
BIODIVERSITY CASE STUDY SESSION

Date: February 25th, 2000
Location: UBC Museum of Anthropology
Speaker Names: Arnie Narcisse
British Columbia Aboriginal Fisheries Council
Joanne Archibald
University of British Columbia
Nigel Haggan
University of British Columbia, Fisheries Centre
Klah-kist-ki-is (Chief Simon Lucas)
Hesquiat Nation
Steven Watkinson
Masters Student, University of British Columbia, Fisheries Centre
Moderator Ghillar (Michael Eckford)

GHILLAR

Arnold was elected as Interior Co-Chair of BC Aboriginal Fisheries Commission last week. He's Squamish and is a father of five children and a grandfather of one, Garret. He is an ardent defender of BC tribe's rights to the salmon resources and the salmon's rights to clean water and healthy habitats. He * (unknown word) such as salmon, agriculture and Bjorn * (unknown word) Mitchell * (unknown word). Arnie and his family are a part of the Vancouver Aquarium Display on Salmon and People that is presently touring the province. He has been invited to speak at the Simon Fraser University. Speaking for the salmon forum * (unknown word) statement that the fish can't speak for themselves and neither can our unborn generations yet to come. Arnie.

ARNIE NARCISSE

Good Afternoon! My name is Ernie Narcisse and I'm Staxilum * (unknown word) and Blackfeet. Last night there was a program on A&E. I don't know if any of you caught it or not. It was talking about the eradication of the Buffalo in Yellow Stone National Park. The reason I bring that up is my heritage is Staxilum, the people of the river and Blackfeet from down in Montana. People down in Montana have the evidence, witness and experience of the eradication of the buffalo. Now we here in the province of British Columbia witnessing and experiencing the eradication of the salmon.

Now before we realize that the scope of this forum is the protection of traditional knowledge. What we are about to do here is take another approach and talk about some of the benefits of sharing this knowledge. Talking about the sharing of the knowledge that people like Simon Baker has. It's knowledge that is built from the fact that he grew up beside the ocean. He grew up viewing that ocean as his breadbasket and that is the knowledge that he brings to this table. And what we want to show is that this knowledge directly correlates what is currently known as main stream science as utilized by people like my good friend Nigel Hagan * (unknown word) with the University of British Columbia Fisheries and Science Center.

We have been involved in efforts to protect the wild stock from initiatives such as salmon agriculture. * (unknown word) invitation * (unknown word) Jacques Costeau * (unknown word) to go to the University of Washington to speak. But the need for clean water and healthy habitat for our fisheries. I believe these are some of the things that Nigel will elaborate on later on. But the reason for our being here comes about as a result of a memorandum of understanding between BC Aboriginal Fisheries Commission and the University of British Columbia and Joanne Archibald will elaborate on that when I get to her next.

Basically the prime intent is to ensure that we get more people with those masters' degrees, those PhD's. So that will become recognized that people like Carla Walters and our other good friend Dr. Daniel Paul are. So that we can bring them out to these kinds of forums and say, "here is our expert and this expert is built upon indigenous knowledge that he carries with him as a first nations person. And plus he carries that mainstream science that he learned here, in the hall of academia here. So that is what we are trying to do here is build this person that has awareness of our culture and the awareness of the science programs as well. The importance of sharing knowledge is crucial if we are going to become part and parcel. To reassume our role as the managers of the fisheries.

And we'll talk about that in terms of the * (unknown word) the people of the west coast island exercise. The knowledge that they have jurisdiction over their land and its resources. With that I'll give a brief introductions. We've got Nigel Haggan. He's with the University of British Columbia Fisheries Science Center. A very knowledgeable man. He's traveled throughout the world doing these kinds of efforts and I'm very proud to call him a friend of ours and he is recognized the need to incorporate indigenous knowledge into the work he is doing.

Seated next to his is a good friend Chief Simon Lucas from high school also known as Kipach * (unknown word). Simon carries with him a lifetime of knowledge of being a fisherman on the ocean and he will relate that to you.

