

**Show Transcript
Deconstructing Dinner
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Title: Exploring Ethnobiology III / Investigating Eggs Update

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Jon Steinman: Welcome to Deconstructing Dinner – produced in Nelson, British Columbia at Kootenay Co-op Radio CJLY. I'm Jon Steinman. This show is heard on radio stations around the world including MAIN-FM 103.5 Asheville, North Carolina and CIDO 97.7FM Creston, B.C.

On today's episode, a brief update to last week's investigative report on the BC-based egg business who was marketing their product as coming from chickens on their own farm, when upon an undercover visit to the property, it became apparent that there were no chickens and that this was in no way – a farm. We check in with the Canadian Food Inspection Agency's James Rogowsky who while not being able to provide too much detail on this particular case that Deconstructing Dinner had initially alerted them to, he does shed some light on how the CFIA goes about investigating these types of complaints.

And with that, we then present part 3 in our series, Exploring Ethnobiology. Some fascinating topics to learn about today including the work of Severn Cullis-Suzuki who studying under the advisory role of Nancy Turner and John Volpe among others, conducted her Masters research on the traditional harvesting of eelgrass by the Kwakwaka-wakw of Northern Vancouver Island. We also hear presentations by Josh Wisniewski, a PhD student at the University of Alaska-Fairbanks who has spent time researching Inupiaq hunters in the community of Shishmaref, Alaska and the complex relationships of these people with the marine mammals they hunt. Also lending their voice once again to this series – Nancy Turner of the University of Victoria who will help introduce what a keystone species – which for ethnobiologists and related disciplines is an important marker helping affirm the importance of the relationships formed between humans, plants, animals and ecosystems.

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JS: On September 2nd, Deconstructing Dinner aired a startling investigative report that has since sent a wake-up call to anyone who has been advocating for and supporting local food systems. After receiving a series of tips alleging that a BC-based egg businesses was falsely marketing their product as coming from

their own chickens and their own farm, Deconstructing Dinner went to find out for itself, visiting the property and discovering that yes, there were no chickens on the property and no indication from the owners as to where the eggs were coming from. The day before that show went to air, we contacted the Canadian Food Inspection Agency, alerting them to what we had discovered. That investigation is now underway and there isn't much to update you on but to give you a sense of how the CFIA undertakes this type of work, I spoke with the CFIA's James Rogowsky – an Eggs Product Specialist based in Winnipeg.

James Rogowsky: I guess the first thing is we would gather information about the complaint; what the particular complaint is about a particular egg grading station and whether it be on their claim. Then we would go to the egg grading station to do an inspection to see if that complaint is valid or not, take whatever notes we need to take upon interviewing the staff or inspecting product, and looking at labels to see if there is any validity to the complaint or not.

JS: The business in question known as Eggs R Uz had been communicating to their 18 customers (retailers and restaurants) that their eggs were from their own farm and from neighbouring farms in the Creston Valley. While Deconstructing Dinner has confirmed that there is no farm at the address of the business, as to the latter claim, that the eggs are coming from neighbouring farms, well that too is also questionable as we also received an allegation that the eggs were coming from Alberta. James Rogowsky speaks to the specifics of this particular complaint that the CFIA is now investigating.

JR: My understanding the concern was about the claim of them selling local eggs. We would interview the owners of the egg station, look at their records to see where their eggs are coming from whether they're producing the eggs on farm themselves or if they're buying eggs from other egg producers in the area. Terms such as local or "locally grown" allows them to purchase eggs from a 50 kilometre radius around their farm and grade those and package those and still call those "locally grown". So we would interview them and look at their records to see where they are sourcing those eggs from.

JS: Now while Deconstructing Dinner has not come across any instances when Eggs R Uz was specifically marketing the product as "local," they do communicate that their product is coming from the local area and they label their products as a "product of Wynndel BC". As James Rogowsky indicates, marketing a product as "local" receives careful scrutiny as to how *local* the product really is.

JR: It's in the food labelling guide where we've had to come up with some reasonable definition for "local" or "locally grown" and it talks about goods being advertised as "originating within 50 km of the place where they were produced." Basically how this is done is by taking the point of sell and drawing a circle 50 km out and any eggs produced in a 50 km zone would be considered "locally grow" for that claim.

JS: Now in this particular case, some of the most important information that Deconstructing Dinner and the public are now awaiting is just where were those eggs coming from. One of the regulations that supports us accessing that information is the Shell Egg Grading regulation – in which it's outlined how a registered egg grading station (like Eggs R Uz) is required to keep track of the eggs passing through their operation.

