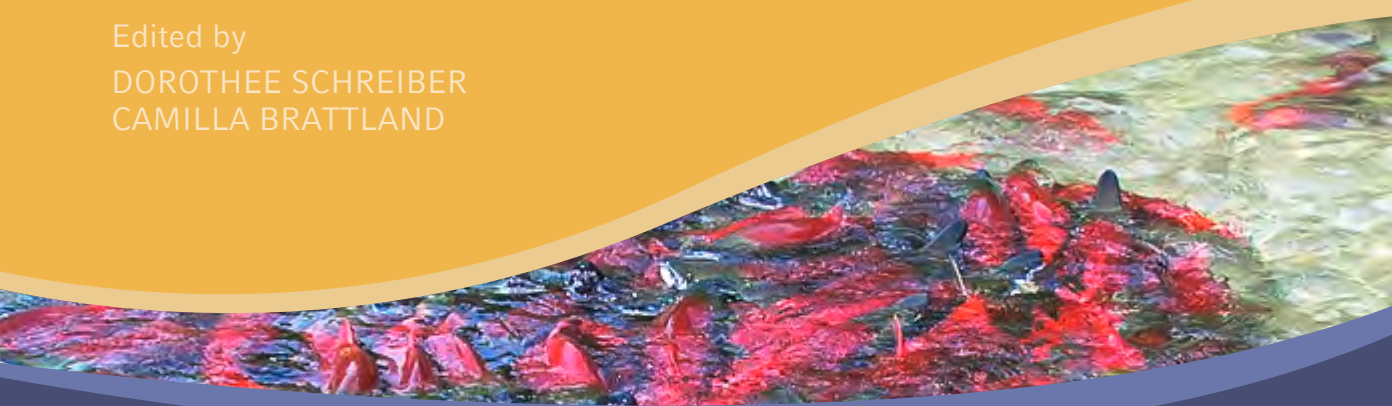
Rachel Carson Center
Perspectives

Salmon Cultures

Indigenous Peoples and the Aquaculture Industry

Edited by
DOROTHEE SCHREIBER
CAMILLA BRATTLAND



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Contents

Authors

Camilla Brattland is from Gáivuotna-Kåfjord, a Sami municipality on the coast of northern Norway. She began working on salmon politics as an employee of the Norwegian Sami Parliament. Camilla continued to be engaged in indigenous peoples' participation in marine resource management through her doctoral research on the governance of Sami seascapes and through the Salmon Voices network. She is currently employed as a researcher at the Norwegian Institute of Cultural Heritage Research in Tromsø, Norway.

Dorothee Schreiber is Canadian, and was a visiting fellow at the Rachel Carson Center from 2011 to 2012. Her doctoral research at the University of British Columbia examined the controversy over salmon aquaculture in British Columbia, in particular in the First Nations communities of the Broughton Archipelago and Clayoquot Sound. She is interested in the politics of Native-settler relations in Canada, and in the historical relationship between scientific study, natural resource management, and the dispossession of land.

For further information, news, and literature on the Salmon Voices Project see the Salmon Voices Website (site.uit.no/salmonvoices) and/or contact Camilla Brattland (camilla.brattland@niku.no) and Dorothee Schreiber (dorothee.schreiber@gmail.com).

Dorothee Schreiber and Camilla Brattland

Introduction

After the close of last year's salmon fishing season, with the nets stored away and the wild catch preserved, salmon people from both coasts of the north Atlantic and from as far away as the Pacific coast of Canada converged in Munich, Germany for a two-day workshop entitled "Salmon Voices: Indigenous Peoples and the Fish Farming Industry." The coastal Sami from the northern fjords of Finnmark, Norway; the Mi'gmaq of the Canadian maritime provinces; the Kwakwaka'wakw of the Broughton Archipelago between Vancouver Island and the British Columbia mainland; and the Ahousaht of Clayoquot Sound on the west coast of Vancouver Island—all are salmon people (fig. 1). Some are sea fishers, others river fishers; some have working agreements with fish farming companies, others are gravely concerned about the impacts of salmon aquaculture on their wild fisheries; some have fish farms in their territories; others do not, but know that the industry will expand there soon.

The southern German location of Munich, landlocked as it is, and thousands of kilometers distant from any of these communities, may at first glance appear to be a curious location for such a meeting. But the Rachel Carson Center for Environment and Society (RCC) convened this meeting on the 7–8 October 2011 in the spirit of fostering international and interdisciplinary approaches to environmental problems.

At a time when new resource frontiers are being mined, logged, and fished throughout the Fourth World, political relations between indigenous peoples and settler societies have taken on a surprisingly genteel tone. Dialogue and cooperation are in; contention and conflict are out. As will become clear in the contributions that follow, this form of silencing has forced indigenous communities, no matter where they stand on the question of salmon aquaculture, to innovate new ways of making themselves heard. Salmon aquaculture is an environmentally controversial industry. An intercultural and international dialogue on salmon aquaculture, this workshop was an opportunity for some of the indigenous peoples of coastal Norway and Canada to share their experiences of living in the presence of fish farms, and their hopes and fears for the survival of the wild salmon fisheries.

Salmon aquaculture is a globalized industry. Its rise to the pinnacle of production in the global seafood market has—as two Sami participants, Steinar Pedersen and Bjarne Johansen, pointed out—been accompanied by a sharp drop in salmon prices for commercial fishers. In British Columbia, three Norwegian companies—Marine Harvest, Mainstream (Cermaq), and Grieg Seafood—control 92 percent of all salmon farms, and one—Marine Harvest—produces half of the total farmed salmon output of the province. On the east coast of Canada, Cooke Aquaculture of New Brunswick dominates the industry and is poised to expand beyond the Bay of Fundy. Simultaneously, Norwegian companies are pushing further into indigenous (Sami) fishing areas in the fjords of the Norwegian far north, and the Mi'gmaq of Quebec and New Brunswick fear that salmon farms will soon be cropping up in their territories as well. Through their common reliance on this remarkable migratory fish, the indigenous salmon fishers share a common history. As indigenous peoples faced with a globalized fish farming industry, they are also thrown together by virtue of their common circumstances, and are now looking for a united voice—as Fred Metallic (Mi'gmaq) put it, "something which might support our joint dialogue, but which could at the same time strengthen our relationships within our own territories."

The presence of densely stocked net pens in sheltered ocean bays and inlets has raised concerns over the transfer of disease to wild fish and the effects of chemicals, excess feed, and veterinary drugs accumulating on the ocean bottom and in the intertidal zone. Salmon farmers say that risk can be managed by integrating key performance indicators into standard industry operating procedures. In contrast, Sami historian Steinar Pedersen and Sami salmon fisherman Bjarne Johansen spoke at the workshop

of the competition between salmon aquaculture and Sami fishers for fishing spots, and Bob Chamberlin of how Kwakwaka'wakw clam gardens were being inundated with fish farm sewage. Both Miawpukek Mi'gmaq and Sami fishermen have observed damage to local populations of spawning cod. In Norway, the Sami Parliament has a close consultative arrangement with Norwegian environmental authorities. The Ahousaht First Nation, like several others in British Columbia, has come to terms with the presence of fish farms in its territory, though not without keeping a close watch on particular sites and runs of salmon for signs of damage.

Also included in the discussions were two biologists (Katie Beach and Otto Andreassen), and a representative of Marine Harvest (Jørgen Christiansen), all of whom in their day-to-day work contribute much to discussions about the science and economics of salmon aquaculture. In fact, scientific study and hatchery enhancement, performed in the service of indigenous interests in food quality, fish health, and the viability of fish populations, has—as in the case of the Ahousaht First Nation and the Miawpukek Mi'gmaq—been part of a strategy of indigenous control over indigenous resources.

Indigenous peoples have their own ways of analyzing the political and historical currents of this controversy, wherein conflict is not a failure of resource management but rather the silhouette of indigenous governance in action. While academics spent the past few decades rediscovering traditional ecological knowledge as something else, "adaptive management" or "ethno-science,"indigenous people were busy doing what they have always done: fishing. Seen in terms of their relationship with the colonial state, they were also exercising their rights on the fishing grounds. Accordingly, dialogue and conflict were not opposing outcomes that depended simply on how traditio-nal knowledge, as an intellectual product, was *used*, but part of the ongoing struggle of indigenous peoples to reassert control over their traditional knowledge and territories. Therefore, we see that even in the seemingly most cooperative of places, such as the protocol agreement on fish farming between the Ahousaht First Nation and Mainstream Canada, an underlying tension illuminates the path to agreement. "If they had not met our conditions, they probably would not have been able to continue operating there. As Paul said, we've got bigger grenades than them. It's an isolated area, so our First Nations have a lot of control," Wally Samuel of the Ahousaht Nation pointed out. Similarly, a long struggle on the part of the Mi'gmaq community of Listuguj to continue fishing, despite arrests and financial pressures, has cleared the way

for the resurgent power of Mi'gmaq law to govern the fishery, and to face the salmon aquaculture industry with confidence. "We abide by our own laws: we've made our own regulations, we've developed our own conservation plans and you see success there," Isaac Metallic said.

These outcomes, made possible through struggle and contention, challenge the non-indigenous colleagues and supporters of indigenous salmon fishers, be they social scientists, biologists, or industry representatives, to recognize that the survival of salmon ecosystems depends on the survival of the salmon people. What connects these diverse salmon people is their ancient and ongoing relationship with the salmon: lineages of fish that, in their migrations back to the rivers of their birth, bring life—food—to the indigenous people of those same fjords and river systems. For all of the salmon people, fishing is—or was, until thirty or forty years ago—a livelihood. It is also, we heard, a source of joy. As Håvald Hansen so aptly puts it: "tradition is not about how you fish, but why." All the indigenous fishers at our workshop told of being pushed to the margins of the commercial fishery, a common experience with an increasingly capitalized fishery regulated for the benefit of the newcomers. Ross Hinks described dams obstructing the passage of fish up rivers, while Fred Metallic and Isaac Metallic told of being harassed and criminalized on the fishing grounds. The long-time fisherman David Frank witnessed firsthand how Ahousaht's wharf emptied of boats. Håvald Hansen reported that, as in Canada, indigenous fishers were accused of destroying the returning spawners by fishing in rivers or the nearshore waters. Bjarne Johansen spoke of the regulatory struggles of the Tana fjord fishermen who continue to eke out a living from the sea.