Seated next to him is Joanne Archibald who is the director of First Nations house of Learning and who is integral to this partnership that we have between the Fisheries Center and the BC Aboriginal Fisheries Center. In the back act as our technician until he comes up here and assumes his spot on the podium is Steven Watkinson. And Steven, I'm proud to say is the most recent recipient of the BCFSC Scholarship that we award to Fishery Science Students and Steven is now into his masters program and his masters thesis talks about the benefits of nutrients in the system, that knowledge that we as First Nations has always had.

Once a fish dies in the river it is not the, be all, end all. That's only the beginning of the cycle. The rebuilding of the fisheries. Those microorganisms and what have you. That again starts the cycle all over. It starts at the gravel and goes through the waterways and goes to the mouth of Alaska and back to the Strait of Georgia and back into the territories. So that was the jist of this presentation. I hope that you bear with us and we hope that you do learn something and we hope that you keep in mind that the focus of this is the sharing of knowledge. Thank you so Joanne.

JOANNE ARCHIBALD

I'm just going to stand here so I can see a little better. There are some chairs out in the front here in case anybody back there wants to come forward. I'm really pleased to be sitting with such a group of distinguished panelist this afternoon. I think of our sharing as a way of what we've done with our partnership that Donny * (unknown word) has described. The house of learning tries to find ways to increase enrollment of aboriginal students in all the different faculties on the campus. Also to work with the faculties to find a respectful place where the knowledge of aboriginal people can be shared and talked about in ways that honors that knowledge, it's often very difficult to do. But it's good when we can form these partnerships with aboriginal community organizations and to have community people come together and sit in a circle and share and discuss and raise really important questions.

I just want to talk a little about I guess understanding the importance of one of the titles that we used for one of our projects called "Back to the Future". Here, I think, I look towards the teachings that comes from one of our beloved elders, from the Musqueam, Chilando * (unknown word), Dr. Vince Sterman * (unknown word). He

teaches us that when you stand in a circle and we join hands we take our left hand and we make sure that our palm is facing upward and what we're doing is reaching back to receive that help that comes from the elders and ancestors that we reach back for that knowledge. When we receive that knowledge and internalize it into our being then it's a part of our responsibility to share that and teach it to with others. So when we extend our right hand we're also going forward and facing our palm down. So that way that circle is going back and getting the teachings and sharing them as we reach forward and helping those that come forth and behind and ahead of us.

I think that this notion of back to the future is good way where people have various kinds of knowledge and we are recognizing that as first nations people that we do have knowledge that is scientific and is beneficial especially when we are looking at more than how we can sustain our resources but go back to what our elders remember as far what the ecosystem looked like. Find and use that as our bench mark that we're going to strive towards.

I really appreciated that a lot more as I came to this project. I heard a lot about eco-path and this computer that could really take all this information and plug it into some sort of map. I couldn't figure out how we could actually do this. So going into this project and Nigel will go more into that and hopefully Steven.

We need to learn to talk with one another and to listen with each other. The project we undertook with the Strait of Georgia and Huklak * (unknown word) Strait. We sat down and talked with aboriginal people who knew the ecosystem to find out what kind of knowledge that they thought was important to be brought out. For awhile, on the Strait of Georgia project, I did work with some of our elders to pilot the way we talk with elders, to gain a sense of what was the ecosystem like and how were different fish sources and how was that used as a part of the culture. So it's not just separating facts but showing how our culture, our traditional ways are very integral to our resources that come from the water sources. Also to understand some of the values and teachings that comes with that.

So when we're plotting some sort of data base program and computer program that we have to some how find a way to portray the richness of the teachings and the values. I think it's important using the new technologies to do that. But we must also continue the oral traditions and in that good way of sitting and talking and learning from one another. Finding ways to communicate so we understand what each other is saying. I think that this project is beneficial in bringing all the people involved in fisheries science from their various perspectives. We can learn a lot from people's local knowledge and use that to inform us in some future policy. So basically I don't want to say too much more because I know that we have lots of people that want to say a lot. But that the importance of coming together and going to the people who have the traditional ecological knowledge and also who still practice the values that come from the culture. Then finding a forum where we created here at the university using our house of learning as a place where people can come and * (unknown word). Then presenting our ideas and discussing these in a physical facility that represents who we are as aboriginal people and so it's that framework whether we're using a computer program. The framework that we use really has to be based in the values that come from our aboriginal cultures.