JR: The only requirement is that they are required to report to us the volume of eggs that they are grading over a period of time. They do not have to tell us where those eggs are originating from. That is a type of a record they would keep for themselves in the event that we needed to do a trace back, for instance, similar to any type of food product. We need to know where the eggs in that carton originated from so we would go back to them and say, "you need to tell us where those eggs were sourced from" and these are records they would keep.

JS: As a last point of information that I spoke about with the CFIA's James Rogowsky, we discussed the requirement for egg grading stations to report to the CFIA the volume of eggs being graded, now certainly with that information in hand, it should be an easy enough task to compare those reported volumes to those that their 18 customers have been purchasing.

JR: Those records should match fairly closely, there's going to be obviously some loss. You're dealing with a perishable product or a product where an egg could certainly crack or if you drop a box of eggs there would be a loss but there should be some close figures on the amount of eggs that were purchased and then actually were graded or sold out the door.

JS: James Rogowsky – an Eggs Product Specialist with the Canadian Food Inspection Agency. James spoke to Deconstructing Dinner from Winnipeg. James added that Eggs R Uz has, since our report aired, surrendered their registration to Agriculture & Agri-Food Canada. You can expect a more detailed follow-up on this story including what lessons we might *all* be able to glean from this case on upcoming episodes. You can also stay posted to our website and our facebook page for more on this case including a link to last week's one-hour investigative report, our short video produced using footage from our visit to the business, and a link to a piece that I authored about our investigation for the on-line news source – News in the Koots and all of that is accessible at deconstructingdinner.ca

soundbite

Nancy Turner: Ethnobiology is the study of people and the natural world, especially the study of people and their relationships with plants and animals and especially people who have direct relationships with their surroundings - the plants and animals that grow in their own home places.

JS: That's Nancy Turner of the University of Victoria who was our feature guest on part 2 of this Exploring Ethnobiology series. That was back in July when that episode first aired.... and we'll hear from Nancy again on *today's* show because her efforts to introduce the ethnobiological use of the concept - keystone species, really helps introduce another voice that we'll hear in just a moment later on the show of Severn Cullis-Suzuki – the daughter of David Suzuki, who spent her Masters research studying an important keystone species – eelgrass, or to the Kwakwaka-wakw of Northern Vancouver Island, ts'ats'ayem. But first, Nancy Turner on what a keystone species is to an ethnobiologist.

NT: The idea of a keystone species originally comes from ecology and there's a very specific meaning for an ecological keystone species. It's a species that has a very strong influence on the entire community of plants and animals where it lives. In some way maybe if you think of pollinating bees, if you remove those even though in terms of their overall weight or biomass, they're not the main component in the ecosystem but if you were to remove them from the ecosystem, the whole thing would change, the composition would change because there is nothing pollinating those flowers so they don't produce seeds and then they will be outcompeted by maybe wind pollinated species and the whole composition will change and maybe flip to something totally different.

We started thinking of these amazing parallel processes that happened in human societies as that kind of parallel of what happens in ecological systems. There has been a lot of work in that-linking social ecological systems and how they're inextricably linked but then we started thinking about how can we communicate those linkages. One way is to borrow terms from the ecological world and apply them in the parallel way to the social world or the cultural world and vice versa. So we have the term "health," for example, which is a cultural social term, "human health," but now widely applied as "ecological health" or "ecosystem health" which everyone can then understand better. When you say that, what it means to have an ecosystem that's not healthy it doesn't function properly that the natural processes aren't

occurring enough because of our human impact on it. We were thinking of other processes and ideas that we could borrow from to help communicate these common ideas.

We thought about this notion that in every society in every place in the world there are certain species that are particularly relevant to those people and that can change over time. Almost everywhere there are these species that people identify with, they think of them as part of their identity. You have for example, the Manomini, the People of the Wild Rice, Manomin, they name themselves after one of their main foods and you often hear on this coast, the northwest coast, the People of the Salmon and the People of the Cedar. These are iconic species that people associate with that if they weren't there the people's identity would be different it would change their identity. There are species that were so important in the past but because of these changes have been eliminated and people don't associate with them anymore.

So if we consider those to be cultural keystone species it is a way of communicating their importance and their value in a way that many people would understand and scientists may understand better from looking at a social system, how much heart felt importance these species have to people's well being and identity. So if we're talking about renewal and restoring cultures, languages and even ecosystems we can focus on those species as ones that could be then used as crests or something that represents and symbolizes the entire culture and could be an effective way then of having people understand and become more committed to the entire system of knowledge or species and so we thought about that and other parallels.

