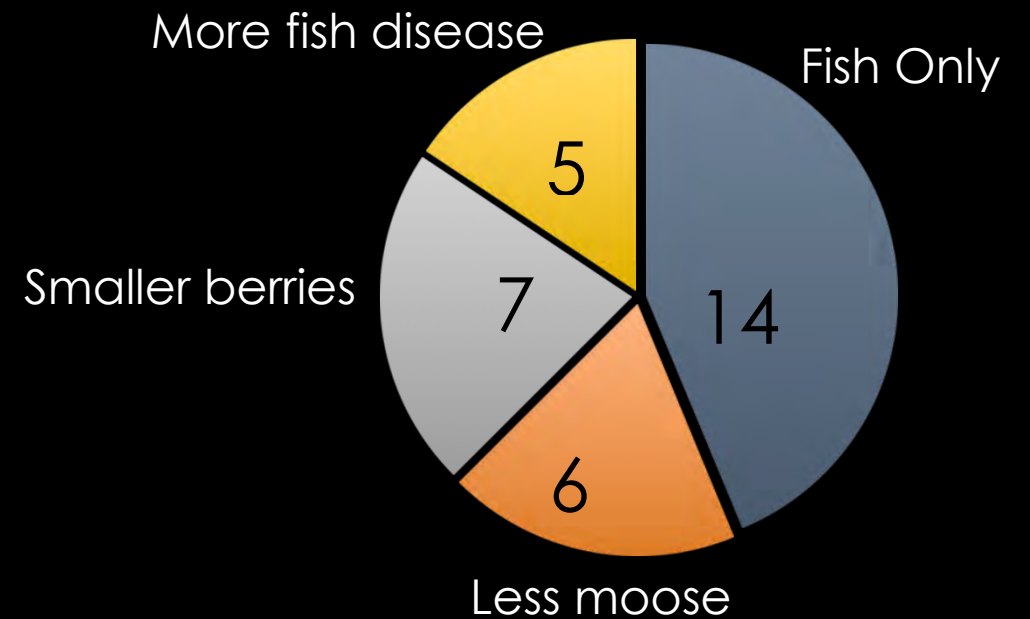


# Changes seen in subsistence harvesting

Changes noticed in amounts?