Amie: Okay now we'll turn it over to Nigel Haggan.

NIGEL HAGAN

It's going to be really hard to live up to that introduction. * (unknown word) * (unknown word). First slide please. Anyways my name is Nigel Haggan. I was born and grew up in Belfast in Northern Ireland so I'm no stranger to conflict. I came here in 1981 and ended up working as an adviser. So I was a trainee to a lot of cooperative management projects in fisheries in British Columbia. Over the years it was obvious to me sitting with first nations people on one side of the table and the department of fisheries on the other.

There were at least two problems. There was a tremendous amount knowledge in the heads of my tribes and friends that was not being used in resource management because it was not expressed in tables and graphs and reports of the kind that. (Tape cut out)

So also the whole situation is extremely adversely. So what we tried to do is to move into the UBC with the idea that the university would be a place where people from all sections of the fisheries that cared about the resources could get together to see what could be done. For other forums we're dealing with land claims of course. One of the things that has always struck me is what first nations have taught me about what it was like before commercial fishing started. One of my friends, Tony Pitcher * (unknown word), at the University of British Columbia Fisheries Center, one of the world's top scientist, incidentally I'm not. I wonder what it was like before they started the hammer of industrial fishing. What could the systems have been like? Daniel is probably one of our other leading scientists. This thing that he talks about is what he calls the base line shift. This is what happens when a fisheries scientist starts his career. Then they work their whole life and then they see the amount of fish there were at the start of their career as what there ought to be. So the perception of what there ought to be in the marine ecosystem just keeps going down after each successive generations of fisheries scientist. It's also true that fishermen know from their grandfathers that things were better in the past. But some * (unknown word) exaggerate. So we have to question. What was it like? So can we restore the diversity of the ecosystems? The partners in this are the BC Aboriginal Fisheries Commission, the First Nations House of Learning and the UBC Fisheries Center.

In 1977 we signed a memorandum of understanding. To do two things really. To make university science more relevant and accessible to the priorities and concerns of aboriginal communities. To accelerate the enrollment of first nations students in graduate programs. I think maybe Simon and Ernie may have more to say about that later. Steven we have with us. We have other applicants. We have tried absolutely everything but we have absolutely no funding to our graduate program. We could get all kinds of money to train aboriginal people as technicians. But for the serious scientist it just not there or we can't find it. To relate the concerns of BC first nations to the broader agenda of the United Nations.

The outline is our changing relationship is with the sea, different traditions of knowledge, the need for an ecosystems approach, and the potential for cooperation. So what we have here in the top left hand corner are some deer antler spears, which are ninety thousand years old. This is the first fishing technology that we're aware of that were used in Africa to spear and catch fish in the Tongo * (unknown word) River.

Down the way you will see increasing complexity in fishing technology until your getting down to the bottom you see this side troller. In the nineteen hundreds this steam troller spread all over the world. Now we have vessels that can gear up the fish for anything.

What is happening is that every step of technology there is a step down in the ecosystem. In the Atlantic the top predators got fished out. People gear up to go after their prey. By calling Daniel * (unknown word) in to spend and analyze and spend forty years of United Nations world fish catch and demonstrated that we're steadily fishing down the marine food level. If this persists, fifty years from now the ocean will be full of Jelly Fish and Croak * (unknown word) and Lamprey fish * (unknown word) which are things you really don't want to know about. That is the future we are looking at unless we can do something about it.

At the bottom you'll see three arrows. One points down if we do nothing. The one pointing straight at you represents sustainability. This is the question. What are we trying to sustain? Nobody in their right mind would suggest that we are trying to sustain the river's inlet sockeye or the Pacific or Atlantic cod. So the thing to iron out is to suggest today is rebuilding.