My students and I gave a paper back east on symbiosis. We talk about system as a ecological and biological process of two or more organisms that come together and live together or help each other in some way for mutual benefits. there is a whole range of different roles that these species can play. The honey bee, the pollinator flowering plant symbiosis, there's the lichen symbiosis where you have an algal and a fungus growing so closely together that they work as one organism but each one contributes in a different way. The algae (the photosynthetic capacity) and then the fungi becomes the main substrate (the way of absorbing the water and nutrients) for this wonderful combined plant.

We also used the notion of a CSA as an example of a social symbiosis. It's a wonderful partnership that people have developed where people support each other to the mutual benefit of both. There are many examples of these symbiosis that can take place at a cultural level and your contribution in a symbiotic relationship could be providing the pollen at the right time for pollination to occurs and you don't connect at another time or it can be a sustained contribution it depends on the situation. That's another example of a parallel concept that you can use when communicating ideas.

JS: Nancy Turner – an ethnoecologist with the University of Victoria. More from Nancy Turner is archived on our website under the July 22nd, 2010 episode – but that unheard segment from that interview on what a keystone species is does helps introduce this next voice here on Deconstructing Dinner – Severn Cullis-Suzuki who received her Masters in Ethnobotany from the School of Environmental Studies at the University of Victoria where she studied under Nancy Turner among others. Similar to her father David Suzuki, Severn devoted herself to helping increase awareness on fundamental ecological concerns. Born and raised in Vancouver, at the age of 9, Severn founded the Environmental Childrens Organization. In 1992 at the age of 12, she attended the Earth Summit in Rio de Janeiro where she received a lot praise for a speech that she delivered there. She went on to graduate from Yale University in 2002, hosted a television series on Discovery Channel, and eventually was led to study ethnobotany under Nancy Turner.

Her focus of research led her to Northern Vancouver Island – home of the Kwakwaka-wakw people. It was there that Severn studied the keystone species *Zostera marina* – also known as eelgrass – or to the Kwakwaka-wakw, ts'ats'ayem. Found only in the Northern Hemisphere, eelgrass is known to increase

biodiversity and ocean productivity and is a sensitive indicator of ecosystem stability. The Kwakwaka-wakw traditionally had gathered eelgrass for food and other uses but it's been 30 years now since that was last practiced. It's known that certain harvesting practices of eelgrass rhizomes can increase their productivity and so the study of these traditional harvesting practices can also help strengthen the notion that we as humans can insert ourselves within a finely tuned ecosystem and enrich it, instead of throwing ecosystems out of balance which we appear to know all too well how to do!

Severn studied eelgrass through the scientific lens of ecology and also through the lens of the traditional harvesting practices which she learned from the Kwakwaka-wakw elders.

Deconstructing Dinner recorded Severn speaking in May 2010 at the annual gathering of the Society of Ethnobiologists held this year at the University of Victoria.

Severn Cullis-Suzuki: My objectives today are to use both of these perspectives, use both the traditional ecology knowledge and ecology to look at how eelgrass beds were traditionally harvested. I use the term 'tended' as opposed to 'cultivated' but 'tended' in an effort to harvest in a sustainable way (non destructive sustainable way) and also to use traditional knowledge as a hypotheses to be tested using a more scientific method the information I gleaned from expeditions and from my experiments in situ, from literature and I found they complemented very well.

Victoria gave a great introduction to *Zostera marina*, of course when I started this study I had no idea that eelgrass actually makes the world go round as I now know without question. It is famous because of its ecological significance in the Northern hemisphere, a very important species it is essential to our coastlines as habitat for a plethora of creatures and different organisms in different stages of their life cycles. It's even protected by our federal government because it is so essential to our coastal ecosystem, as the nurseries of our oceans. It also grows extremely fast and its high proliferation of biomass feeds the food web as well through its detritus.

It is this vast amount of biomass it produces that facilitated a lot of the human uses of eelgrass as Victoria mentioned: the roof thatch, the bedding, animal fodder, the felt that was formed from this detritus to form insulation. That is all because eelgrass grows so fast that we have this huge volume that we have used throughout history. I can go on and on about all the uses of eelgrass but one of the things that I just only recently keyed into on eelgrass is a value for humans, as an ethnobotanical use (if you could call it that) is its importance as a carbon sink.

