

# Subsistence Food Security in Alaska – One Health Perspective

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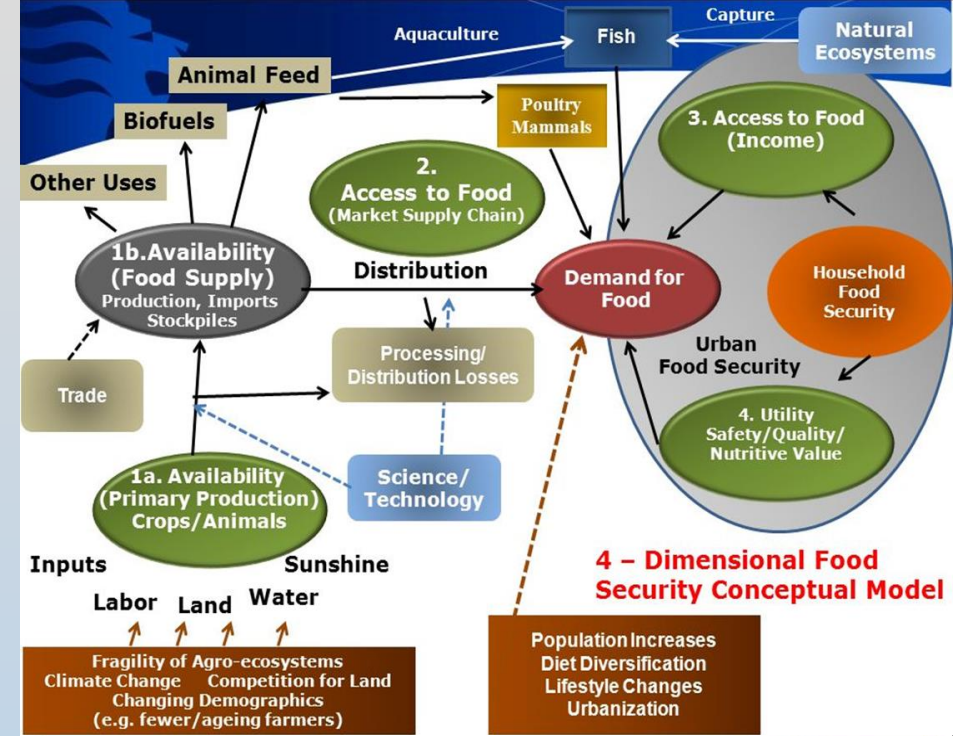
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# Food Security is a Complex Issue

## Factors in Arctic Alaska Include:

- Climate change
- Contaminants in traditional food supply
- Changing wildlife migration patterns
- High cost of equipment and fuel
- Loss of traditional knowledge



GLOBAL SCALE	
<b>BIO-PHYSICAL:</b> Global climate change, environmental change	<b>SOCIAL/INSTITUTIONAL:</b> Trade agreements, environmental agreements, certification systems, social movements, research system, multi-national corporations, financial regimes
REGIONAL SCALE	
<b>BIO-PHYSICAL:</b> Regional climate change, environmental change	<b>SOCIAL/INSTITUTIONAL:</b> Government policy, NGO programs, civic engagement, equity, political stability, migration, food storage and distribution systems, food imports and exports, corporate behaviour
LANDSCAPE SCALE	
<b>BIO-PHYSICAL:</b> Microclimate, soil types, topography, pests and diseases, soil erosion, water availability, amount of natural vegetation	<b>SOCIAL/INSTITUTIONAL:</b> Land tenure system and land availability, capital assets, market structure, infrastructure, agricultural inputs and knowledge
HOUSEHOLD SCALE	
<b>BIO-PHYSICAL:</b> Soil fertility, pests and diseases	<b>SOCIAL/INSTITUTIONAL:</b> Political agency and rights; demographics, education, social networks, gender equality, capital assets, affluence, livelihood strategies, farm practices
BIODIVERSITY AND FOOD SECURITY	
Taxonomic diversity Functional diversity Genetic diversity Ecosystem diversity Stability	Availability Access Utilization Vulnerability Stability

Subsistence food resources are vital for the health, cultures and economies of rural and Native communities in Alaska.

