
Dinnertime on the Tundra

Module 5 - Akshayuk Pass Expedition



Peter Amarualik, shopping for food (photo: Adam Morris)



PRE-FABRICATED FOOD

Today, as Ray and the i2P team trek down the Akshayuk Pass they will stop to eat. From their backpacks they will pull their daily ration, which will be consumed with the relish of those who ably earn a hearty appetite in the outdoors. The meal plan for the expedition consists of food grown on factory farms that was shipped to a company that freeze-dries and packages meals for expeditions. In turn it was distributed to a store in Ottawa where it was purchased by i2P. These provisions were then flown north to Qikiqtarjuaq, loaded in back packs and carried by the expedition team into the Pass; enough food to sustain them for the duration of the journey. And so it is with much of our modern food, processed, packaged and distributed by anonymous people. Most North Americans do not know where the majority of their food comes from.

But let us step back a few hundred years when there was no processed food, let alone food arriving on Baffin Island from the south. Neither were there any vegetables, fruit, or cultivated crops, nor animals farmed in the harsh environment of the Arctic. In fact in the Arctic the options for food were limited. What food was required, the local people had to find on the land, and they did so before they had guns, snowmobiles and other modern equipment.

FOOD FROM THE LAND

Indeed over the thousand years that the Inuit have lived in the Arctic they have demonstrated remarkable resourcefulness in their ability to capture and collect enough food to survive in one of the harshest and barren environments in the world. The principle source of traditional food for the Inuit was meat from mammals, and fish. The pursuit of animals and fish demanded great skill and ability, and required a deep knowledge of the habits and migratory routes of the animals and fish they lived on. It also required that the Inuit live a nomadic lifestyle moving their camps to follow the annual migration of the animals they hunted and fished.

Class Exercise

Establish a plan for how you and your classmates would manage to feed yourself if you were suddenly caught in the wilderness near your hometown, and you do not have a gun. What would you eat? How would you capture it?

Traditionally, Inuit men were the hunters while the women fished. The staples of their diets were fish, seal and caribou, as well as whale, walrus, arctic hare, birds, and even polar bear. The animals eaten by a particular group of Inuit depended on the animals that were common in their region of the Arctic. When an animal was captured almost every single part of it was either eaten or put to other good use. Nothing was wasted. Other than some berries gathered in the summer months, the traditional Inuit diet consisted almost

Video Link:

Wonderful BBC video of an Inuit Whale hunt:

[Whale Hunt](#)

exclusively of meat.

RAW MEAT



We are taught that a balanced diet requires fruit and vegetables. Early explorers often suffered from scurvy caused by a deficiency of vitamin C, and developed the habit of carrying limejuice to provide themselves with a source of the vitamin. How then is it that the Inuit, whose diet included few fruit and no vegetables, did not become ill and perish from vitamin deficiencies? The reason is because they ate virtually all their meat raw, and uncooked meat has adequate amounts of all essential vitamins. If they had cooked their meat they all would have developed and ultimately perished from scurvy.

The arrival of explorers from Europe in the 16th century signaled the introduction of a new era of food for the Inuit. First guns were introduced that allowed for the easier harvesting of animals. Then over the ensuing centuries trading posts were established where the Inuit could obtain flour and other staples in exchange for furs. Bannock, flat bread made of flour, baking powder and water soon became a staple food in the north.

COLONEL SANDERS VISITS THE ARCTIC

The creation of permanent Inuit settlements in the mid 20th century and the arrival of air travel introduced a broad spectrum of southern food options to the Inuit. More recently fast food outlets have even opened in some larger Inuit communities. In Rankin Inlet, the home of Kathleen Merritt, there is a Kentucky Fried Chicken outlet in the local Co-op store.



Figure 1: Seal (photo: Adam Morris)

Yet many Inuit continue to eat traditional food, and in recent years there has been a movement to reintroduce a traditional diet where it has been lost, as rates of diabetes, heart disease and other diet related illnesses have risen among the Inuit people with the adoption of southern eating habits. It is felt, and not without merit, that the traditional diet of the Inuit was much healthier than the North American diet rich in processed food, saturated fats and carbohydrates. Unfortunately it has been discovered that the traditional diet may also be tar-

nished by the industrialized world.