I only recently learned about this report from a collaboration of the UNEP of the United Nations Environment Program and all these other organizations about blue carbon. Blue carbon signifies carbon sinks that are found in the world's oceans and in fact most of the carbon sinks in the world are actually in the sea. Within the sea environment, sea grasses and salt marshes are a very important part of the carbon uptake from the atmosphere and we call those carbon sinks.

I'll just read this, "the oceans vegetated habitats, in particular mangrove salt marshes and sea grasses, cover .5% of the sea bed. These form Earth's blue carbon sinks and account for more than 50% to perhaps as much as 71% of carbon storage in ocean sediments." So they comprise only a small percentage of plant biomass on the Earth but they store a huge amount of carbon per year and so they're very important to the Earth's atmosphere and the stability of our climate. This may turn out to be one of *the* most important human uses for our sea grasses that is emerging in the 21st century.

My study looked at the *Zostera marina* of our southern BC Coast and how it was used by Kwakwaka-wakw First Nations and their use for this species was as food and they would eat the rhizomes of these plants. A brief introduction to the also famous Kwakwaka-wakw First Nations, this group is very well

know in the anthropological world, specifically thanks to the work that Franz Boas did in the early 20th century. Their territory is northern Vancouver Island and the adjacent mainland. The different colors signify the different language groups within the Kwakwaka-wakw, they speak nine different dialects and they have various forms of political organizations within these areas. They're a coastal people they are also people of mountains, rivers, and estuaries as you can see from their diverse territory. They would practice the seasonal round moving throughout different locations through their territory within the year following the different available foods and eelgrass was a desirable food in the month of the May.

Another point about this research, it's been approximately 30 years since ts'ats'ayem was harvested for its sweet rhizomes in May. Since contact in 1792 (when George Vancouver circumnavigated Vancouver Island and encountered the Weka'yi on Cape Mudge, a Kwakwaka-wakw group, there have been huge changes to the culture of the Kwakwaka-wakw and huge nutritional shifts as well (as many of you all are familiar with). The current social context of this study is their traditional knowledge is going through a small bottleneck. This is a classic example of the cultures on our coasts at this time and this is the serious context for doing research on our coasts today.

JS: Severn Cullis-Suzuki. Severn went on to describe some of the harvesting techniques that were employed in her research and she describes how when asking the Kwakwaka-wakw elders why they harvest in May... they responded... because, "this is how it's done." Severn also spoke of the nutritional value of eelgrass rhizomes.

SCS: I did different harvesting experiments. After learning from the elders how they would harvest this plant in the spring I tried to mimic the removal and removed plants at various intensities as a treatment. I then studied the effects on the remaining plants and the new shoot production over the summer, trying to get a sense from the plants perspective on how this patchy disturbance would affect the plant community.

From my interviews and ethnobotanical records in the expeditions, many Kwakwaka-wakw harvesting protocols became crystal clear, there are distinct ways of harvesting this plant. I would ask often, "why do we harvest eelgrass in May" and the response back was, "because May is the eelgrass harvesting month, because this is the way it is done" so I was curious about the rationale that would have gone into these protocols and found the scientific method useful for. Through the research of me going out and trying to in my experiment (and also through other peoples experiment) I found the two complimented quite well in painting a clear picture of the understanding that went into developing these protocols.

Eelgrass is a great source of carbohydrates. People love to eat eelgrass, across the board people raved about the taste and called it their candy. There is enough sugar in eelgrass rhizome to warrant the adoration from several elders about this candy. The rhizomes of eelgrass are the main storage organs for carbohydrates and it has been found that eelgrass specifically has more than 50% of the dry weight of rhizome as sucrose, it is very sweet. It's common for plants rhizomes to be carbohydrate reserves but this high proportion of sucrose (of sugar) rather than starch in *zostera marina* rhizomes make this a desirable plant. It has also been found that this sucrose levels are highest in early summer, in early June so it makes sense that this would be the time to harvest these delicious rhizomes.

I was taught that of those delicious rhizomes you only eat the first four internodes. The rhizomes grow in increments and only the first four are to be eaten because four is the sacred number of the Kwakwaka-wakw. Well also in the scientific literature, the fourth internode is the first mature internode of the eelgrass growth and those new internodes have not yet lignified (they have not yet become woody) and therefore have low cellulose thus easier to digest. Also those first four internodes have the highest nutritional value as well so it makes sense to eat the first four.