- An estimated 36.9 million pounds of subsistence foods are harvested annually in Alaskan rural communities
- Annual harvest
  - About 295 lb/person in rural areas
  - About 22 lb/person in urban areas
- About 65% of Alaska residents practice some form of subsistence activities
- Subsistence harvest is essential to nutrition, food security, and economic stability for most rural Alaska residents



# Maintaining food security and the subsistence way of life in a changing Arctic: Case study in Wainwright, Alaska



Fairbanks



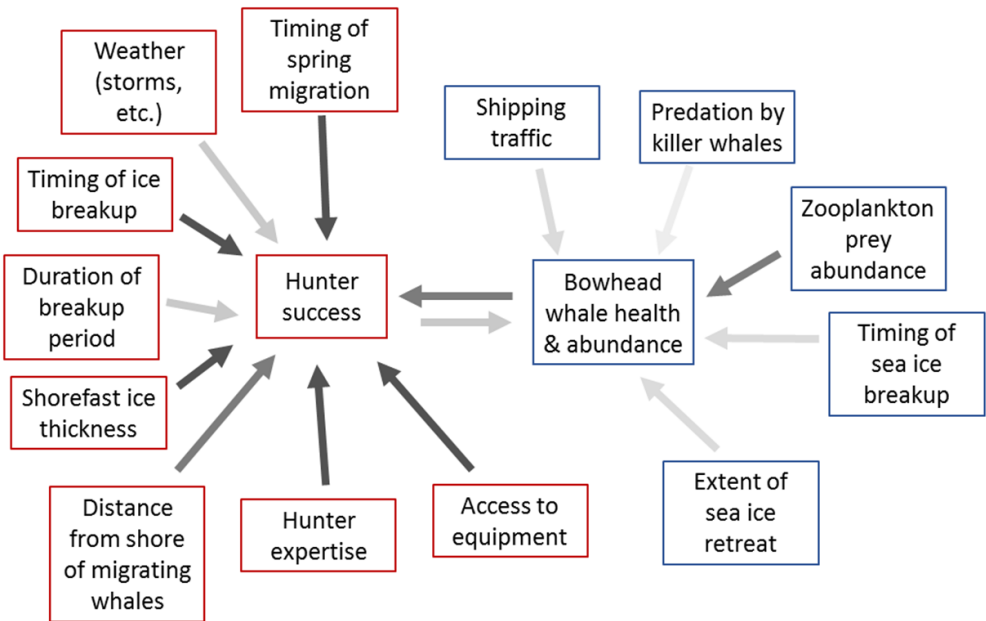
# Arctic Climate Change: Challenges for Hunters

- Increasingly unpredictable conditions for hunting, changes in the timing of migration, abundance, and distribution of key subsistence species