The strength of the indigenous voice at this workshop came from the diversity of its participants, and from the many viewpoints and experiences that converged in an extended, two-day conversation about salmon. It was the first time, to our knowledge, that coastal indigenous peoples from the two continents had met to discuss the wild salmon fisheries and the salmon aquaculture industry. Sami and Canadian Indians and Inuit have met before as partners in the development of a global indigenous rights movement, through conferences and organizations such as the World Council of Indigenous Peoples and the United Nations Permanent Forum on the Rights of Indigenous Peoples. But in these meetings and organizations the focus has been on land and legal principles, rather than on water and local and global material concerns. Policy makers and scientists now view the ocean as another (possibly the last) frontier of resource

extraction and development, and are paying close attention to the global trade and consumption of seafood. "More than 70 percent of our blue planet's surface is covered by ocean, but we still only get about 3 percent of our food from the sea. The amount of farmed fish raised in the sea is clearly growing, and, seen in historical perspective, the sea cage could be considered as important to aquaculture as the plough is to agriculture," said Norwegian fisheries researcher Otto Andreassen. Fred Metallic's elders have also been urging Fred to pay more attention to how outside interests are jostling for control over the ocean. "About ten or fifteen years ago I asked an elder about the land. He said 'never mind the land, you've got to start worrying about the water.'"

In Norway, recognition of the Sami nation's fundamental rights as a people is based on international law; in Canada, indigenous rights, including the historic treaties, are protected as a class of constitutional rights under domestic law. Despite these differences, the Sami and First Nations people who attended this workshop had similar expectations of how consultation would proceed, even in highly controversial situations where valuable natural resources are at stake. Norway and Canada are now signatories to the United Nations Declaration on the Rights of Indigenous Peoples, and, while it remains to be seen what that means in practice, Canadian First Nations people are eager to explore how they might coordinate their lobbying efforts with those of Sami and other indigenous peoples around the world. The right to say no to resource developments (which Bob Chamberlin argued is often trumped by notions of "progress," or as Ross Hinks put it, subordinated to the survival of "just a few [wild] salmon"), or the right to refuse certain sites or aspects of industrial development (such as the rights described in the Ahousaht-Mainstream protocol agreement), derive directly from indigenous authority, and not from science—even if that science is undertaken by indigenous peoples themselves. Claims of risk and damage made by indigenous leaders can be supported, Marianne Balto of the Sami Parliament argued, by institutionalizing, systematizing, and rendering visible traditional ecological knowledge. Familiar stories of ecological change would, thereby, need to make room for indigenous interpretations of ecological patterns and processes.

As the following essays demonstrate, the salmon people have been innovators of everything from fishing technologies and scientific studies to political organizations and coalitions. A number of settler-Canadian and Norwegian biologists and industry representatives are working with indigenous peoples to minimize the impact of this growing

seafood sector on indigenous territories and fisheries. Indeed, as we heard repeatedly during the course of this two-day workshop, the survival of wild salmon depends on it. All the participants in this workshop said that they believed in dialogue. We do too, and look forward to watching how the international network established in October of 2011 grows and develops.

Authors

Fred Metallic is Mi'gmaq from Listuguj, Quebec, and works in his community as a researcher, community organizer, and educator. Fred holds a PhD from York University. His dissertation, entitled "Ta'n Teli'gji'tegen 'Nnu'igtug aq Ta'n Goqwei Wejgu'aqamulti'gw," was the first PhD dissertation in Canada to be written and defended in an indigenous language. Fred is the former director of research for the Mi'gmawei Mawiomi Secretariat, a land claims organization, and previously taught at St. Thomas University in New Brunswick. Currently, he is working with community organizations and with the First Nations government of Listuguj to develop community-based sustainable natural resource management plans. Fred is a *Gept'n* (delegate) on the traditional governing body of the Mi'gmaq, the *Sante Mawiomi* (Grand Council). As a Gept'n, he works to advance awareness of indigenous rights and responsibilities to his nation's ancestral lands, waters, and resources.

Isaac (Ike) Metallic is Mi'gmaq from Listuguj, Quebec, one of the largest Mi'gmaq communities on the east coast of Canada. Ike is a well-known salmon fisherman, and he is a respected elder in his community and across the nation. He has five grown children and ten grandchildren. He is a firm believer in Mi'gmaq culture, language, and rights. From a young age, Ike began working to support his family, first in the woods and then as a high-steel ironworker in the United States. During his working days, and continuing today, he has always made time to practice his fishing rights by fishing for salmon, trout, eels, lobster, and crab. As an elder, Ike sits on numerous committees and councils that deal with resource management issues, fishing rights, and land claims.

Fred Metallic and Isaac Metallic

A Mi'gmaq Perspective on Wild Salmon Management and the Salmon Farming Industry

Fred Metallic
When we thought about coming here—something we've actually been planning for a few years (not this particular event, though our objective in coming today is a long-standing one)—we knew that we wanted to connect with the Sami people. We came intending to talk about the wild salmon, and about how we use that resource for our lives. We wanted to know what some of the common issues are, and to find something to take away from this conversation about fish farming: something which might support our joint dialogue, but which could at the same time strengthen our relationships within our own territories. I understand that elsewhere there is contention with the industry, and we have issues as well.

It has been said, when talking about sustainability, you have to look at the environment; you look at the social, you look at the institutional, and you look at the ecological. When we think about sustainability and consider what we're trying to promote in development, we find that we're trying to promote the protection of that *relationship* and the right to make decisions about how we're going to be involved from one time period to another. So in the first part of the presentation I would like Ike to talk a little bit about his experiences, and about our right to be involved, not just as beneficiaries but as managers. I think that hearing from our people is important.

Isaac Metallic
I don't have a very high education, but I went through life with my experiences. My community invites me to their conferences, and I sit there as an Elder and observer. I am a person that really believes strongly in our treaty rights. I'm one that practices our treaties. When I was younger and went to school, I was taught that I was not supposed to speak my language; I was supposed to speak English. They used to tell me that I'll go to hell if I didn't. But anyways, that's not the reason why I'm here. I'm here because we are a family of fishermen; my father was a fisherman, and he taught me when I was very young about fisheries. He died when I was nine years old. My brother was also into fishing. At that time we were fishing for smaller fish like trout and

other species, but for some reason or another we weren't allowed to fish salmon—I couldn't understand that. I used to hear an odd word here and there about us having a right, but at the tender age of 10 or 11 years old I did not understand what the treaty right was. Nobody ever taught me what the treaty was. I know we had a right, from our elders. Later, at 13 or 14 years old, I started asking questions, like "how come we cannot fish salmon?" Later on I asked one of the elders, "how come we can't fish salmon? What happened?" I found out that somewhere along the line we had made a verbal agreement that in return for jobs, as guides, we would not fish salmon. I didn't recall that, but that's what the Elders were telling me. The lodge owners hired people there to work in their sport fishing camps, which they called salmon clubs. Our people would drive wood in springtime, because guiding sport fishers was only a seasonal job for them. And these people—our people—were promised jobs, so they *wouldn't* fish salmon.

So that's what happened. And over the years, there were 30 Native people fishing as guides, and if one person died they were replaced by a non-Native person. That continued down the line. There used to be a mill down the road. However, soon the mill and logging camp closed down. I found out from the elders that this verbal agreement—the agreement to not fish salmon in return for the jobs people were given—only lasted until the jobs were gone, and so what about the fisheries then? It became the accepted law for us not to fish. There were a few people that used to fish at night who were labelled at that time as poachers, and I really didn't like that word. So over the next few years we used to fish in the nighttime. By that time I was about 14 or 15 years old. I always asked the question: "If we have a right, why are we sneaking around fishing?" I started to learn more about the ideas people were talking about—treaty rights and stuff like that. The more I heard about it, the stronger I felt. I said, "These people aren't going to stop me fishing. I'm going fishing. I'm going to go right ahead." I had a hard head. That went on for years. More people got back into fishing after that, and nothing happened. It seemed to me that the wardens didn't come up to our fishing spots, and didn't bother us. I said, "well, there must be something they know, since they're not bothering or arresting us." So more of our people got into it, and after a while I guess the people from the other side, the white communities, were complaining that there were too many people fishing the area. And of course the anglers, the sport fishermen, were complaining that we were taking all the salmon out of the water. A lot of the news media were really talking badly about us, and I didn't like that. Really, I didn't like that.

I'll say it again: I've got a hard head. When somebody tells me not to do something, I'll do it the opposite way. I'm going to go ahead and fish, and I won't let anyone stop me.