The way of eating these rhizomes along with one of the leaves is very difficult, very energy intensive. You peel it down and wrap the innermost leave around the rhizome and there is a reason for that as well. It has been found that the innermost leaf of the eelgrass shoots is the highest in nitrogen and the lowest in cellulose. This indicates that it would have nutritional value and also be digestible enough to warrant this extensive process of peeling.

Another teaching, dried plants are not good to eat. Daisy Seaweed Smith taught me that there is a taboo for eating dried up eelgrass, well why? When we went into the field it was obvious that if you harvested dried up eelgrass (tried to pick by hand) it would be hard to remove so in a few inches of water much easier. Also I learned from several ecologist at a conference that there is sulphite intrusion that can happen if plants are exposed for too long. That's when you get that rotten egg smell because the plants rhizome has been exposed, the oxic layer is being intruded upon by sulphites and you get some breakdown which indicates that you would have less nutritional value. Harvesting in May is optimal for human consumption its the time when you have the highest amount of sugars, the highest amount of nutritional value and the lowest amount of cellulose.

It is also optimal for eelgrass meadows. It's at a time when growth the eelgrass has been waiting all winter for the light and its growth is taking off. If you remove plants at this time it has the entire summer to catch up and to send new shoots into the surrounding space that has been left. Its actually the best time and there are several different papers that point to different removal and ice-scraping of eelgrass patches that actually have promoted growth during the summer.

JS: And in this last segment from Severn Cullis-Suzuki's presentation at the annual gathering of the Society of Ethnobiologists, she shared some of the important lessons learned from doing this work – one being that the traditional knowledge of the Kwakwaka-wakw is not necessarily accompanied with a rationale (such as the way with which western knowledge is so strongly built upon).

SCS: Of course I've just rushed through it I haven't even talked to you about how amazing it is that they use a k'elpaxu to push down into the intermediate depths and twist and then pull up the eelgrass-like spaghetti (that's one of the ways of harvesting) but they always harvested from sub-tidal levels and this actually makes the best sense also from a stability point of view and from the health of the rhizome.

Harvesting eelgrass could increase shoot production and could result in larger remaining rhizomes. These two statements, I couldn't find elders who were actually taught to harvest in a way that promoted growth but these were within the ethics that they conducted all their plant harvestings. They were so confident that of course they would have harvested to maintain these stands but would have actually enhanced these plants

This is definitely corroborated by a lot of the research coming out, specifically Nancy Turner and Doug Deur's research that has shown that people were actively tending and aiding the plants that they were harvesting and this makes absolute sense. But every protocol that I gleaned from the knowledge of these elders was backed up several times by the ecological research and by my experiments that I conducted. It was amazing to see that, though the rationale is not taught with the traditional knowledge, there is ample evidence and it was wonderful for me to realize that these two perspectives can be a guideline for our way of moving forward in dealing with this important ecological significant resource. Thank you very much.

JS: Severn Cullis-Suzuki, speaking in May 2010 at the University of Victoria. Severn lives on the islands of Haida Gwaii. Links to more information about her work are posted on the Deconstructing Dinner website at deconstructingdinner.ca and the September 9th, 2010 broadcast.

soundbite

JS: This is Deconstructing Dinner – a syndicated radio show and podcast produced in Nelson, British Columbia at Kootenay Co-op Radio CJLY. I'm Jon Steinman.

That musical break was courtesy of Bluetech and his song 'Prayers for Rain' off the album 'Elementary Particles.'

Today marks part 3 in our series Exploring Ethnobiology. Ethnobiology is the scientific study of relationships between people, plants, animals and ecosystems from the distant past to the immediate present. Earlier this year, Deconstructing Dinner chose to devote some attention *to* this relatively unknown field of study as it's become clear just how important it is today more than ever perhaps for all peoples to learn about the ways in which peoples around the world have and are living symbiotically with the earth.

In May 2010, two Ethnobiology conferences were held on Vancouver Island, with today's recordings coming from my visit to the gathering of the Society of Ethnobiology held this year in Victoria.

Another researcher there who was also sharing his work on the relationships between indigenous peoples and the marine environment was Josh Wisniewski – a PhD student in the Department of Anthropology at the University of Alaska Fairbanks. Josh has worked with Kigiqtaamiut (keekytaamu) Inupiaq hunters and elders exploring and documenting their hunting practices of Bearded seals. What he discovered is that instead of the type of *knowledge* that western cultures so often rely upon, some Kigiqtaamiut hunters rely, in part on what a Western might describe as "luck" and a practice of self-regulation.