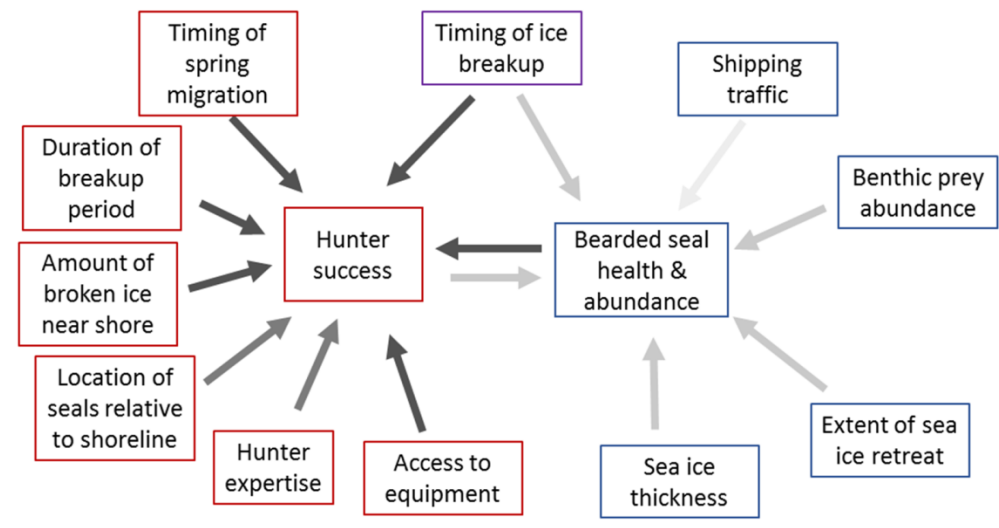




BOWHEAD WHALE

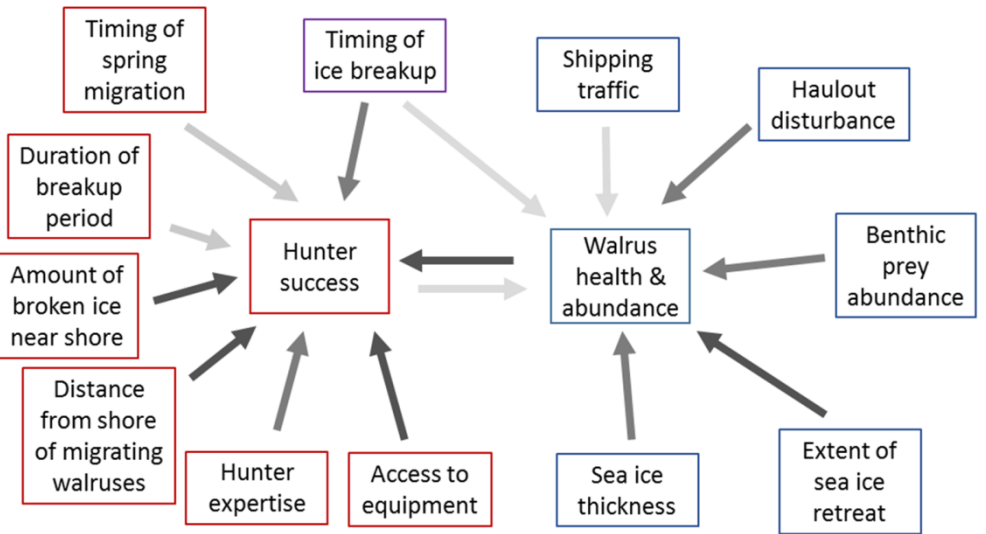


BEARDED SEAL