Over the years we kept on like that, and we had a lot of fights after that. They started putting wardens on the river, and sometimes we had a tug-o-war, with them pulling one end and us pulling the other end of the net. And in the 1970s, 1976 I think it was, the government saw that there were too many people fishing, and they thought maybe they'll get us out of the river by giving the band—the chief and council—some money for people to work on the reserve. So in exchange for our fisheries they gave us around $400,000 for two thousand people to live off of. How do you support two thousand people with $400,000? You can't give jobs to everybody, so there were only a few select people who worked. We didn't like that, so we opposed the agreement. Naturally, in the next few years, some people were arrested. I was one of them, I was arrested. And there were other people being charged for illegal possession of salmon. But after 1976 the trouble started. The band negotiated an agreement; they got so much money, and that's when the trouble started. More people were charged. After they started making the agreements, the Quebec government cut us back in our fishing efforts. One year it would be five days fishing, the next year it would be four days of fishing. When they cut us the last time—down to three days of fishing—that's when we said "no, we're going to keep on fishing without an agreement." In 1981 they sent in the army. We call it the army, but it was actually the Sûreté du Québec (SQ), the Quebec provincial police. Five hundred of them entered the reserve and they were heavily armed. They raided the reserve, but after they left, we put our nets back in the water. They had seized all the nets—well, not all of them, since we still had some nets, and other communities donated nets for us to put back in the water, so we put those back in.

The SQ came back a week later, but they didn't enter the reserve. So after that the government negotiated a longer-term agreement, which put us back at five days of fishing per year. In 1991 we turned around and said, "this is not working for us, so we're going to try to take over the management of our fisheries." We said that we have treaty rights, and that we're going to exercise those rights. In order to do that, we formed the Rangers. In 1990 or 1991, we told the government that we were going to take over our own salmon fisheries. At that time we had six Rangers out on the river. The Department of Fisheries and Oceans (DFO) and provincial wardens moved out

and let us take care of the fisheries. Even today, we still have our own Rangers taking care of our own salmon resources, an arrangement that is working out well. There are no more violations, and nobody is getting arrested. We abide by our own laws: we've made our own regulations, we've developed our own conservation plans, and you see success there.

At the present moment, we're trying to take yet another step towards taking over our fisheries. We're trying to develop a management plan for our lobster and crab fisheries and then maybe other species a little later on. We could go even deeper into fisheries management. So this is where we are today, and so far so good.

Fred Metallic
Our national territory, our homeland, is called Mi'gmaqi, and we are from Listuguj on the Gaspé peninsula. I'm an academic researcher, activist, and fisherman. I also sit on the Grand Council—the traditional governing body of the Mi'gmaq people. I fish commercially for rock crab and lobster. As a research and policy developer, I assist communities in developing management plans so that they can assume more responsibility over the management of resources within their territorial waters.

People don't understand indigenous visions for resource management and how it relates to restoring relations. We've seen what government has been able to do with resources: extract resources right to the point of extinction. We are very concerned about that, because resources are not just resources. The salmon is not just a salmon; the salmon is family to us. And it's really hard to get people who speak the English language to appreciate that the salmon is not just a noun, not just an object. It's actually something very real, very significant to our life. It has sustained us for generations and generations and generations. It has taken care of us economically. It has taken care of us socially. It has taken care of us culturally, politically, and spiritually. You have to try to appreciate the indigenous people that occupy a territory, and that their vision of resource management is about restoring relations and being mindful of future generations.

We are responsible for what we call the Seventh district of Mi'gma'gi: Gespe'gewa'gi (fig. 1). Listuguj is located on the Listuguj River, the biggest salmon river in Atlantic Canada, next to the Miramichi. In all, we have seven districts—southwest Newfound-

Figure 1:
The seventh district of Mi'gma'gi: Gesp'egewa'gi. There are eight federally recognized First Nations in Gespe'gewa'gi.

land is also included in this—and we signed a number of different treaties, called a Covenant Chain, with the British Crown between 1725 and 1779. These provided us with a framework by which we could work together to assure that there is stable social, political, and economic development for the newcomers, but at the same time ensuring that we don't interfere with indigenous management of resources and indigenous development. If indigenous people want to harvest, manage, and use resources for economic purposes then that's their right. However, what happened historically in eastern Canada, in Mi'gma'gi, was that Canada felt that indigenous peoples were no longer needed for resource development. As Mi'gmaq, we are told we "lost hold" of our territories sometime in the mid 1800s, that's 160 or so years ago. I often say: if indigenous people occupied their territories for ten, eleven, or thirteen thousand years, as some Western scientists have been saying, then surely they must have developed laws, surely they must have developed resource management regimes, surely they must have developed protocols on how they're going to share resources, surely they must have developed an understanding that allowed them to exist in their territory and have the kind of life that they had. And I'm not projecting some kind of romantic image here—we've had our own difficulties, but I think that we haven't paid enough attention to the knowledge, language, and laws that indigenous people have created from living within their territory. We often ask indigenous people in resource management planning to give us their thoughts on a resource issue, and we take that information and

repackage it under some kind of Western scientific paradigm, essentially exploiting indigenous knowledge and missing the opportunity to jointly develop regimes that are more appropriate to indigenous needs.

We deal with the DFO quite a bit, and the DFO has come up with five management areas that they want to assume some authority over, in terms of the aquaculture development. Now, as I said earlier, there's a moratorium in our area, where no aquaculture development is allowed at all. There is some aquaculture development in the southern part of New Brunswick. And the company that runs the industry down in that part of the territory is called Cooke Aquaculture. Cooke Aquaculture used to be a family-run business. However, it recently bought out Condorax and companies in other countries, so it's become an international company. I believe it has plans to expand into Nova Scotia, which is well within our national territory—the traditional district of Gespgugwi'tg, Mi'gma'gi (southwest Nova Scotia).

The Mi'gmaq leadership has spoken out on the issue of aquaculture expansion within traditional territories. The leadership has finally said, "from here on in we want a zero-tolerance policy on any new facilities within our traditional territory, that is, until we know for certain that there aren't going to be the kinds of environmental and ecological impacts that people are talking about." Our salmon populations are declining, and everybody is pointing the finger at the aquaculture industry. Right or wrong, everybody is saying there is something going on with that industry that seems to be related to the decline. And DFO's policy now is that if we don't know for sure, then we should take a precautionary approach. If that is the case, and if we don't know for sure whether or not there's a direct relationship between salmon aquaculture development and the condition of our wild salmon stocks, then why hasn't it stopped the industry from setting up shop in our traditional waters? And the other thing that we're very concerned with is the privatization of resources and our waters. For many, many years, we talked about the land. About 10 or 15 years ago I asked an elder about the land. He said never mind the land, you've got to start worrying about the water. And the water now is starting to change. We read the literature that comes out of British Columbia about the clam beds and so forth. That tells us that we need to pay attention to our territory. We need to pay attention to the changes we are seeing, and we need to start monitoring things going on in our environment, to see whether or not there is something related to this industry that is coming into our territory.

Incidentally, Cooke Aquaculture produces 25 percent of the total aquaculture production in Canada. I hear that they are thinking about buying out Clearwater. Clearwater Seafood owns about 90 percent of the lobster licenses in Atlantic Canada. So if Cooke buys out Clearwater, and most of the licenses along with it, what's going to happen? The people who are speaking up the most about Cooke in our territorial waters are also lobster fishermen. So there's something going on here, and there's something going on with industry that's not necessarily contributing to the kind of conversation that we need to be having. I know that when we have conversations between the Grand Council, the Indian Act leadership, the fishermen, and everybody else, nobody really has more to say than what we, the Mi'gmaq people, have to say. I heard somebody say today: we need to be having this conversation, and we need to be having this dialogue over a long period of time so we can get some consensus on what the issues are, and how we're going to move forward and deal with those issues.

Too often people come to our communities wanting to consult with us. In those cases there is a letter, meeting, or involvement in program planning that constitutes some kind of consultation. But consultation to us means that we exercise our right to manage the estuary and the watershed, and insist that we follow the laws that we've known for years. We call it the *Netugulimgewe'l*, this is the name of the resource law that we apply in the management of our resources. It took a long time for our elders to come up with that word, that understanding, and say "this is how we're supposed to manage." It just didn't come from someone sitting at a computer saying "this is how you should do it." It took community involvement and discussion with our leaders to decide this is how we should manage, based on our understanding of where we come from, what our needs are today, and what we need for tomorrow—because, ultimately, who is at stake? It is the salmon and our children. So when we make decisions, it's not just rhetoric that we think about our future generations. Real lives are going to be impacted.

I appreciate what our brothers are saying in British Columbia. About 20 years ago we had a major conference in Campbellton, New Brunswick, a time when we were in the midst of the salmon crisis. The First Nations all across Canada were saying, "we need to be exercising more of our rights and title to our territories, and start managing these resources based on our laws." If we exploit and extract to the point of extinction,

then that is not sustainability. The philosophy that you can take whatever you want, as much as you want, for your individual gain, doesn't work for us. We've tried to negotiate and persuade, and we've put up blockades. Eventually, we took the position that we were just going to have to do resource management by ourselves. I appreciate the initiatives that are going on in our various communities, and there's something there that we can learn from. If we ever decide to adopt the finfish aquaculture industry as part of our economic strategy, then we will do so after some careful thought, and only with some understanding of what the real impacts on the environment may be. Though we didn't know anything about the aquaculture industry six months ago, we do know a lot about salmon fishing and how to manage resources, and we do have a vision for our lands and waters.

Sometimes it's hard to get people to appreciate how we are different. But our philosophy is you don't polarize views, and you try to appreciate the differences, but you have to find a way to respect that difference. The indigenous people have a vision for their territory. The question is: how do we respect that and work with that, without indigenous peoples having to change—to accommodate—another world view?

Author

Håvald Hansen is a Sami and general manager of the Sami Trade and Development Centre in Tana. He fishes for salmon in the Tana River with both rod and nets, and works as a journalist at a local newspaper. He is passionate about preserving the traditional river fishery, a cultural tradition in danger of dying out. Through his family's harvesting traditions and his professional work, he has a good understanding of the economic and cultural importance of salmon to the people of the Tana River valley.