Josh introduced his research by sharing the history of settlements along Alaska's western coastline along the Bering Sea and the development of co-operative harvesting strategies of marine mammals.

Josh Wisniewski: By 10,000 years BP (before present) post-Pleistocene successive rise in sea levels to approximately 50 meters below current levels and by 5000 BP to within 2 meters of current levels in the Chukchi and Bering Sea waters. In Human populations we know of, occupied the eastern Bering shore a minimum of 9,000 years with marine mammal hunting forming an important aspect of the regional coastal subsistence practices.

Following the stabilization of sea level about 4,500-4,200 years BP we see coastal sights further north in the Bering Sea and its here where we see the first evidence of winter ice hunting located in the Norton Sound region of the Bering Sea. By 2,500 BP we see the emergence of Eskimo technologies (based on excavations on St. Lawrence Island) and concurrent with these technological innovations, evidence suggest that here we see the development of cooperative strategies for harvesting Bowhead whales and walrus which facilitated the growth of large sedentary villages of up to 1,000 people being the largest in the Arctic prior to Euro-American colonization.

At the same time cultural materials from this era forward, from hunting equipment to items of daily household usage, begin to be decorated with animals that displayed human facial expressions and when you view these in light of oral traditions documented by ethnographers in the late 19th and early 20th Century as well as ongoing research these objects suggests that local understanding of sentience, of being and personhood as not limited to humans was developed in the Bering Strait and in northwest Alaska by at least 2,000 years ago. Certainly, today marine mammal hunting remains vitally important for Bering Strait communities as I hope to illuminate with the next part of this discussion.

The Bering Strait community of Shishmaref, today is in a predominately Iñupiat community located on a small barrier island on the north-western shore of the Seward Peninsula. Historically it was one of a series

of seasonally occupied communities along that coast that began to consolidate in Shishmaref following the establishment of a school and a reindeer herding station there in 1906. By 1920 approx 131 people called Shishmaref their seasonal winter home and today over 600 people call it home. The most economically and socially significant animal pursued by hunters in Shishmaref is the Bearded seal, *Erignathus barbatus*, or (as they are known in Bering Strait dialect of Iñupiat) oogruk or oogrit in the plural form. Bearded seals can weigh up to 700 pounds and are the largest of the ice seals that normally occur in Alaskan Arctic and sub-Arctic waters.

In 1977-1978 the estimated value of a Bearded seal for an Iñupiat family was approximately \$286. If we move forward through time and adopt a conservative estimate of about 500 pounds for a dressed mature Bearded seal and draw upon the Alaskan Department of Fish and Game Subsistent Division, they have a replacement value of approximately \$5 per pound of wild meat. We can estimate that the average oogruk to be worth approximately \$2,500 for a household economy and on average most Shishmaref hunting households try to catch a minimum of four adult oogruks to last a year which contributes about \$10,000 towards a household economy.

JS: The focus of Josh Wisniewski's work has been on the relationships that have formed between the Inupiaq hunters that he's spent time with and the Bearded seals which they hunt. Josh explained the method that the hunters use of self-regulating themselves through what a westerner might refer to as "luck."

JW: Today a central tenant of hunting in Shishmaref are the comments of elders that animals won't always be present or accessible and that periods of relative abundance of animals will be followed by times of hardship. "Don't play with animals, don't ever assume that you can fully know the animals or the environment and don't act in any way that suggest these things." These ideas are apart of a continuously emerging set of shared understandings where an older belief, local history and personal experiential explanations are continuously synthesized and drawn upon in order to understand and explain the world. Some younger hunters call this Eskimo law or Kigiqtaamiut law while others just call it the "Rules of Old Folks."

An example of how this is understood is in recent years there has been a dramatic expansion Musk ox reintroduced by the state of Alaska and the dramatic expansion of caribou on to the Seward Peninsula which has devastated local commercial reindeer herds. Hunters also discuss how oogruk hunting is today much more difficult compared to what they experienced 20 years ago. Then hunters had more days to hunt; different hunting conditions related to a different quality of sea ice. At the same time this notion of variability and unpredictability form a norm in hunting life.

So hunters experiences with fluctuations and changes however are considered in conjunction with these older ideas what people would call the "Rules of Old Folks." These inform how hunters try to achieve short and long term success or as people would call it "luck" through varied self regulatory actions. Here we see the avoidance of certain topics of discussion and significantly the recognition of the power of oogruks and the self regulation during hunts both play a critical role towards maintaining the possibility for future luck or success.