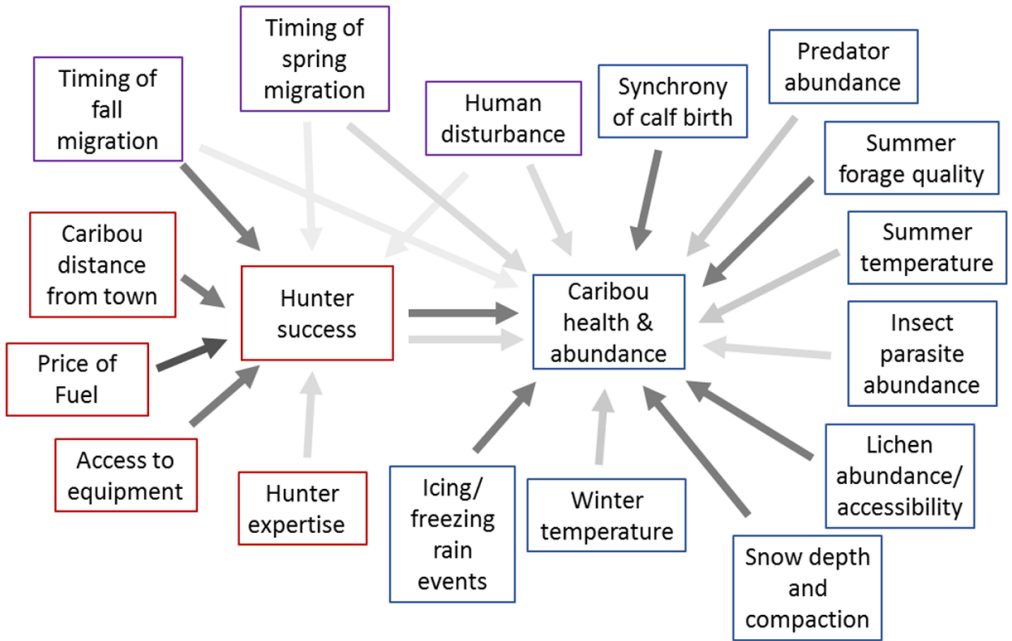


# FACTORS AFFECTING HUNTER SUCCESS

WALRUS



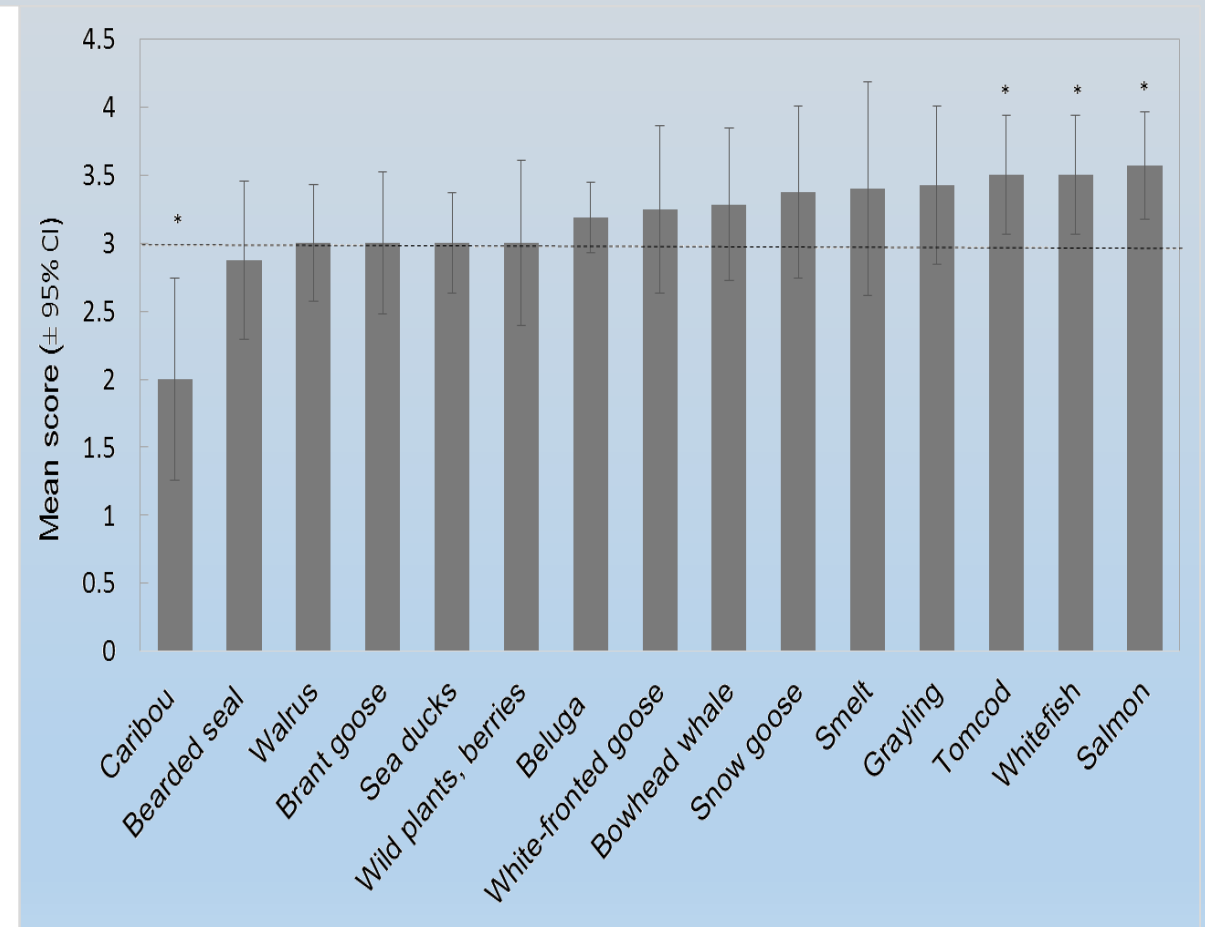
CARIBOU



