



ZOONOSES

AND SUBSISTENCE FOOD HANDLING AND CONSUMPTION

EDUARD ZDOR, PHD CANDIDATE, UNIVERSITY OF ALASKA FAIRBANKS

CHERYL ROSA, DVM, PHD, DEPUTY DIRECTOR, UNITED STATES ARCTIC RESEARCH COMMISSION

Traditional Food Consumption *is significant*

- ▶ Food obtained from traditional subsistence hunting and gathering is widespread in remote villages of the Bering Strait region.
- ▶ In 2012, 198.7 kilograms of meat, fish, birds, berries, and so on per capita were harvested on the Alaska side of the Bering Strait (Fall, 2016).
- ▶ While on the Chukotka side, for part of 2012, 399 kilograms per family were stored, and a year earlier, 737 kilograms per family were consumed (Kochnev and Zdor, 2014).

Fishing



- 122 kilograms of fish the average consumption of Chukotkan households in 2011.
- 76 kilograms of fish per capita was harvested in Alaskan rural communities in 2012.

Reindeer Meat Processing

4



- 23 kg of reindeer meat was consumed per capita in Chukotka in 2019.
- 30.4 kg of caribou and other land animals meat were harvested per capita in Alaskan Rural Communities in 2012.

Marine Mammal Hunting

5



Alaskan Annual Average Harvest

- 50 Bowhead Whale
- 200-400 Beluga Whales
- 1,200 Walrus
- Several Thousand Seals

Chukotkan Annual Average Harvest

- 1 Bowhead Whale
- 120 Gray Whales
- 1,000 Walrus
- 3,000 Seals



Marine Mammal Processing

6



Climatic and Sociocultural Impacts

Subsistence consumers are forced to look for other ways to handle the storage of traditional food.

- ▶ Villagers must limit meat consumption in the summer, postponing the hunt for autumn.
 - ▶ However, even this traditional food storage strategy does not work well.
- ▶ Some freeze meat in the freezer, and then transfer it to the ice cellar.
- ▶ Some bury a cargo container in permafrost.
- ▶ Others bury meat on the shore or simply hide the meat in sheds.

Walrus meat processing



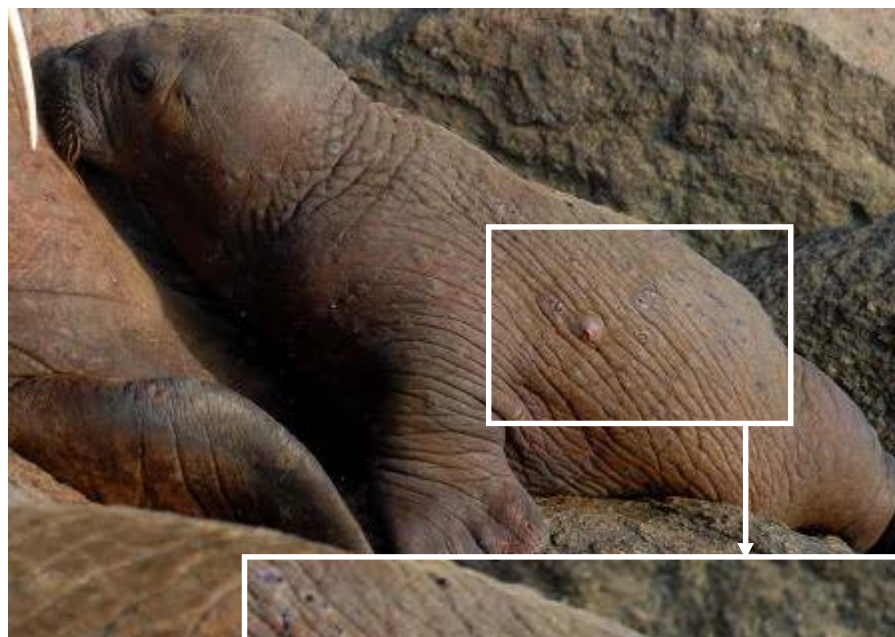
Animal Disease

9

© Anatoly Kocherzhevsky



© Nikolay Ettyne



Diseased/abnormal animals: “Indigenous protocol”

Examination

- ▶ Unusual behavior of animals
- ▶ Organoleptic examination

Appropriate processing

- ▶ Avoid or discard animals that appear abnormal or diseased
- ▶ Cut up/process the harvested animal as quickly as possible
- ▶ Only the processed meat is eaten:
 - ▶ Low temperature during processing and storage is the main factor ensuring food safety
 - ▶ Drying and fermentation are other ways of processing products

Other ways to provide safe consumption

- ▶ Preventative measures sometimes did not work-- entire communities have fallen ill with infectious diseases.
 - ▶ Small coastal settlements, spreading in large numbers along the coast, were another preventative measure

Case study: "Stinky Whales"



► Background:

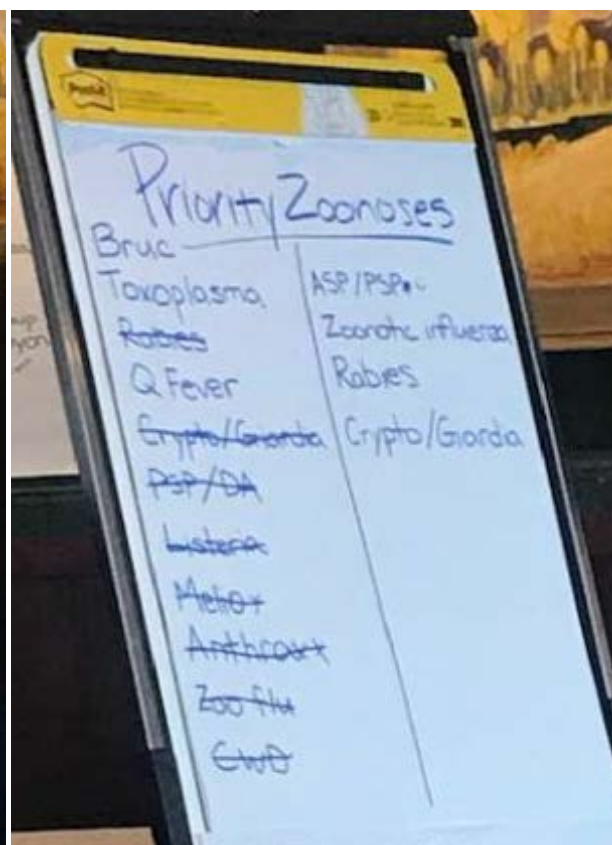
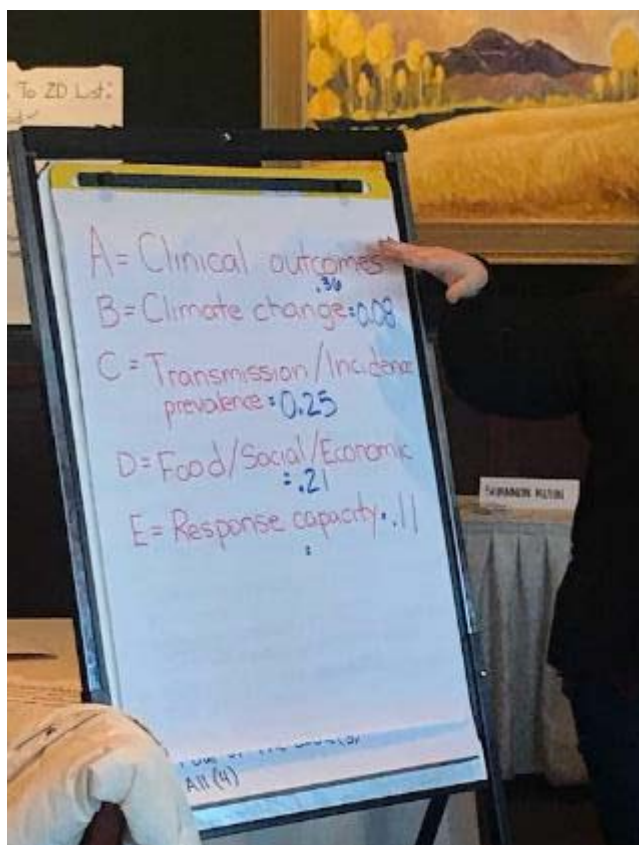
- In 1998, Chukotka Native hunters began reporting an increase in the number of hunted eastern North Pacific (ENP) gray whales that exhibited a strong medicinal odor (defined as stinky whales).
- Tissues from these stinky whales are deemed inedible (not palatable) by people and not consumed by sled dogs.
- People have tasted the blubber or meat and have noted numbness of the oral cavity and reported skin rashes or stomach aches.

Samples/analysis

- ▶ Early 2000's: n=17 (1 stinky, 16 normal)
- ▶ Samples in poor condition
- ▶ 2008-2014: n=4 (2 stinky, 2 normal)
- ▶ Status: stuck in political limbo
- ▶ Plan: submit samples to several labs for analysis of the following: persistent organochlorines (OCs), polyaromatic hydrocarbons (PAHs), heavy metals (HM), stable isotopes (SI), and volatile organic compounds (VOCs) and HABs.



2019 AK CDC One Health Zoonotic Disease Prioritization Workshop



How would have this process and outcome differed if looked at through an Indigenous lens?

Risks and benefits

It is critically important to take into consideration the benefits that come from eating a subsistence diet. Culturally-appropriate messaging is imperative when communicating risks.



Conclusion: Global Protocol vs. Indigenous Protocol

- ▶ A high level of concern exists that efforts to “ensure food safety” could restrict our subsistence hunt/handling/consumption abilities.
- ▶ With environmental conditions changing, the best solution may be a compromise in the protocols that provides a safe way to process and store traditional foods that won't disrupt our Indigenous lifestyle.
- ▶ **Traditional lifestyles and food are key factors that preserve cultural identity.**