For example, during spring hunts hunters only try to catch as many oogruks as they need to make sea oil and dry meats to last into the following spring, which is typically four mature oogruks and two-three umniak or what people would call teenagers. During fall hunting hunters are trying to catch seals for immediate consumption and to sell their skins to the local tannery. One hunting partner told me how he shot the biggest oogruk he'd ever seen during a fall hunt then brought it home and his mother scolded him, "What did you do that for we only get that kind during spring." Its important to note that oogruks are actually much easier to hunt in the fall time however they are typically avoided because it is not a good

time for outside preservation which is the only way oogrugs are processed. Some hunters also explained that they avoid shooting Bearded seals during the fall in order to increase their chances for having luck or success during spring hunts.

For Shishmaref hunters the issue is not whether animals are infinitely renewable (which has been a topic of much debate amongst scholars considering resource management practices amongst different northern indigenous peoples). What's significant is recognition of possibility and the presence of sentience in the world and therefore how one's actions and intentions can influence hunting success and consequently the need to avoid or minimize potentially limiting one's chances for success in future spring hunts. The suggested premise for self-regulation then is to maintain the best possible chances for catching oogrugs during spring hunts. Through hunters' interactions with oogrugs and empirical observations they experience them as powerful and responsive beings that have much influence in determining the outcome of the hunt.

In local hunting lexicon some hunts may be experienced or understood as tame and allow hunters to shoot at them while others are considered wild. They'll stay far away they'll never come up long enough for hunters to shoot at them and at the same time a tame oogrug may become wild and wild one may become tame. Some individuals are experienced as smart while some individuals are considered dumb. Some will let you shoot at them and others will sink fast after you shoot them in order to not let you win and to mess up your luck for future hunting opportunities.

So because oogrugs are these powerful and active co-participants shaping the outcome of hunting encounters and the extent of their perceptive powers can never be fully known, even when not hunting or while preparing for hunts, many hunters exercise caution in how they behave towards oogrugs and other animals. Even in the village hunters are careful about how they discuss hunting and how they discuss Bearded seals.

Clifford who you can see on the right (who was my primary hunting partner and my instructor in Shishmaref) would always tell me before we were going out, "don't ever say we are going hunting. Just say we are going to look around because you never know what's going to happen out in the country or out on the sea ice. We might not even see anything." Clifford would always talk about luck and he would seek to manifest luck by avoiding making predictions because as he says in his experience such predictions could potentially result in lands and animals responding to his actions by not revealing animals.

JS: This is Deconstructing Dinner and part 3 of our series Exploring Ethnobiology. We're listening to Josh Wisniewski – a PhD student at the University of Alaska Fairbanks who spoke in May 2010 at the annual gathering of the Society of Ethnobiologists hosted at the University of Victoria.

Josh has spent many years studying Kigiqtaamiut Inupiaq hunters in the community of Shishmaref, Alaska on the coast of the Bering Sea. Of greatest interest to Josh has been the relationships that these hunters have developed with the marine mammals that they hunt.

JW: What is significant in the recognition is the recognition through hunters' actions of a direct and personal relationship between hunters and animals. These personal relational understandings inform and shape hunting practices as well as the shared understandings amongst hunters. It's also interesting to note that there is not a direct translation of "luck" into Kigiqtaamiut Inupiaq nor is "luck" generally discussed in historic and contemporary Inuit ethnographies in which hunting figures prominently. For Shishmaref hunters however, "luck" is synonymous with success in catching oogrugs. "Luck" is regularly used as a substitute for talking about catching oogrugs in an effort to increase the chances of success by avoiding directly referencing them.

Regardless of its potential historic basis, seeking and manifesting luck is essential towards hunting in Shishmaref today. While avoiding direct references to oogruk hunting prior to hunting trips is one way hunters attempt to increase their chances for catching them, hunters also downplay the role their actions have towards catching oogruks in hunting stories and conversations by suggesting them as play. So Clifford would often say, “Lets go play look around, I play shot that oogruk or Josh play bring your rifle we might see something.” These and other similar phrases were commonly used by hunters during, before and after hunting and in a variety of conversational circumstances, yet in a manner so as to always diminish their active role towards catching animals.

At the same time despite the best intentions by hunters to encourage the possibility for achieving success, there are lots of times (more often than not) when hunters are unable to catch oogruks even when oogrit are experienced as quite tame. Hunters refer to this as having a messed up system.