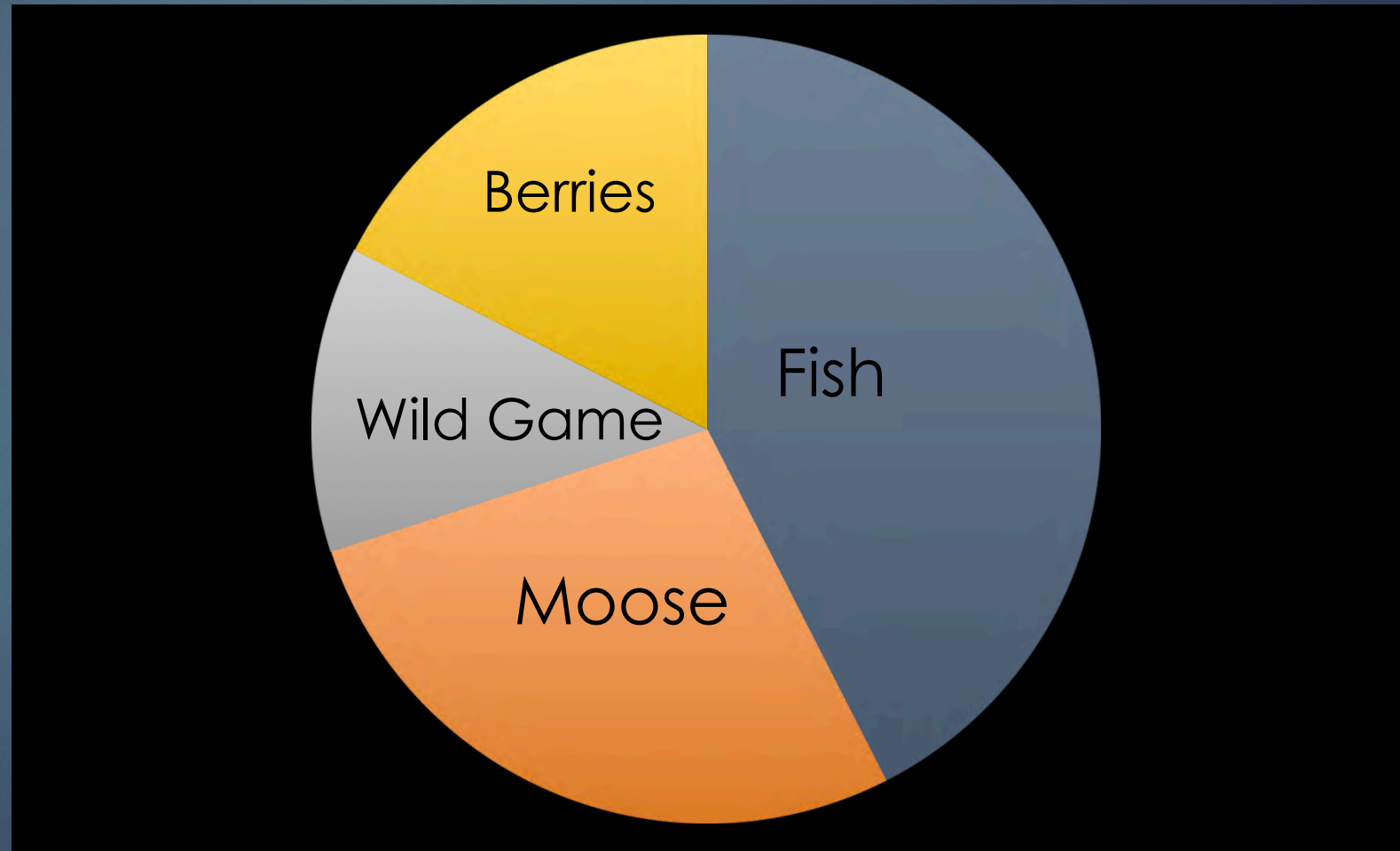
- ▶ Yes: 20
- ▶ No: 4

## changes observed

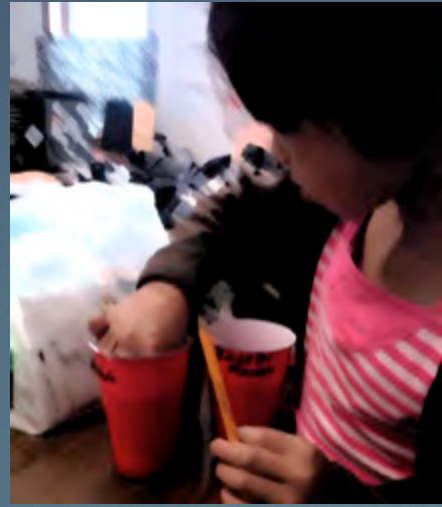


# More concerned about one subsistence food than others?

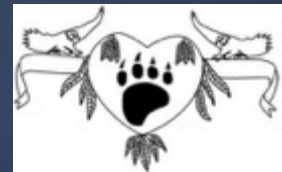
- ▶ Yes=18
- ▶ No=6



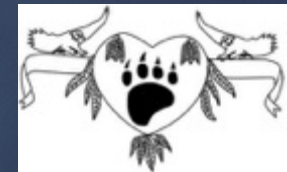
# Planting Starters



Over 600  
Starters



# Tilling Community Garden



# Tilling and Planting



# Fencing Community Gardens



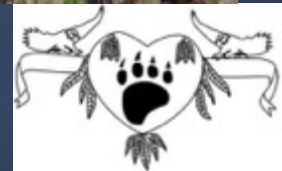
# Home Made High Tunnel



# Growth Until Harvest and Compost Bin



# Harvesting



# School Pictures



# Elder Comment after Third Disbursement:

“I’m

greened

out.”