Then there are different traditions of knowledge. Traditional knowledge is much different than modern fishery science. It's anchored place to periphery. This is critically important. It covers a broad range of species and habitats and seasons of practices. Fisheries science works at a really big special scale. The analogy that I use is that traditional knowledge is like a light that illuminates the entire stage. Where modern ecosystem science is like a spotlight on the star players and it doesn't look at the connections. I always say that we need both perspectives. We need a way to bring them together.

So ecosystem modeling two. This is a bit scientific. It is a bit tedious but it is important. There's a system called eco-path that our scientist here at the UBC have brought to kind of an art. In 1996 I took it upon myself to edit some papers that have been done on models of British Columbia's ecosystems. I looked at them and I thought, "It struck me." For the first time is a scientific tool that looks at the connections that looks at the ecosystem. It can make a computer model of how things are connected.

Then there is another called eco-syn. Once you've made a model you can ask it questions. You can say. What happens if we keep fishing like this for the next five years, ten years, fifteen years, and twenty years? What is it going to do to these fish? What is it going to do to the whales? What is it going to do to the coastal communities? What are the ecological economic and social consequences of these courses of actions and compare them?

Lastly we have special from where you can put in the resources of your territory, kind of habitats that you have. It will also allow you to track the effects of marine protected areas of different sizes and different location. Which is one of the ways that we're talking about bringing the fish back. Next please.

The data integration potential of this is quite interesting. It maximizes the value of scientific information. It was mentioned earlier the famous ocean explorer Jacques Cousteau. Most people think the fisheries scientist are marine biologists and then somebody like Jacques Cousteau looks over the boats some week and sponges the next what ever it happens to be. We know that there are different people that work with different species plankton. Who work on whales, who work on different species of fish and they rarely meet. If you want to make an ecosystem work you got to get these guys out corners and put them in a room. They got to put their data in the same unit. They got to put it into a mass balanced model, which is really like an accounting system. There can't be more in the system than the plankton at the bottom can produce. There can't be more in it than there is for anybody eats. So I looked at this. I thought this is interesting and valuable but what would happen if you showed the model to people who really know what's out there. I'm thinking of my friends in the first nations communities and in the east coast out ports who spend their lives in the great waters. There are generations of people who spend their lives in the water and they know that's not right. There aren't any of those. And if you take those out then the whole thing has got to adjust it self to compensate for this piece of traditional knowledge that says no there are none of those things. That I thought was ridiculous or actually that's not to bad but there are to many of these. So you can ground proof these models. Next please.

That's just a map of the world that shows how the models are being used. We're using this technique to restore the ecosystems in Hong Kong. There are places their that a every square foot is trolled three times a day. Anyways it's getting fairly wide currency. We're working with DFO on the east to work on a project to look at the ecosystem in the Atlantic. The only people we can't get any attention from is DFO on the west coast. They don't seem to think that an ecosystem is important. (Tape cut out with singing)

SIMON LUCUS

(Native singing) It's important to talk to the spirits from way beyond the horizon knowing never if you could get to there. Important for our people to know and believe that. What was beyond the horizon? Knowing you could never get to there because you would end up at that line.

That must have been important to believe that great Gods of underwater. Oh you can't see. Why you was that. Living amongst the resources never to be seen. But our grandfathers believed. Gods behind the mountains never to be seen but we knew he was there. * (unknown word) up in the sky never to be seen * (unknown word) but he was seen this way. Clouds, stars, the sun and the moon, raindrops, snow, * (unknown word) that's the heave rain in my part of the world. * (unknown word) You are the same since the beginning of time. * (unknown word) The mountains are still there. * (unknown word) Morning is still there * (unknown word) Great Gods are still there with us. * (unknown word) You know what life is about. * (unknown word) We live because of life.

Environmental people have a hard time with that. You saw them demonstrating heavily with my relatives in * (unknown word). You can't kill that * (unknown word) for tourism. How long have been taught since the beginning of time * (unknown word) it is because of life that we live. * (unknown word) Our spiritual being needs that power we get from the resources that we get from the ocean. * (unknown word) Our mental being needs those * (unknown word) in tact. The whale, * (unknown word) our emotions.