JS: Josh Wisniewski’s work has focused on this cultural practice that some hunters employ to help ensure a good harvest of Bearded seals – a practice which westerners might refer to as *luck*. But calling this practice as “luck” but calling this practice as luck might be a bit misleading, as Josh explains, when Bearded seals are *not* caught, hunters refer to this as a, “messed-up system”. But what is this *system* that they speak of. As Josh describes, this system, is the subtlety with which Kigqtaamiut hunters are aligned with the present moment and aligned with the animals which they’re hunting. Just as some might identify with the outcomes of meditation or yoga as bringing oneself more into the present moment, this presence is too cultivated by Kigiqtaamiut hunters.

JW: The ability to get luck or to have success is not presumed to exist solely within a hunter which assumes a degree of personal authority to predict and control the outcome of a hunt which the rules of old folks suggest is dangerous. Nor is it solely attributed to animals; the dismissal of personal actions and intentions towards getting luck is equally considered dangerous. The personal assumption of responsibility suggested through the statement, “my system was messed up,” speaks to a disjunction of the body-mind self. Its a failure to live or fully be present in the moment. The failure to connect with animals in the flow of a moment results from a failure to be in the moment of ones own immediate experience. Equally though is the recognition that animals are aware of and responding to hunters; one’s actions, attitudes, presentation of self and the ability or inability to connect with an animal.

Having a “messed up system” for Shishmaref hunters does not also speak to a singularity of possibilities or events for one system includes but is not limited to: their shooting skill, the presence of the hunter, their being in the moment and the ability to interact with and respond to animals. This is the ability to regulate one’s breathing, to hold ones rifle steady, anticipate where a seal will arise out of the water, to hold the breath, to let it out slow, to squeeze not pull the trigger. The reference point hunters use to suggest ones system is messed up are their interactions with animals, the personal experience of not being able to hit an animal when its shooting at, the combination of bad shooting, the recognition of animals awareness and responsiveness to human actions are experienced simultaneously and intracly connected towards one’s ability to get luck.

Yet it is important to speak directly to the messy ethnographic reality of what people do. While some hunters might understand their inability to get “luck” or success during a given hunt as a response to their system being “messed up”, other hunters have very different range of experiential informed explanations for their success (or lack there of) based on their own personal life histories. What this points out is that Shishmaref hunters highlight that knowing emerges from a position of embeddedness in a context of experienced relations that don’t disallow for objective analyses of phenomenon but always seek to ground it in the context of the experienced world. What this illuminates about Shishmaref hunters ways of knowing are that no explanations are central and what one has experienced and holds true to their own

experiences is what is significant in their own hunting, their own self regulation and relational management strategies.

In conclusion, in contrast with the long history of indigenous peoples interactions with marine mammals and not saying more than what one could safely say about continuity, non-local engagements within the region and with marine mammals are fairly recent. Commercial whalers didn't pass through the Bering Strait until 1848 and systematic commercial hunting of walrus took place between 1868-1883. Following that modern scientific investigations of Arctic marine pinnipeds did not begin until the 1950s and despite an increased effort in recent years, scientific knowledge of Arctic pinniped ecology in the Bering and Chukchi Seas is still relatively recent. In contrast to modern bio-ecological studies, Kigiqtaamiut and other Inupiaq and Yup'ik hunters understandings of Arctic pinnipeds has a much greater temporal depth and is continuously informed and analyzed through local experiential, observational and reflexive means.

To that end we see that Shishmaref hunters ways of experiencing and coming to know the lived-in world can teach us much about human marine mammal relational ecology as well as the human condition of knowing through our living through the world.

Quyanaq. Thank you.

JS: And that was Josh Wisniewski – a PhD student at the University of Alaska Fairbanks. Josh spoke about his research at the May 2010 gathering of the Society of Ethnobiologists in Victoria, British Columbia. This has been part three in our series Exploring Ethnobiology, and you can access parts 1 and 2 through the Deconstructing Dinner website at deconstructingdinner.ca. You can also expect more episodes of this series featuring recordings from Deconstructing Dinner's visits to that Victoria conference and to the International Congress of Ethnobiology held in Tofino.

ending theme

JS: And that was this week's edition of Deconstructing Dinner produced and recorded at Nelson British Columbia's Kootenay Co-op Radio, I have been your host Jon Steinman.

I thank my technical assistance, John Ryan, the theme music for Deconstructing Dinner is courtesy of Nelson-area resident, Adam Shaikh.

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