Håvald Hansen

Fishing Traditions on the Deatnu (Tana) River

My name is Håvald Hansen, and I will soon be 42 years old. I'm from a small village called Fanasgieddi in Tana. The name means something like a landing place for boats, or field for boats. My presentation will be mainly based on my background living in this village, and not based on the study of history, biology, or other academic disciplines. I work as the director of a small company in Tana called Samisk Nærings- og Utredningssenter, officially translated as the Sami Trade and Development Centre. Our knowledge, leadership, and employees have changed, and nowadays our projects are mainly about Sami language and culture. But we also participate in studies of traditional Sami knowledge and nature use in Sami areas in Norway, Finland, and Russia. My presentation will mainly describe fishing traditions that are still in use and how they have been carried out in daily life from the late 1970s until today. I will also concentrate on net fishing and on spinning.

From my point of view, tradition is not about how you fish, but why! In my way of thinking, newer trends in fishing, such as catch-and-release, demonstrate a lack of respect for nature and creation. Salmon is a resource given to us; it is a clean and healthy food. As a source of monetary value and a food resource, it sustains us through many months of the year. According to my neighbor, however, from a modern point of view, we Sami are quite barbaric since we actually kill fish.

Figure 1: Small (lines) and larger (dots) Sami settlements on the Tana River (ČálliidLágádus Press, Mihkku Solbakk).

We have about thirteen thousand kilometers of salmon rivers in Tana, and that includes all of the tributaries. The Tana River is a border river between Norway and Finland. I grew up following my father when

he was fishing in the Deatnu, or Tana, River: jumping between big rocks and sitting in the front of a small row boat that he navigated through strong, scary currents. The season was three months long and it was possible to make a living by fishing, catching about 75 kilos a week, or approximately 10 fish. Actually, our people fished all summer long. I remember many summers spent on the Deatnu River with my brother. As explained in Steinar Pedersen's essay, salmon fishing had a considerable effect on peoples' income in those days. My family is a good example of that. In fact, the income derived from nature (fishing and cloudberry picking) made it possible for my father to build his farm to its current extent, and it also financed my older brothers' education. This tells us that it was actually possible for a family to earn a yearly income from a few months of fishing. My brothers learned early on that the fish they caught made up a part of the family's income; the more rods that were fishing, the bigger the income for the family as a whole.

When salmon farming first began, my father said it would destroy peoples' ability to make an income from wild salmon. There was a fish farm in the Tana fjord in the early 1990s, but now it is gone, as fish farms are no longer legal there. Many fjords in Finnmark have fish farms, but not in the Tana fjord, because of the importance of the river as a wild salmon river.

Of course we do occasionally catch farmed fish; the percentage is very small, but those are only the ones we catch—we don't have any real numbers on how many escaped farmed salmon are actually in the rivers. According to the statistical bureau of Norway, the salmon aquaculture industry last year outgrew all the wild capture fisheries in Norway to become the largest fishery in the country. In my opinion, fish farming has had an enormously negative effect on Sami traditional salmon fishing. It is not possible for the younger generation (like me) to have part of their yearly income derive from salmon fishing. But are our voices enough to stop an industry that is bigger than all the other fisheries in Norway? I heard that in Canada many salmon fishermen fish for their own consumption, just as we do, and that fish farming is having an effect on their fisheries.

The *buođđu* (salmon net) is an old method of salmon fishing. The fish meets the net on its way up the river, follows the net, seeks a way out and, naturally, tries to swim downstream to where the river is deeper. There it swims right into the bag-like end of

the net. It can't turn around and gets stuck in the net. Building this kind of fish trap is hard work, but it's effective. You can fish for about three days, from Monday afternoon to Thursday afternoon. Fewer and fewer of these kinds of traps are being used. In 1984 altogether seven hundred nets were set for catching salmon, and by last year that number had dropped to around two hundred.

My father's preferred method of fishing was spinning. He also tried fly fishing, because those sorts of rods were available. People of his generation tried all different kinds of fishing techniques; the point was to catch the fish. Actually my uncle was probably one of the best fly fishermen around—he really learned that technique. But spinning was a fishing method that used lures, and for us lures didn't go deep enough to catch the fish. So he made some adjustments to the lures.

To fish salmon with drift nets you have to be a landowning farmer. My neighbor has the legal right to fish with nets, because he owns land and harvests two thousand kilos of hay, as required by law. In my family, it's only my older brother who can fish with a net, because he owns land and therefore has the right to fish. So when I am fishing—drifting—I have to do so with my neighbor, because he owns land by the river and has this right. This is an old law, it's from 1888. The idea was that you had to own land, and you had to speak Norwegian and be a part of Norwegian society in order to get access to the fishery. A local management body has now been established to regulate fishing in the Tana River, replacing this old law.

When we drift net we just throw the net out in the river and drift downwards. The net is approximately 40 meters long, and between four and seven meters deep. We drift the net five hundred meters, and, well, it's quite fun. And that is one of my points also. It's not just about how we fish, it's why we fish. When I read old Sami history, I can see that they were only thinking about how they can catch the fish—that was the main goal. In the upper parts of the Tana River we have seen an increase in the number of sport fishermen on the Finnish side. And, of course, there is competition between those sport fishermen and the Sami fishermen who fish with rods or nets. Some of the best fishing spots are inaccessible to us Sami, because so many Finnish sportsmen are on the river fishing from boats.

And of course, when the sport fishery first began, more rules and regulations about fishing technologies and practices were introduced. Whenever the fishermen got new ideas about fishing, the authorities made new laws. For example, at some point we were required to anchor our boats instead of rowing them while fishing, and, when outboard motors started being used in fishing, they made it illegal for us to put out our lures with the engine running.

This is of course a touchy topic. I am speaking on behalf of my background as a net fisherman, but in our community there are many other salmon voices. Many of them are themselves excluded from net fishing, and/or don't have any interest in it. Therefore, there are voices that say that we should stop all kinds of net fishing, or at least reduce it considerably.

Figure 2: This salmon was caught a few hours before the close of the net fishing season on 15 June 1984. It weighed 26 kg, or 57 pounds, and my uncle and cousin who are in the picture are both five foot six (Courtesy of Håvald Hansen).

The price of salmon is threatening to traditional fishing in many ways. Because it doesn't generate any income, it is no longer possible to earn a living by selling fish. It has considerable value, but not economic value. Even if the price of salmon is too low to be able to make a living from it, there is still a local market where people are willing to pay for salmon. But of course, it is a very small local market. This means that the younger generation does not see the point of learning how to fish using these traditional methods. In the same way the older generation is not eager to give their knowledge away to the younger generation. Traditional knowledge is an important issue for us in the Sami community. It has been particularly difficult to get the authorities to accept traditional knowledge concerning year-to-year differences in the amount of salmon that return to our rivers.

The point is that this is a part of our lives: we want to fish. If this culture—net fishing, but also traditional spinning in the Tana River—were to disappear, we would be poorer as a people. This is a part of our lives and we want to continue with it.

Author

Bob Chamberlin was elected Chief of the Kwicksutaineuk Ah-Kwa-Mish First Nation in 2005. He has been actively involved in the community's comprehensive planning process, pursuing capital resources and undertaking activities for nation-strengthening and community development. Bob is a traditional singer of the Kwakwaka'wakw people, and is also involved in digitizing and restoring recordings of songs and history. He is Vice-President of the Union of British Columbia Indian Chiefs, and has been active in promoting awareness of the effects of salmon aquaculture in the Broughton Archipelago.

Bob Chamberlin

Delay, Deny, & Distract: Musgamagw-Tsawataineuk Experience with the Aquaculture Industry

Gilakasla. My traditional name is Owadi, and I'm the elected chief of the Kwicksutaineuk Ah-Kwa-Mish First Nation of the Musgamagw-Tsawataineuk peoples. In my introduction in the Kwakwala language, I acknowledged the knowledgeable ones that have gathered here today. I acknowledged my relationship with the Ahousaht First Nation and my new friendships with the Sami, and recognized that we are on foreign lands where we don't enjoy aboriginal rights like we do back home. I asked you to please hear my words, and to hear the words that I'm speaking from my heart for our people. My message is one that I try to carry everywhere that I go, because when I'm through with my presentation you'll see that our people have not been heard by the government. I want to acknowledge Jørgen from Marine Harvest. I'm grateful you're here. I've always thought it's better to be hard on the issues than the people, and to be upset with the game rather than the players.

I've entitled my presentation "Delay, Deny, and Distract," as this has been our experience with the government and industry. They would rather talk than change their business practices, that is they want to distract you while their business continues. They'll delay anything they can, and I've experienced this with our provincial government.

Within the Musgamagw-Tsawataineuk Tribal Council, which is the political body that we are affiliated with, we have: the Dzawadae'nuxw First Nation and their traditional village is Gwa-'yi; the Gwawaenuk and their village is He'ghums; Kwicksutaineuk and our village is Gwa-yas-dums; and for the Haxwa'mis people the traditional village is Atla'ko in Wakeman Sound.

There was a time when our tribal council saw aquaculture as an opportunity, but that quickly passed. We've stood opposed for three decades and two generations, and I say that because my uncle Peter—who's my mum's oldest brother, and is named Ki'nakwala'gyalis-Tsan'da'gyun—is one of our very high-ranking chiefs within our traditional ways. His words and his wife's words resonate through our village today and we rely on his knowledge of our territories.

In 1997 the British Columbia government was in charge of licensing salmon farms, and they mapped the areas that they said were not good for fish farms, based on tidal flows and the physical attributes of our territory. Those places were consistent with the ones my uncle Peter had identified as sensitive areas. He had engaged with government at the very start of this mapping exercise, saying "don't put them here or here or here," in order to respect our traditional food sources. Lo and behold, those were exactly the places where the fish farms were put.