The Nuu-chah-nulth people right now are excited like many of you too. You start to hearing that fish are coming up the rivers and streams. Herring is in our territory. You start getting excited because it's just a few days away from feasting on herring roe. Fresh when it's still in the herring. * (unknown word) We need these foods to keep us physically strong. * (unknown word) Black * (unknown word) I don't think they need * (unknown word) they were too far out. It was just two months ago. I don't think the Indian people have a claim to * (unknown word).

But what they didn't know is that my tribe and other tribes have done an archeological dig twenty-five or thirty years ago. That's the information that we have from our elders. A hundred different varieties of bones buried along with our people in the caves. The caves are still there. They went back five thousand years and it wasn't changing. We better quit digging here.

Well they found out what the kelp * (unknown word) was. It was a daily diet for our tribe especially the women. Women preparing to bare a child started to get the milk ready and rich. So they started breastfeeding the broth of * (unknown word) that enriched the milk in the women. It's important for people to know the scientist to understand that our connections goes way beyond when they come here. And they don't want to accept the simple definition of what we talk about. They like to use biodiversity. The grandfathers said * (unknown word) he linked it all together in one sentence. "It's because of life that we live". You know we haven't eaten well for over a hundred years. But our taste made it. Some of our people in Neenah Bay taste the whale. Gees whiz.

I went to school when I was over nine years old. Not a word of English that I used. This time of year was kind of important for me and my tribe for some of the years. But some of the things that I done and my cousins and the other kids, we used everything * (unknown word). We didn't * (unknown word) waste it. Thirty, forty foot waves this time of year. But what we use to look for was a thing called dontwa * (unknown word). Codfish roe would drift to shore. You know I haven't had that for quite some time. I've haven't had abalone too. Lo' and behold, I'm invited to Australia. I went to Tasmania. One of the guys that fights like many of our people took us to a place where he got arrested. Oh my god, I said. I haven't had this for so long that I had fifteen. Do you know what there stuck with? It's costs four million to get an abalone license.

You and I haven't been talking to each other because what we like to argue about is this. We don't believe in this right here. We believe in sovereignty. Because they're negotiating. But we don't talk about what is impacting you and me. We don't talk about the philosophies our forefathers lived by. * (unknown word) Life is a treasure. Life is enormous. * (unknown word) It's all over the place. * (unknown word) It's because of that that we are strong.

Lampreys * (unknown word) * (unknown word) is known to some of our tribes as (* (unknown word)). One time your migrating stopped there. Huge bank goes on for miles. There was a time there that the whole bank had a pole stick on it. The government didn't consult you and I. They allowed the foreign police to drive at Lampreys bay * (unknown word). It almost killed everything there. You know why it's called (* (unknown word)) by a couple of our tribes. There was so much halibut there that in the evenings they would come up and flap their tales. * (unknown word) We can no longer see that. There was a time that your coho come into your river stream. Shrimp boiling up at the ocean, coho bursting at the seam. Loaded with shrimp. Shrimp fishing. Although there have been talks about doing these things and you and I have been arguing about salvation amongst each other. They basically went and made new law, new policy and I have been debating which Indian is right and what Indian is wrong. We forgot about what our people talk about. Our existence!

The reason we are here is because our people are always concerned about life. Why did they honour the young girls? Why was the young girl clothed in the way she was clothed when somebody came for her. * (unknown word) This is what you're going to be wearing. The rights to the river; the rights to the ocean. * (unknown word) I had the privilege of living in the same reserve as Martin Johnson and a lady called (* (unknown word) Native language), she didn't speak English. I never really got to know her English name I just knew her by (* (unknown word) Hiath). Martin John never ever talked about the rights of white people. He was the main man on that reserve. He would go out and come back in hollering * (unknown word) come here. Sea urchin calling the people down, feeding on sturgeon. * (unknown word) Snapper, seal and the list just goes on. All of those are now lightened. As we talk about our sovereignty all those things are lightened. You can get halibut license because it costs twenty-three dollars a pound. So if you get a hundred thousand pounds you know what happens. So we've been talking about the rights and wrongs of ourselves, the government had to lazily implement their policies.