# Changes in availability: Marine mammals

## Dependence on sea ice

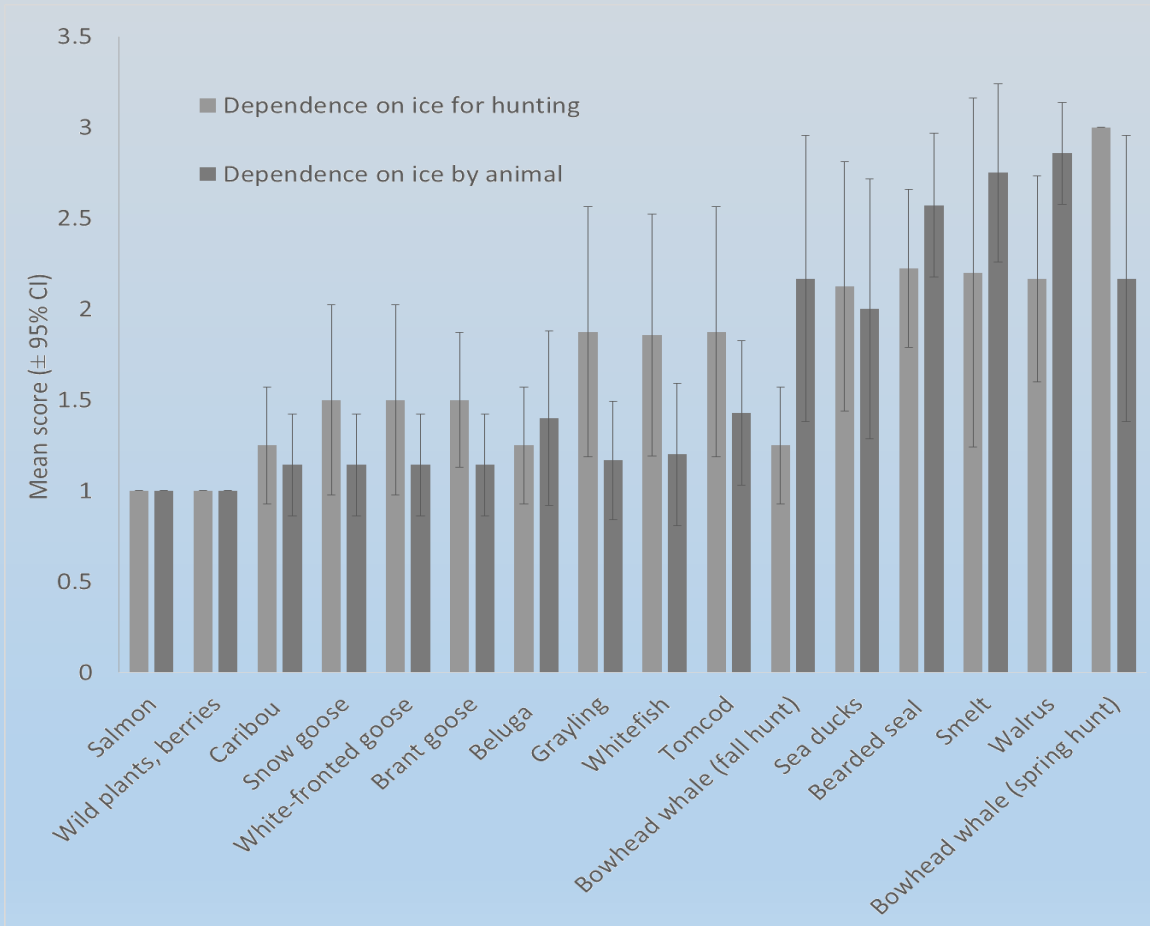