We have growing concerns over the changes that we are witnessing in the salmon populations and on our clam beaches (fig. 1). We've always talked about the importance of the abundance and quality of our food sources. Today we're finding black clams—clams that if they're not black smell awful when you steam them. I've had family members steaming mussels run out of the house to dump them out because they have such

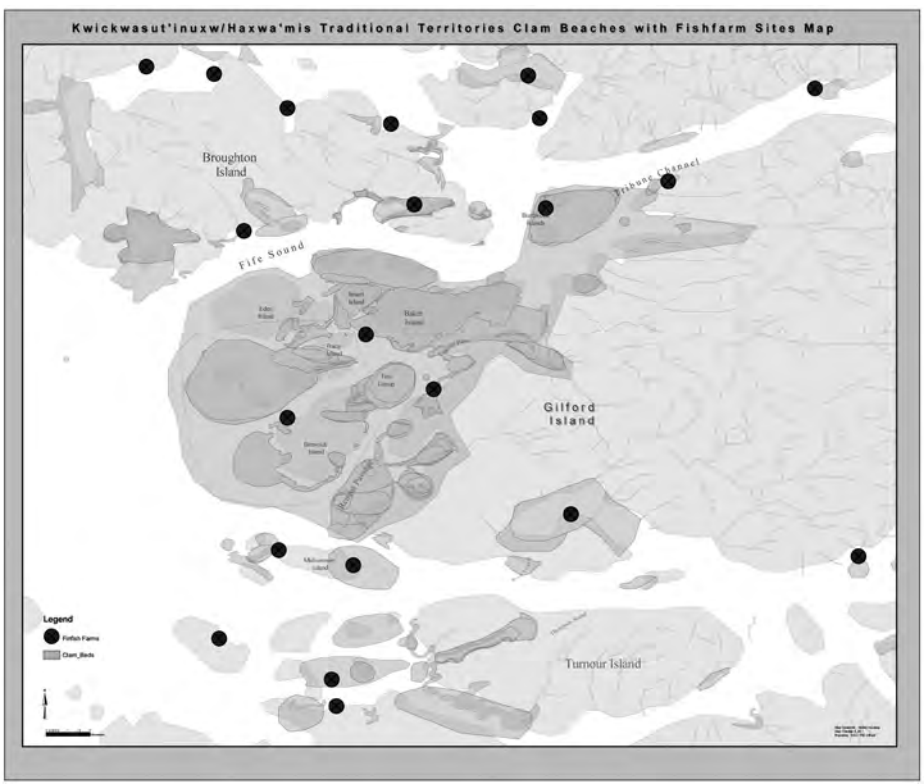

Figure 1: Clam beaches (lines) and fish farm sites (dots) in the Kwikwasutinuxw-Haxwa'mis First Nation territories (Kwikwasutinuxw-Haxwa'mis First Nation).

an awful smell. This is an example of traditional ecological knowledge. There's been only one change in our territory, and that's the presence of fish farms.

I'm certainly not an engineer, but I believe that if you release waste material from fish farms into the tide, it will only go so far and then settle, and that's what we're finding in our territory. We now have algal mats on our clam beaches. Way back before visitors came to Canada we had clam gardens. At low tide we would gather rocks and use them to build a wall. That effectively limited how far the clam eggs could move, which enriched the number of clams on that beach. So we embraced aquaculture and understood how to make it work for us.

Today we have a number of Canadian Supreme Court rulings—the Haida and the Taku Tlingit cases are examples—that direct the Crown to meaningfully consult and accommodate First Nations' rights. This means business-as-usual is no longer acceptable. Those are the actual words from the judge's ruling. Even when a fish farming license simply has the *potential* to infringe on our rights and our title, there is a duty to consult and accommodate.

There was a time when we First Nations of the Musgamagw Tribal Council affiliated ourselves with the Coastal Alliance for Aquaculture Reform (CAAR), which is a coalition of organizations trying to work together to advance our common interests. Out of this work we developed the Framework for Dialogue, which took considerable time and effort to build. The intention of the work was to foster discussion in support of constructive, efficient, interest-based results, and to increase knowledge about the environmental, social, and economic dimensions of fish farming.

This was immediately misrepresented by the industry to the media, and what I mean by that is that a spokesperson for Marine Harvest wasted no time in contacting the media and reporting that this demonstrates that the First Nations of the Broughton Archipelago agree that salmon aquaculture is a sustainable industry. I was livid, because that was not the intention of the framework. I see this sort of misrepresentation time and time again from the industry, as well as from the government.

But at this point, cracks started to appear within CAAR. My opinion is that when you are a non-governmental organization, you are constantly looking for financial resour-

ces to keep your doors open and to function as an organization. So what happens then is that you must demonstrate progress in the work that you do, in order to ensure another year of funding. I've found that many of these environmental groups are willing to accept deals that were developed by industry and government, but which are completely unacceptable to us as First Nations. I recommended to our people that we leave CAAR, because the split in our approaches was so fundamental.

In 2006 there was an international merger between Marine Harvest and Pan Fish. Within the provincial regulation structure in British Columbia, there is no mechanism to transfer licenses from one company to another. That fact forced the provincial government to consult and accommodate our First Nation, because the licenses had to be reissued to the new company.

That's when we looked to the Haida and the Taku Tlingit court cases, which said that we must be consulted and accommodated. But the province was very much accustomed to doing business as usual. They liked to have coffee with us, and maybe a Danish, and then just issue the licenses and say "well, we considered your information." That's a bit of language you hear from the government all the time; rarely will you hear them say that they've included or incorporated our opinions or a definition of our rights in their plans. So no meaningful accommodation was delivered to our people—the licenses were issued exactly as they were in the first provincial regime. There was no change made to the license conditions or anything at all.

The Coordinated Aquaculture Management Plan (CAMP) was put together by representatives of the industry and the current provincial government. The farms are spread out across our territory, so what they wanted to do was to move all the active fish farms to one side of our territory one year, and move them all to the other side in the alternate years. But the problem was that they wanted to maintain present production levels, so that required a doubling in size of all the farms in our territory. Now, keep in mind that they had already intended to double in size before they came up with CAMP. So what they were saying is "look, it's a fallow strategy, this is good for you," but what was actually happening was that they were fulfilling their initial goal of six or seven years prior, which was to increase overall production. So we could not support this plan. I could not in good conscience stand in front of our people and say "we found the solution to our problems with fish farms; we're going to let them double in size." I could see my uncle

trying to track me down if I'd done that, but the CAAR thought this was a way of demonstrating progress. Of course it was unacceptable progress to our people.

I took part in the Provincial Government-First Nation Leadership Council Aquaculture Working Group. The Leadership Council is made up of the executives of the Union of British Columbia Indian Chiefs, the First Nations Summit, and the British Columbia Assembly of First Nations Regional Chiefs. This group was created under the province's New Relationship plan, wherein the province said that they recognized and acknowledged aboriginal title, that they wanted to reconcile past infringements, and that they wanted to move towards a shared decision-making model. The provincial government said that they wanted to look at a new way of doing business through ecosystem-based management, sea lice science, a fallow strategy for our tribal council's area, and First Nations monitoring and closed containment. So we said to them, "if you mean it, then we want to see a fallow strategy for the Broughton Archipelago," which is the territory of our peoples.

And this is where I really had my eyes opened to the strategy of delay, deny, and distract: We would have a certain amount of discussion, moving us so far, and then when we got together for the next meeting they would remember things incorrectly. So we would spend a good portion of the meeting reviewing and working towards a common understanding of what had occurred at the previous meeting. We would talk a bit more, and then we would do the same thing the next time around.

The First Nations Fisheries Council was formed a number of years ago, and it's made up of representatives from 14 regions. We had a gathering in Harrison and we developed the Statement of Solidarity on Aquaculture. Very front and center to that document—which became a resolution that went to the Union of British Columbia Indian Chiefs, First Nation Summit, and the British Columbia Assembly of First Nations—was that the First Nation of a particular territory is the one that needs to be respected for their decision-making authority. I made a trip to speak with our Nuu-chah-nulth family, where I got to sit in front of 30 of your *ha'wiih* and 15 of your political chiefs, and I was the only Kwakwaka'wakw person in the room. I said to them that we recognize your authority and that we never wanted to question the decisions you make. Although we face the same challenges, each of us, as leaders, decide on different ways forward that are acceptable to our peoples.

So at this point, the Aquaculture Working Group was reinvented by the federal government. Well lo and behold, they transferred somebody from the provincial government—his name was Gary Ray—and he was the guy that kept bringing us back to the earlier sessions of delay, deny, and distract. He has a very clear set of skills, which is to pretend we're talking, all the time carrying on with business as usual. What these people from the province like to do is work at the very last minute. As soon as you start to develop a working relationship, where it almost seems like they're actually listening, then that person is gone. They bring in somebody new, and then you have to bring them up to speed on the issues and your interests, so industry can carry on as they always have.

Our people were clam diggers and fish eaters. We're very proud of both of those things, because it defines who we are in our territories. And we've built a very rich and diverse culture based on that. I was very grateful to be able to come here, to hear that there is a way forward based on international standards. I think that if we can arrive at a common indigenous people's perspective on this industry, then we can gain some assurance that our interests will be embraced. It would also provide Jørgen and the company he works for with a degree of certainty in terms of what they can do in all of our territories.

I want to see our First Nation's rights respected by the government, and incorporated into regulations, licensing conditions, marine planning, and policy. Doing so would put us on a legal footing instead of in a partnership agreement with industry. After all, our First Nation does not want this industry in our territory, so why would we want to enter into an agreement with a fish farming company?

I'm really grateful to the organizers for putting this event together, and I look forward to reaching a common understanding on our issues. I'm hoping that we can continue this work, because I think that if we embrace the UN Declaration on the Rights of Indigenous Peoples in a real way, then we will be equipped with the foundational principles, which we can bring to whatever industry happens to be operating in our territories.