NORTHERN CONTAMINANTS

Researchers like Adam Morris (see profile), a PHD student at the University of Guelph are studying the accumulation of toxic chemicals in the Arctic food web. The Arctic has long been viewed as a pristine area untouched by the industrialization that has marred much of the developed world. In the early 1970's Canadian Government researchers

traveled to the Arctic to sample wildlife, with the intention of using data from these areas as uncontaminated reference sites for comparison with more polluted, densely populated areas in Southern Canada. However, their plans changed when they analyzed their “clean” Arctic samples; what they found was quite a wake up call.

Far from being pristine, the samples from the Canadian Arctic had contaminants such as pesticides like DDT, flame-retardants, heavy metals like mercury and selenium, and radioactive substances found in nuclear waste. The sources of pollution were hundreds to thousands of kilometers away, yet these contaminants were being transported all the way to the Arctic, and were found in the seawater and ice, and in much higher concentrations in wildlife.

It became clear to the researchers that in order to establish why the levels of the contaminants were so high in the seals and fish while they were relatively low in the seawater, they would have to investigate the food sources of these animals. In other words they needed to examine the Arctic food chain. Tracing the levels of contaminants back through the food chain made it clear that the increasing levels of contaminants was caused by something called bioaccumulation. Bioaccumulation occurs when animals like shrimp and fishes take in contaminants from the water when they breathe across their gills. These contaminants then build up in their bodies over the course of their lives, accumulating in much higher levels than the surrounding water.

Food Chain

Food chains, also called food webs, describe the eating relationships between species within an ecosystem or a particular living place.

When predators higher in the food chain then eat the shrimp and fishes, a process called biomagnification occurs. Biomagnification refers to the process that leads to the collection of increased concentrations of contaminants in the animals at the top of the food chain. In top predators like seals, polar bears and humans, biomagnification can be dramatic. Thus the Inuit as the top or apex predator in the Arctic, risk exposure to the effects of long-term build up of contaminants in their bodies.



Figure 2: Fresh Arctic Char (photo: Adam Morris)

Concerned by these findings, in 1991 the Canadian Government established the Northern Contaminants Program to focus on health concerns in wildlife and humans in the Arctic. The overall goal of scientists like Adam Morris and his colleagues is to limit or eliminate contaminants in the traditional foods of the Inuit. When contaminants can't be eliminated, the goal is to provide information to the Inuit communities on how their food sources have been affected so that they can change their hunting locations or patterns to avoid them.



Profile: Adam Morris – Northern Contaminants Research

My name is Adam David Morris. I am currently a PhD student studying Environmental Toxicology at the University of Guelph (U of G) and Environment Canada (EC), advised by Dr. Keith Solomon (U of G) and Dr. Derek Muir (EC). My thesis focuses on current use pesticide and brominated flame retardant bioaccumulation in Arctic food webs. Specifically, I am investigating bioaccumulation and biomagnification of these compounds in ringed seal (*Phoca hispida*) and Arctic wolf (*Canis lupus*) food webs. Because the food webs that I study deal with traditional food sources for the Inuit people (ringed seal, caribou), it is important that we establish concentrations of these emerging contaminants and assess any potential risk associated with exposure to them. I organize my research efforts with help from Inuit organizations such as the Hunter's and Trapper's Association (HTA) in each community as well as the Nunavut Research Institute (NRI) - both groups must approve and support your work before you do anything in the North. The HTA also helps us find local Inuit who are willing to help us in the field, which is key to success. Nothing would be possible without the help of locals, and I work closely with Inuit guides, advisors, hunters and field assistants in Resolute Bay, Gjoa Haven and Pangnirtung, Nunavut in order to collect my samples in June-August of each year. This involves several weeks up to two months of intensive fieldwork each season, followed by 9-10 months of analyzing my samples and writing and presenting the results in papers and at conferences. The Arctic has truly captured my heart, from the unique environment and lifestyle to the warmth and humor of my new Inuit friends; I have been totally smitten with this part of the world. I pride myself on our involvement in the community and the free exchange of scientific and traditional knowledge that we try to establish with our Inuit partners and friends. No matter where my career takes me, I plan on continuing work in the Arctic for the rest of my life and I hope that I can help contribute to the health and well-being of a great people and their unique lifestyle.