I sure heard about the fight of the people in Australia in Tasmania all over the place like our berries. Scallops and abalones this far from the shoreline. Hey I forgot to tell you there are poisoness snakes around here. What! * (unknown word)

Our people talked about simple things that made life and I use to wonder why the first raindrop were called Nuu-chah-nulth people. The raindrop hit the top of the mountain. * (unknown word) That's when life is getting enriched. One raindrop and next thing you know there's a billion. And what he was talking about was that he couldn't understand what that raindrop is doing. Going down with out a river. But what he was talking about. You know that raindrop takes along with it. All the nutrients, medication that needs responding. Scientist have all kinds of theories about life. But our people are simple. It started when this whole thing was created. They even tell the world that we may have been monkeys at one time. So despite all of that we are saying that we have the capability to work together. They need to be taught some things about simple things that we know about life. * (unknown word) Nuu-chah-nulth and many other First Nations, we get so excited when there is a feast going on. We're going to have salmon and duck soup. It's a part of us. All of that is a part of us. Long history. Long history is part of me. Sea urchins, * (unknown word), the whale, the sea lion, they convinced us.

In the 1950's, you guys better start eating right. Starting next month we're going to be sending you, remember that date, we're going to be sending you boxes and boxes of what you should be eating. Nutritional food. First Nations in British Columbia have the highest rate in diabetes. No wonder our people are saying we have to go back. Back to the future where our people were healthy. Walking two miles to dig plants. Rowing a canoe to catch your fish. We just go in the car, I'm not saying that's bad but it's bad for our health. Well something else is happening. They found some whales with PCBs in it, announced just a couple of weeks ago. We haven't been talking about our grandfather's beliefs and it's time. It's time now that we talk about it openly. If those aren't around how am I going to be spiritually strong?

Our people have had doctors for a person that was spiritually weak. If they were mentally weak they had special people for that. If you were emotionally wrecked they had people for that. And your physical condition we had special people for that. They wiped that away. Now it's up to us to stop pointing and bring that back. It's up to us to find all the medicines. To stop this illness that is happening. So it tries to tie in our understanding of the ocean. What I want to and our people use very simple teachings, the Nuu-chah-nulth people.

Our grandmother sitting with her granddaughter making a basket. * (unknown word) Please go get me a drink of water. You know how to walk. Go get it yourself. * (unknown word) Please granddaughter, go get me a drink of water. Go get it yourself; you can walk. Again she says * (unknown word) Please; I might turn into something else. The blue jay today reminds us of that. Today the blue jay has a very dry tongue. It's a story for us to make sure we know how to listen. Not go ahead and do it yourself.

The raven. We know each tribe has a different one. The raven in our area is a trickster. He never stops scheming. There was a time that raven couldn't talk. There was singing and dancing. And there was a big potlatch going on and there was dried fish and smoked fish and everything there. But what he noticed when he looked in door was a fine looking women that was just, my god I got to...he didn't say that...he immediately said that girl right now he said I got to find a way to get that girl. Watching her and he noticed that there was a knothole on the floor there. We had floors then. So he noticed that * (unknown word) * (unknown word) goes under the house. What a beautiful sight he says. He couldn't talk it. So he figured his time it. He had his shorts on...the first pair of shorts ever made...he put his shorts down and put his penis through the hole. Look a big fish. And that's why the raven sounds the way he does. So the message for the men and a lot of times we as individuals get carried away and look at things the wrong way.