## Population abundance



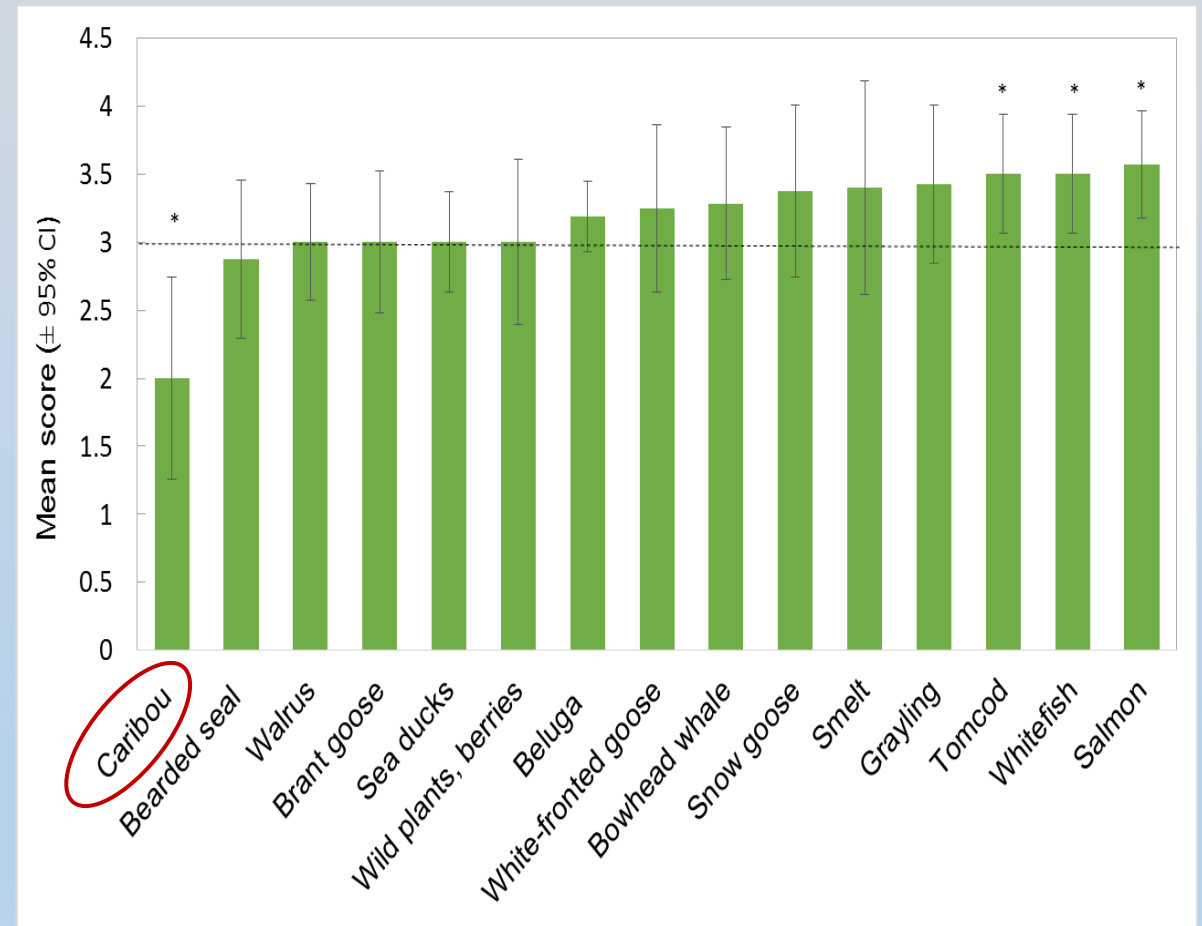
**Bowhead, bearded seal, walrus: 42% of subsistence production per capita**