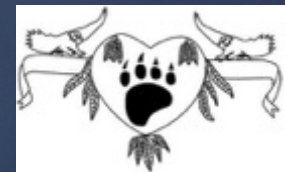


# What is needed to know?

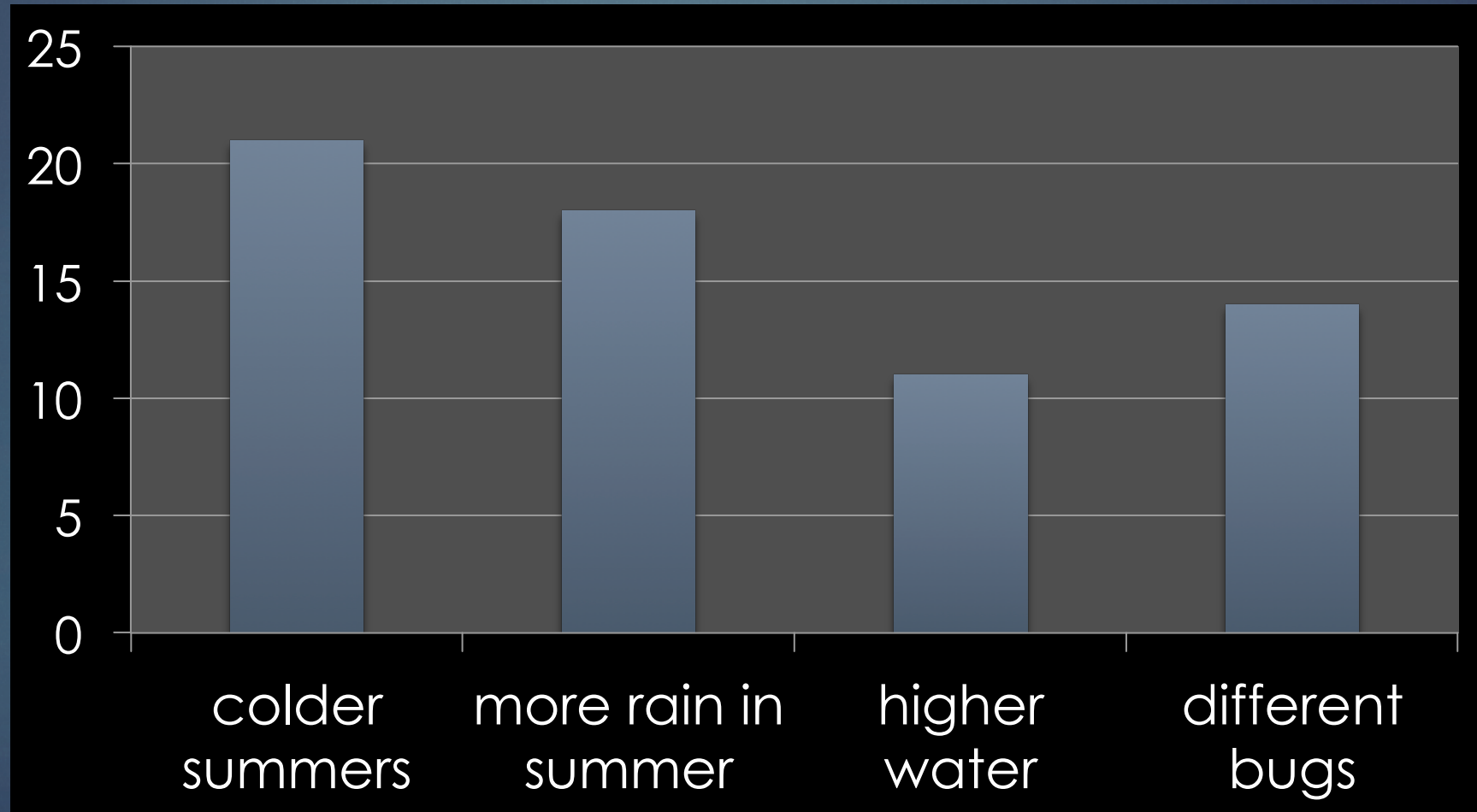
- ▶ Need to understand how households are adapting to the low Chinook Run, (summer of 2013)—what subsistence species are ‘replacements’? Will there be pressure on the escapement of these replacement species?
- ▶ Number of families who are food insecure AND have a high percent of diet from subsistence foods
- ▶ Lesions on fish—what is the source? And are these fish edible?

# Conclusions

- ▶ Observable changes are occurring; more often and are often more extreme—dry, or rainy, or dustier than in past;
- ▶ One strategy is harvesting more, given food security is about having sufficient traditional foods—which could strain resources;
- ▶ Food security definition is holistic: Therefore, adaptation strategies need to be also, not just economically driven.
- ▶ Flexibility in government policies would help.



# Notice changes in climate and/or environment?



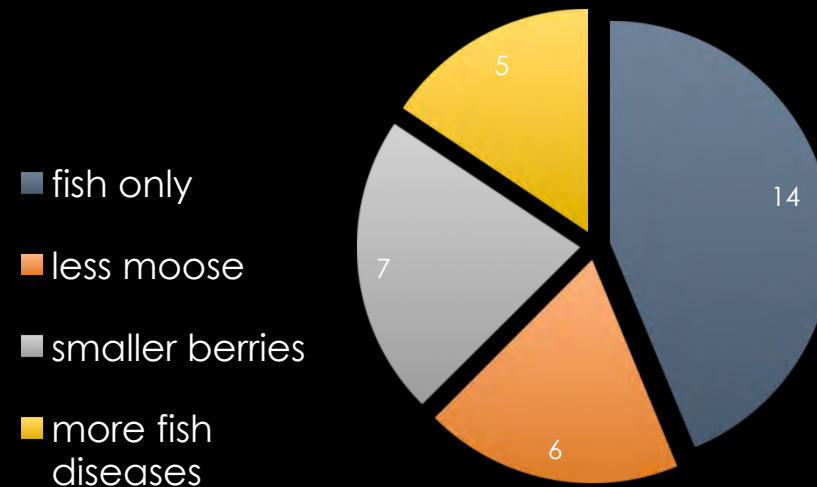
# Changes seen in subsistence harvesting?

Changes noticed in amounts?

▶ Yes: 20

▶ No: 4

## changes observed



# What does food security mean?

## Definition:

- ▶ Food Security is about having enough food, primarily subsistence, Native foods 'put away'. It is about being able to make it through the winter. It allows us to take care of our family.

Number of households which agree or disagree

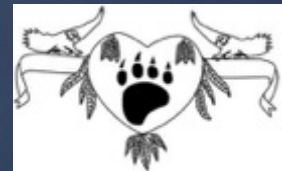
<u>Agree</u>	<u>Disagree</u>
21	2







*Traditional Wellness: Long ago the old people taught us it's about facing the four seasons each year. And in facing the four seasons that we get ready in what we have to eat and what we have to live by.*



## 2. Photos/Observations/community concerns





# Subsistence fishing on the Kuskokwim



# Kuskokwim River Fish Camp



# First king salmon caught for the season (2012)



# Involvement of families







# New Diseases OR Lack of familiarity?



People question eating fish like  
this.....







# Dust and impact on subsistence foods—another environmental concern



# Adaptation Strategies...

Introducing community



Teaching food