Author

Jørgen Christiansen is the Communications Director for Marine Harvest Group. He holds an MS in economics and finance from the Norwegians School of Economics, and has worked in the communications field as a consultant and director since 1999.

Jørgen Christiansen

From Trench Warfare to Dialogue: Marine Harvest in British Columbia

When I tell people that I'm the communications director, most people would expect me to be the press relations guy. But that's not my role. My role at Marine Harvest is to make sure that we have good dialogues with all of our stakeholders, globally. To a large extent, that means playing the devil's advocate. My job is to take a really long, hard look at what people say about us, and check whether it is in fact true. And there are always two alternatives: either the critique is correct and then sooner or later you have to change, or the critique is incorrect.

I've called this presentation "From Trench Warfare to Dialogue." I think in some areas it was almost like trench warfare during certain periods, with each party in a trench and throwing hand grenades at the other. It was quite polarized. We've come quite a ways from that situation in some areas.

Marine Harvest produces salmon in six countries, and we also process salmon and seafood and have sales offices, so in total we are present in 21 countries. We have five thousand employees, and sell directly to 52 countries worldwide. We produced three hundred thousand tons of seafood last year, which I think is four million meals a day, so it's quite a significant scale of operations. Our board has given us four guiding principles to succeed long-term, and they are interdependent: we have to make sure that we have attractive financial results, since we take money from the investors and they would like to get it back, and then some; we need to have tasty, healthy seafood products; we need to have sustainable and environmentally responsible development; and we need secure and meaningful jobs. These principles are interdependent. If we farm in areas where we shouldn't be farming then water quality isn't good and fish health is a problem, so costs go up. If we don't have attractive results, we can't finance development, and we can't make sure people have secure jobs. These things are all interrelated. In the short-term, it's fully possible to not mind the environment—but then you end up with problems.

Every year, we take those principles and use them as the basis for internal planning and budgeting for the following year. Every month, the managing directors for all business units have to report on all four principles, and provide their targets and key

performance indicators. Every year we publish a report where we are transparent on this, and it's an iterative process. We need to be engaged in a good dialogue with scientists from around the globe on fish health, fish welfare, food quality, food safety, environmental impacts, and so on. We need to have that dialogue ongoing at all times to ensure that our risk assessment is correct, and that we have the right key performance indicators to measure those risks built into our standard operating procedures.

Marine Harvest has farm sites in British Columbia, including in the area that Bob Chamberlin showed you in his maps, the Broughton Archipelago. Marine Harvest Canada produces around ten percent of our company's total production. That's a mighty big operation. There are First Nations territories in all the areas in which we produce in Canada. I think all in all there are 17 First Nations.

Fish farming on the west coast of Canada began around 1987, and the industry started off on the wrong foot. This is where Bob Chamberlin and I agree. The approach to First Nations was formal and it was what I would call legalistic: as long as you play by the rule book—that is, the law—then everything should be okay. So dialogue, or consultation, was government to government—between the provincial government and First Nations. The fish farmer would say "okay, I've filled out all the forms, my application was approved by the province, and the province will take care of dialogue with First Nations. So I can go ahead and farm." There was no respect, no sense that we are farming fish in an area where First Nations have been living for some thousand years. And there was, of course, no dialogue either. The result was distrust, suspicion, and a lack of dialogue, and it all ends up in a spiral. It's quite self-enforcing, it's polarizing, and it churns up a lot of dust.

Relations between Marine Harvest Canada and First Nations were quite bad from 1994 until the early 2000s. Marine Harvest's policy changed around 2004. We told First Nations that we were aiming to make our business economically, socially, and environmentally sustainable, and that we believed it should support First Nations communities and be profitable for Marine Harvest. We made it clear that our approach to dialogue with First Nations is to cooperate based on mutual respect; that it's a two-way street based on openness, good faith, and continued improvements. We also maintained that our operations should keep the environment healthy and conserve natural resources in First Nations territories.

Bob Chamberlin and his community have opted out of cooperation in the Broughton Archipelago. As he said, the clam beds or gardens in that area could be several hundred years old. In 2010 we started a two-year project, which should be finished within the next half year. Two of the First Nations in the area are cooperating with us and the Department of Fisheries and Oceans of Canada. That cooperation is designed to address First Nations concerns about a possible link between fish farming operations and changes to the productivity of clam beds. We also have a plan to monitor sea lice in the Broughton Archipelago. This is a multi-year lice-monitoring research program that will run until 2014. It's a cooperative effort between the Coastal Alliance for Aquaculture Reform (CAAR), Marine Harvest, Mainstream, the Department of Fisheries and Oceans, and two Canadian researchers. These are concrete examples of cooperation.

As a result of our approach, we are avoiding trench warfare in the areas in which we operate. Salmon farmers currently are seen as the leaders as far as managing business relations with First Nations in British Columbia is concerned. Marine Harvest has in place ten collaborative agreements and three business agreements with different First Nations. In addition, seventeen percent of our employees are of First Nations descent. So we've come a long way, though we still have quite a job ahead of us.

One of the accusations made against us in British Columbia was that we were killing the pink salmon. A publication came out arguing that based on the return of salmon spawners to the rivers of the Broughton Archipelago between 2000 and 2006, pink salmon would go extinct, and salmon farming would be to blame. I was confronted with that story in Norway right up until the summer of 2009. Then, suddenly, there was a record return of pink salmon to the Broughton, and within two weeks the story about pink salmon vanished. Two weeks later, after a very low return of sockeye salmon, I was told we were killing off the sockeye salmon, but there were a number of years with low sockeye returns long before salmon farming began. The British Columbia government then formed the Cohen Commission, because they needed to dig deeper into what was happening with the sockeye. One year later, they saw the highest return of sockeye salmon to the Fraser River since 1913.

I'm not saying that salmon farming doesn't have an impact, but this very polarized mode of discussion is wrong. On behalf of my colleagues, I must say that it's not very fair to say one year "you killed pinks, because the return is low," when history says

that it has happened before, and then when you suddenly have a very high return of pinks, to say: “wow, you’re not killing pinks, you’re killing sockeye,” and then when that return is high, to be silent. The Cohen Commission has just finished its hearings, and it is looking into effects on sockeye salmon from all possible sources. The report is not out yet, but basically people are saying that there is no smoking gun. They’ve ruled out both sides, so to speak—both people criticizing aquaculture and those trying to defend aquaculture. Experts on both sides have ruled out sea lice, escaped salmon, and pollution as possible causes for the decline in sockeye returns, though they disagree about the impact of disease. But they agree that the quality of the data on diseases in aquaculture salmon is good, and that knowledge about disease in wild fish is non-existent.

Our approach at Marine Harvest has been dialogue. We’ve come quite a long way, but we still have a ways to go. I’m sure we still have a lot of improvements to make, but we’ve also made a lot of improvements already.

Author

Bjarne Johansen is Sami from the Tana fjord area and head of the Sea Salmon Fishers' Association in the Tana fjord. He has fished for salmon all his life, both in the river and in the sea, and is currently involved in a research project organized by the Norwegian Institute of Nature Research on abundance and changes in salmon stocks.

Bjarne Johansen

A Place Called Tana

I was born and raised in a place called Gulgofjord in the Tana fjord. Fishing is my primary occupation. At eight years old, I started fishing salmon together with my father. I had my own salmon site at 14 years of age, and since then I have fished for salmon in the sea. I have been told that my ancestors, both on my mother's and my father's side, have fished for salmon since the beginning of the seventeenth century.

Figure 1: Bjarne's home in Gulgofjord in Tana: "the most beautiful place on Earth" (Courtesy of the author).

I am the leader of a salmon fishers' organization called the Tana and Environs Sea Salmon Fishing Association (Tana og Omegn Sjølaksefiskeforening). As of today, we have 171 members from all over Finnmark. The main purpose of the association is to work for our rights as well as for the coastal Sami and coastal fjord culture. This is because the people on the coast and in the fjords are a people that have lost their salmon fishing rights.

Before salmon farming came in and the prices went down, salmon was a primary source of livelihood for our people. In recent years, sea fishing for salmon has been

harshly regulated by the authorities. The regulations are moving the fishing pressure from the sea to the rivers, thus favouring salmon fishing in the rivers. River fishing is allowed from May to August, and much of the salmon that spawns in the Tana River is being fished by sports fishers. The salmon that have reached the spawning stage are being stuffed as trophies. It is, therefore, my opinion that the river fishing needs to be stopped in the beginning of August.

Sea salmon fishing has become greatly reduced as the result of strict regulations, and large areas of the sea have been left unused. The fish farming industry has taken advantage of this situation to cut people off from the salmon net sites they have always occupied.

It is my opinion that further development of the salmon farming industry needs to be halted. We have many examples of what happens to the fjords, indeed the entire coast, where this industry has free reign. In Chile the fjords became so polluted that nothing could survive. Also, in Norway the fish farming industry has destroyed much. The damage is visible in the western part of the country, in Trøndelag and also further north in Finnmark. Farmed salmon have been caught in our salmon rivers in great numbers, and the sea lice have increased to far above normal levels. In the Tana fjord, we have seen that the fjord is becoming polluted, and that cod and other ground fish are leaving their spawning grounds. While fish farming was ongoing in the fjord, the cod and other white fish disappeared. However, five years after the fish farms were removed the fish started coming back to their habitual spawning grounds.

When farmed salmon is sold as ecological salmon and labelled Atlantic salmon, the madness has reached a maximum. Policies need to be changed in Norway. We can't afford to make the same mistakes in Finnmark that have been committed before in Norway and in other parts of the world.