We've been kind of involved in that. You're like that. I'm like that. I think Rid * (unknown word) is better. So as we're doing that we forget about the great teachings that our forefathers have left to us. So Nuu-chah-nulth we are chiefs that are related to the whole ways. Their names are connected. We have chiefs that are wolf dancers. Chiefs vary in our area, some chiefs have four wolves and some have six. I have six. The non-Indian can't figure that out. Why do you have wolves? What relevancy does it have? It has a lot of relevancy. Do you know in our story about wolves it is said that the wolf has the capacity to turn into a killer whale. They tell us that the whale and wolf think alike. They hunt the same way. I believe it. I believe it. So our belief system is important when we are talking to the scientist. They have to believe in our belief system if it's going to work. The great Gods of the ocean. What did that mean for my culture. * (unknown word)

The sea serpent, it's connected to the ocean. In every tribe, why did our people chant every time there was a big storm going on? (* (unknown word) Native singing) The Great Spirit is talking. It wasn't just a storm to us. All of those are going to be relevant to what we're going to be talking about. * (unknown word) Always look at the day. We haven't been. There's a problem in the salmon industry. We haven't been watching. I think about Captain Cook. He was just here a short while ago, 1761. But he was met by the * (unknown word) chiefs, I think in a forty-fifty foot canoe. He had eleven warriors in there. But you think about what Captain Cook saw. They were amazed at it because they made a boat that was made out of many planks. But when they saw that canoe they were mesmerized. This canoe has no ribs. Dumb. So when they went back home what do you think came. We got to change those peoples thinking. We got to stop them. John Hewlett talks about one of the days he follows one of the ladies from Mo * (unknown word) for several miles only to see that she was talking and chanting. But he couldn't identify her. She was talking and conversing with the Creator. So those people that went back. You should of saw this house we went in. It had different images of whales and fish of a bear holding a salmon. What an incredible site it must have been.

But when they came back they found a way. You got to change their minds. Change their style of worship. That is history! We have to go back to the future. Back to the future and grab our grandparents and teach you. Thank you.

ARNIE NARCISSE

That's the presentation. The one thing I learned is to never interrupt Simon. I feel for Steven Watkinson right now because that's a hell of a hard act to follow. If there is anyone who can follow it is indeed Steven Watkinson and we do view him as that bright light that future. I take that knowledge that this man has and take that knowledge that was presented by Nigel Hagan here and incorporate both of them into the being that he is. To allow him to become I suppose our Carl Walter in the future. I look forward to the day that I see him standing beside Carl Walters and then arguing about Fisheries Science. Thank you.

STEVEN WATKINSON

I sure as heck don't look forward to that day Arnie. Thank you very much. I guess I'm going to go briefly over my thesis work and tell you what I've been up to. I came into the fisheries center about a year and a half ago. I was recruited as the first aboriginal graduate student since then I've completed my forest work and now I'm onto the thesis part of it. So that's what I'll be telling you about today.

So the title of my thesis work is * (unknown word) and nature's vitamin pills. So I guess my thesis kind of worked it's way out of a conversation with my supervisor, Daniel Paulie * (unknown word). We were kind of commenting on the eagles of * (unknown word) * (unknown word) and with all the problems with fisheries these days I kind of said Gees you know if the * (unknown word) come back what's going to happen to * (unknown word). And that kind of became my thesis project. Which is to look at the importance of salmon carcasses in the entire watershed. Because everyone knows rivers flow inland the ocean. So you get kind of an output of nutrients that way. Well salmon carcasses they bring those nutrients back into the streams back into the watershed. When they leave they are very small and when they come back they are very large. All of that biomass all of that nutrients is from the rain system. So when they decompose they release this pulp of nutrients which was up to 40% of the nitrogen in the food web is marine derived. So how is it important? Well there's direct consumption. Carcasses divide the food source in the rotting flesh and in the eggs. I have just recently crunched some numbers in my model and I figured there were about 670 million eggs deposited each year. Of course we all know that egg survival is small. But those eggs aren't wasted. They provide food and nutrients for all the other little critters. Nothing is wasted.

You're out walking on the streams and you slip stepping on algae on rocks and that algae is where the food web starts. That provides the base of the food for all the little bugs. And then the bugs are in turn eaten by the salmon. Then of course carcasses themselves attract insects. If any one here is a fly fisherman they know very well that fish love insects (END OF TAPE)

Questions and Answers