# Changes in availability: Caribou

## Dependence on sea ice



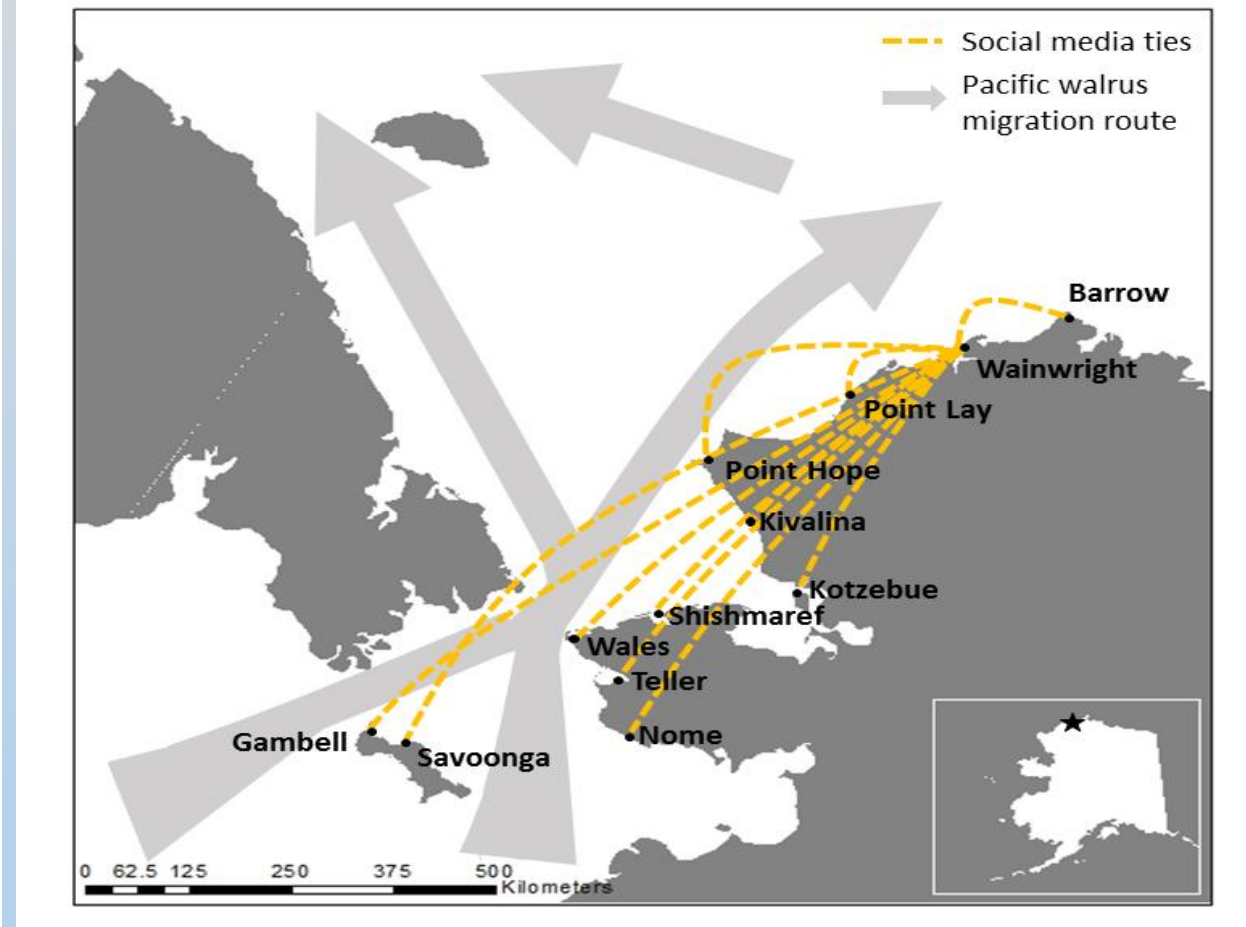
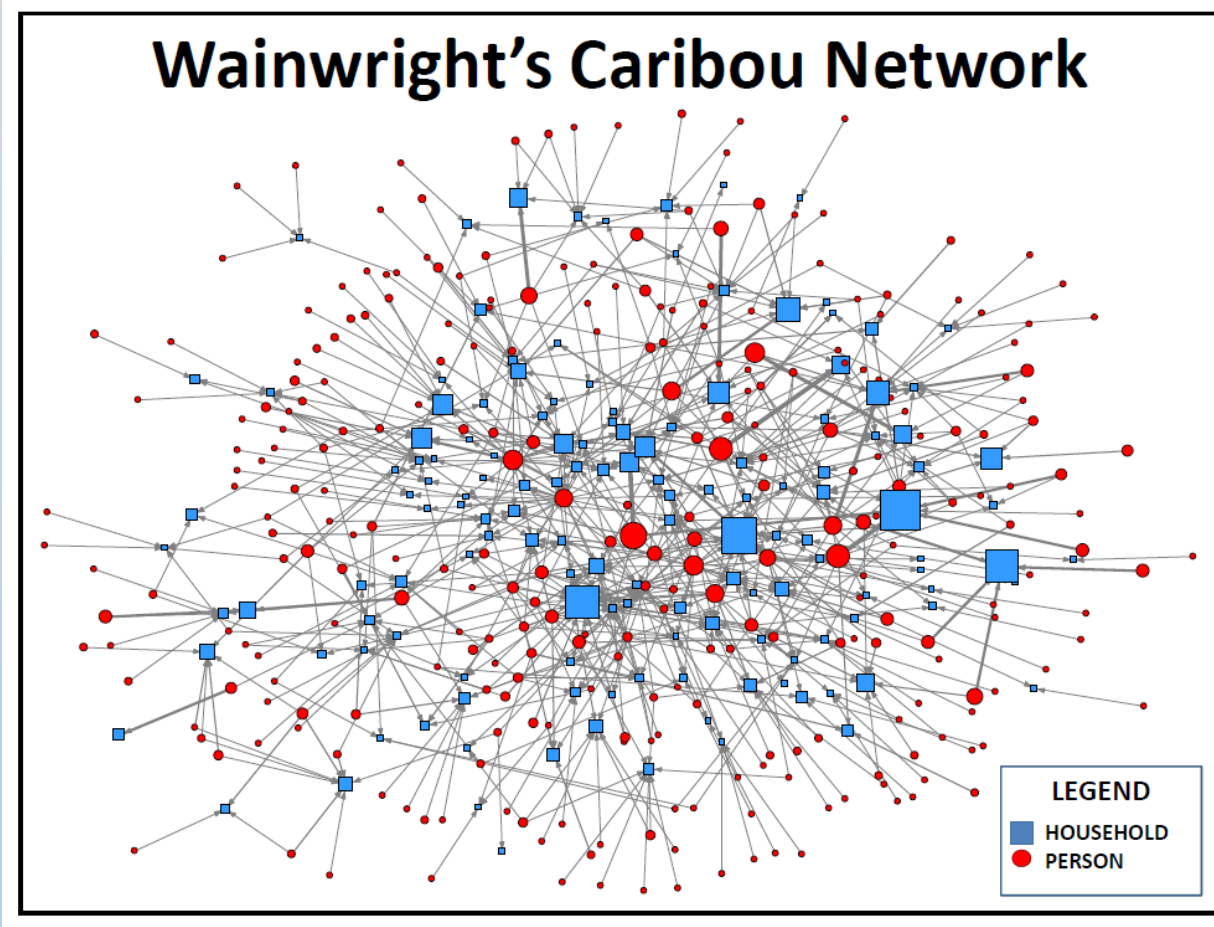
## Population abundance



Caribou: 42% of subsistence production per capita



# Current Adaptation Strategies: Traditional Knowledge, food sharing networks, continued innovations



Kofinas, Burnsiver, and Magdanz.  
2015. *The Sharing Project*



# How do we move forward to strengthen food security in a rapidly changing Arctic?

- Comparative circumpolar studies quantifying contribution of subsistence foods to health and food security in a holistic One Health framework