Author

Marianne Balto is Sami from Tana. She is a member of the Sami Parliament. Balto currently holds a seat in the Sami Parliament Council and is responsible for the Council's consultation with the Norwegian government on salmon issues. She has worked extensively on Sami salmon fishing issues while serving on several national commissions and boards. From 1985 to 1998, she was a member of the Norwegian-Finnish river border commission, which handled joint salmon management in the Tana River. She was also a member of the Norwegian government's official commission on wild salmon management from 1997 to 1999.

Marianne Balto

The Role of the Norwegian Sami Parliament in Salmon Management

The Sami live in Norway, Sweden, Finland, and Russia. The Sami Parliament in Norway was established in 1989, and is the elected body of the Sami in Norway. Every four years, 39 representatives from seven constituencies are elected to the Sami Parliament's plenary assembly. The Samediggi Executive Council is elected from the plenary and consists of five individuals who act as a cabinet. The Sami Parliament also has an administration whose function is to help the politicians and perform administrative tasks.

The Sami Parliament deals with issues in all areas of society that particularly affect the Sami. In addition to making statements and acting as a consultative body for government authorities, the Sami Parliament has consultation rights with the authorities, not least when it comes to salmon management and economic development.

The term "consulting" means more than just having meetings or presenting our views to the Norwegian authorities. The fact that we are consulting means that we are embarking upon a process involving formal requirements. However, the most important thing is that we have a binding goal, which is to reach an agreement. The Norwegian authorities have an obligation to obtain free, preceding, and informed consent. In most consultations, we manage to reach an agreement, but we see that in some cases, especially cases involving valuable natural resources in traditional Sami areas, it is difficult for us to make ourselves heard.

For the Sami Parliament, it is important to emphasize that wild salmon are a natural resource of importance to the cultural and business activities of both sea and river Sami. This is why the Sami Parliament invests a great deal of effort towards making sustainable management possible, providing input on salmon regulations, and working on economic development.

The Sami term *birgejupmi* is a key concept as regards the Sami way of thinking. It means "to survive and have a livelihood." Nature provides the basis for this way of life, and Sami industries have long traditions of management predicated on survival and the sustainable management of resources. There is a great deal of useful knowledge

inherent in local and traditional knowledge, and this must be taken into account when the Norwegian government exercises its managerial responsibilities. For traditional knowledge to be taken into account in practice, we need to systematize it and render it visible. We are currently in the early stages of this work and research in this area is essential. I also believe that it is important to perform more research on salmon and traditional knowledge if we are to build up a good basis for management.

The fishermen possess a great deal of invaluable knowledge. Last year, the Sami Parliament negotiated a framework agreement with the environmental authorities in Norway that has resulted in the creation of a committee where the fishermen themselves, along with the Sami Parliament and the Norwegian authorities, are represented. The committee helps the Sami Parliament and the authorities in consultations relating to salmon management. The fact that those subject to management have an opportunity to present their interests directly to the regulating authorities is, in my opinion, important for promoting a form of salmon management that rests on broad-based decision making and that takes into account the local and traditional knowledge of the fishermen themselves. This enables the authorities to reinforce Sami interests by implementing measures and regulations that positively impact the lives of fishermen and rights holders.

I have faith in a way of working that revolves around dialogue and negotiations. We find that in cases where we manage to establish a good working relationship, and where we get the opportunity to create an understanding of the needs of the Sami community—and this applies as much to business or interest groups as it does to the Norwegian authorities—it is easier for us to achieve good results. In other words, it is not only the Norwegian authorities that are relevant as negotiation partners when it comes to deciding how to make use of the salmon resources, or how to make use of a particular area. Other players looking to establish themselves in Sami areas may also benefit from a partnership with us and the involved communities. The Sami Parliament wants to pave the way for Sami industries to be able to negotiate directly with other business interests where new ventures are concerned.

We believe this approach is so promising that the Sami Parliament has allocated 400,000 Norwegian crowns for a pilot project aimed at establishing a joint Norwegian-Swedish Foundation. This Foundation should have the expertise required to assist traditional Sami industries in situations where questions of land and resource rights arise.

Through our cooperation with Sami fishing organizations, I know that they are interested in getting involved to promote their views and needs. How this should be done in actual practice is not very well developed in Norway. In my opinion, a foundation that, by supporting dialogue and negotiations, can help fishermen have effective input on the use of the area makes sense. Such a foundation would act as a resource for fishermen and license holders in their interactions with new industries.

This may make it easier for all the parties involved to identify and define the relevant local and traditional knowledge. It would provide predictability and, therefore, benefit new industries as well as the traditional Sami industries. Taking this idea one step further, I envisage that business interests that want to establish activities in traditional Sami areas will help develop some sort of cooperative arrangement with the fishermen and also contribute financially to the operation of such a foundation. Naturally, such a foundation would need to be independent of its financial supporters, the Norwegian authorities, and the Sami Parliament. Such an organization could also be responsible for drawing up guidelines for cooperation and negotiation—guidelines that should obviously be based on internationally accepted standards for indigenous human rights, and that would apply to business interests in Sami areas as well as other parts of the indigenous world.

I am of the opinion that impact and benefit agreements should be negotiated between new industries and traditional Sami industries. In the realm of mineral development, the Sami Parliament's mineral guidelines state clearly the expectation that there will be negotiations and lay out how those negotiations should be handled. The establishment of new industries based on resources to which the Sami are entitled must benefit the Sami in a direct manner. This principle follows both from the aforementioned mineral guidelines and from the Sami Parliament's planning guide, and has particular relevance if a business is detrimental to existing traditional Sami commercial activities.

Sami industries are under severe pressure from other parties who want to establish operations in Sami areas. This applies not least to the aquaculture industry, which requires large ocean areas in places that are directly on the migration routes of wild salmon, and where traditional Sami business activities have been carried out for a very long time. The Sami Parliament's planning guide states that municipal land use and zoning plans need to ensure that land use changes in Sami coastal and fjord areas do not cause irreversible damage to or destruction of local fisheries.

Ever stronger pressure is being applied by the fish farming industry on coastal areas, and we know that salmon farming can have a major impact on wild salmon. Threats to wild salmon caused by salmon lice, disease, escaped farmed salmon, and pollution near cages are just a few of the issues we must take into account. This is why the Sami Parliament does not want fish farms near salmon rivers.

The Norwegian authorities have already approved a five percent increase in the production capacity of existing salmon cages in northern Troms and Finnmark counties. I consider it likely that, in the future, aquaculture will look to the north as the fish farming industry requires increasingly more space. The Sami Parliament is aware that the development of enclosed fish farming facilities has advanced to the point that new fish farming businesses should be based on this technology. Any new aquaculture concessions in the ocean will very clearly be subject to consultation with the Sami Parliament.

The Sami Parliament wants the aquaculture industry itself to take responsibility for setting up binding cooperative agreements with the Sami community. I would like to see the fish farming industry become aware of indigenous perspectives.

What I am saying is that the salmon is a very important resource for the Sami, and for Sami culture. To achieve successful salmon husbandry, we must develop a broad knowledge base in which traditional knowledge occupies a central position. Those who possess such knowledge are generally the fishermen themselves. I believe it is absolutely essential to involve fishermen and rights holders in salmon management issues. In other words, we must develop good solutions to accomplish this in practice. The Sami Parliament is key to this work. The Sami have the right to influence development and the right to their fair share of the value of the resources found in traditional Sami areas. To summarize, new fish farming ventures should be established in consultation with already-existing Sami activities in the area, so that the wealth and benefits generated by the business benefit the Sami and local communities directly.

Author

Steinar Pedersen is Sami and holds a PhD in Sami history. He has done extensive research on the history of Sami salmon fisheries. He was rector of the Sami University College in Kautokeino until August 2011, and is now an associate professor there.

Steinar Pedersen

Fish Farming—Threat or Blessing for Traditional Sami Settlements on the Barents Sea Coast?

I appreciate the fact that we have been shedding light, from various angles, on the fish farming industry and focusing on indigenous issues. I really do feel that we need to direct more attention to the indigenous aspects of salmon aquaculture. This relatively new industry generates enormous incomes for shareholders and for the Norwegian society as a whole, but does not necessarily have the same positive effect on indigenous and local societies and their traditional economic activities. Furthermore, the industry we are talking about here is immense. According to the Norwegian Scientific Council for Salmon Management, the total production of farmed fish in Norway in 2010 was 916,000 tons.

My day-to-day work is at the Sami University College, Guovdageaidnu/Kautokeino, Norway. However, what I say here is my personal opinion and should not be regarded as an official statement on behalf of the University College.

To the best of my knowledge, we at the University College have not issued any statements about fish farming, but we have questioned the intention of the Norwegian Research Council to allocate more money to research on cod farming, the goal of which would be to make the price of farmed cod competitive with that of wild cod. We questioned that decision because over the course of the past 40 years, when the industry began to produce increasingly large quantities of farmed salmon, we experienced a dramatic decline in the price of wild salmon. That questioning is also in accordance with our research and teaching ideology, which is to strengthen Sami language, culture, and local communities by taking into account traditional knowledge.

In this presentation, I ask whether fish farming is a threat or blessing to traditional Sami settlements on the Barents Sea coast. I suggest that the activities of the Norwegian salmon farming industry have given little in the way of blessings to settlements in northern Norway. Of course, in some small communities this new industry has managed to create a few new jobs. Yet, in all other respects this industry has had a nearly disastrous impact on small communities, beginning with the birth of the industry in the 1970s and right up until the present day.

In the northernmost part of Norway, the wild Atlantic salmon fisheries on the rivers and in the sea have been of the utmost importance to the Sami and to the regional, traditional economy. The greater part of many people's annual income once came from the sale of salmon. So salmon was important not only in terms of a family's economy, but also for the continued vitality of small communities along the fjords and coast. Due to the high prices paid for wild salmon, having the right of access to the fishery was a treasure indeed.

In the early 1970s, a salmon fisher could obtain 60 Norwegian crowns, the equivalent of eight euros, per kilo of salmon, and even more for the largest salmon. According to the Central Statistical Office of Norway, 60 Norwegian crowns in 1970 translates into 430 Norwegian crowns or about 55 euros in 2011. The problem is that the price paid to the traditional salmon fisher in 2011 is almost the same as it was at the beginning of the 1970s. That shows us very clearly what has happened to this traditional livelihood. Using a price index we can calculate that today a fisher is paid one seventh of what he was paid for his fish 40 years ago. Seventy-five kilos of big salmon in the early 1970s yielded the 2011 equivalent of a monthly income of 32,000 Norwegian crowns, or more than 4,100 euros. If the salmon fisher in our example fished for three months—which at that time was possible—and caught an average of 75 kilos a week, he would catch nine hundred kilos altogether. That would translate into the 2011 equivalent of 384,000 Norwegian crowns, almost 50,000 euros—a fairly good annual income. These figures are intended only as illustrations, and they assume that only large salmon are caught; nevertheless, they do show the worsening economic situation for traditional salmon fishers.

My claim is that the dramatic drop in price for wild salmon is linked to the enormous increase in the volume of farmed salmon being produced—though, I would like to hear whether there are any other possible explanations. Therefore, it would seem that the new industry has nearly crushed the salmon fishery as a primary source of income for Sami.

There are other possible effects of the salmon aquaculture industry on the wild fishery, particularly in relation to the increasing demand of the fish farming industry for fish meal. Fish meal is produced from the very same species of fish on which the wild salmon feed in the ocean: herring, capelin, and sand eel. These species are being pursued by the western Norwegian purse seine fleet—probably the most modern fleet of its kind in the world, and with an enormous catching capacity. These fisheries may be making food

less available to the wild salmon, and may also catch salmon as by-catch. As of yet little research has been undertaken to find out how these large-scale fisheries are affecting the total stock of wild salmon.

A graver threat still to the Sami fishery for wild Atlantic salmon is the escape of farmed salmon from net pens. Those individuals that survive to spawn in nearby rivers can negatively affect the genetic composition of our local, wild stocks. The number of escaped fish is very high. In Norway 255,000 fish were reported to have escaped in 2010. That is one and a half times higher than the number of wild salmon caught in Norway last year. Escapes are being reported even in some of the northernmost rivers in Norway—most recently in Vestre Jakobselv, Ánnejohka, in the Varangerfjord. That river has always been an excellent river for angling, and of course, it is also an important spawning ground for the sea-run salmon of the region. This year the number of escaped farmed salmon reached an alarming level, and much of the restoration work that was done in that river over the years is now being destroyed.

According to media in the region, no one can pinpoint the origin of the escapes, as the salmon farming industry in the Varangerfjord has not reported any escapes. What I find even more alarming is that a plan is underway to place a large new salmon farm only a few kilometres away from the outlet of Vestre Jakobselv. Those plans have met with strong resistance, both from river salmon fishers and fjord cod fishers—the latter fearing that if the fish farm is installed at that site, fishermen will find the usual spawning place of cod deserted.

Another very serious and well-documented threat to wild salmon is the high concentration of sea lice on salmon farms. Since 2002 the biomass of farmed fish in Norway has doubled and so also has the number of potential hosts for sea lice. The number of lice on farmed salmon is described as being much higher than what is estimated to be the survival limit for wild fish. The development of drug resistance and multi-drug resistance is also cause for concern. It is no wonder that the Norwegian Scientific Council for Salmon Management has classified both farmed salmon escapes and salmon lice as two out of six of the most serious threats to the existence of wild salmon.

The salmon farming industry has existed in Finnmark for many years, though not on a large scale. Finnmark is also the region in Norway where Sami have the strongest in-

terests in the salmon fisheries of the rivers and the sea. At present, the sea is still fairly cold, but the large Norwegian salmon farming companies clearly see the potential for expanding their operations in Finnmark. What will happen when the climate changes and sea temperatures rise?

That question was clearly addressed in 2010 by the Norwegian government's climate change adaptation committee:

> Fishing for salmon in the sea and rivers is an important aspect of the livelihood of the Sami people in the far north of the country. Climate change represents a major threat to the large salmon populations in the north, particularly from the aquaculture industry. If sea temperatures rise it may increasingly result in the aquaculture industry in the south moving to fjords in the far north, where temperatures are lower. This may pose a threat to the wild salmon populations there, partly because of problems with sea lice. If the aquaculture industry grows rapidly in these areas, it will also tie up large areas in the fjords currently used for traditional fishing by locals and the Sea Sami people. The committee would like to stress that any adaptation measures that encourage rapid growth in the aquaculture industry in the fjords of Finnmark and other Sea Sami areas in the north, may conflict with the aim of ensuring the viability of traditional Sami commercial activities . . . . In relation to developing knowledge in conjunction with climate change, the committee would like to emphasise the importance of making use of and classifying traditional Sami knowledge. One important reason for doing this is the need to recognise both Sami and other traditional knowledge as part of the basis for making decisions about adaptation measures.[1]

My advice to the fish farming industry and the authorities in charge of this matter would be to take into account the challenges posed by climate change and not to attempt to conceal the possible negative impacts of sea lice. The small Sami and other local settlements along the Barents Sea coast and fjords will be made even more vulnerable if these threats are not dealt with in a proper and transparent manner.

1 Norwegian Ministry of Environment, Appointed Committee by the Royal Decree of 5 December 2008, *Adapting to a Changing Climate: Society's Vulnerability and its Need to Adapt to the Consequences of Climate Change*, at Ch. 11.2.2., 10 (2010) (Rep).

If the salmon farming industry should have any chance of becoming a blessing for Sami or other local, small settlements, some conditions would need to be met first:

- New activity must benefit the local communities, in ways defined by the communities themselves.
- In indigenous areas, the aquaculture industry must take into account indigenous rights and interests, and contribute to strengthening language and culture.
- When establishing themselves in new marine areas, the companies and their employees should be obliged to take courses in local history and culture.
- The establishment of fish farms must not be an obstacle to the traditional fisheries for cod, salmon, haddock, lumpfish, halibut, etc.
- Pollution of the local marine environment cannot be tolerated, and mechanisms should be developed to inform local communities about pollution stemming from the fish farms; fish farming must stop if acceptable levels of pollution are exceeded.
- The local and regional workforce must have priority, and an agreed-upon percentage of fish farm employees should come from local communities.
- Fees and taxes from the fish farming industry should be paid to local and regional authorities, no matter where their head offices are.
- A program for increasing the price of wild salmon should be funded by the salmon farming industry, based on the principle that those who are responsible for creating the damage should be the ones responsible for restoring that damage.

Author

Ross Hinks is Mi'gmaq. He is Director of Natural Resources for the Miawpukek First Nation in Conne River, Newfoundland, and presently represents his First Nation on several national and provincial resource management boards. He is very active in Atlantic salmon management, protection, and enhancement. Under his leadership, the Miawpukek First Nation has received two awards (one national and one provincial) for its work with Atlantic salmon.

Ross Hinks

Miawpukek Mi'gmaq Experience with Salmon Farming and Wild Atlantic Salmon Management

Today, I will talk about the Miawpukek First Nation's Atlantic salmon conservation, protection, and management efforts, and how fish-farm development has affected our traditional fish harvest.

The Miawpukek First Nation is the only federally recognized aboriginal reserve located on the south coast of the island of Newfoundland. We are located near the end of a large fjord some 40 kilometres from the ocean and at the mouth of the Conne River. Our community has a population of around one thousand individuals, of which eight hundred live on the reserve.

The Miawpukek band was recognized as an official band under the Indian Act in 1984, and since then, it has taken on the mandate of creating an economically self-sufficient community, guided by traditional values. In following this mandate, we place a strong emphasis on our culture and traditional heritage. Approximately 90 percent of our administrative staff is made up of community members, with a significant number having attended training and educational institutions outside the reserve.

We protect all of our aquatic resources based on our aboriginal rights—our inherent right to self-determination. Our elders assist band personnel and community members in making regulations. We are very concerned with how natural resources are being used in our territory. As a consequence, we have contributed millions of dollars to the conservation, enhancement, management, and protection of two important rivers in our area: the Little River and the Conne River.

Since time immemorial we have subsisted on seafood and frequented the shores of our traditional territory, and we have continued to do so even under the fear of prosecution. In 1986 the Miawpukek First Nation negotiated an agreement with the government to have a traditional net fishery for the purpose of harvesting Atlantic salmon for food.

At that time the Miawpukek First Nation didn't have any confidence in the angling data on which the government had decided to base the non-Native sport fishing quota. In response to our concerns, a salmon counting fence was constructed in 1987, and band members were employed to help do the assessments. We were concerned about the catch-and-release angling methods being used by sport fishers. So to reduce our own impact we decided to convert our fishery into a trap fishery. In 1990 the Supreme Court of Canada ruled in R. v. Sparrow that the right of aboriginal peoples to a subsistence fishery is protected by the Canadian Constitution. The Court said that before limiting aboriginal fishing, the federal government must prove that conservation needs are not being met. It also said that aboriginals should have more input into the management and protection of fish resources. In response, the federal government launched the Aboriginal Fisheries Strategy. This program allowed us to participate in the making of management decisions, and also created the Native Fisheries Guardian program. These fisheries guardians are conservation officers who monitor all of our resource use, and also collect data on the traditional harvest.

Meanwhile, we were observing a steady decline in the number of returning salmon. We decided to discontinue our trap fishery and insisted that something be done. That meant developing our own salmon enhancement project. We started a program of "swim-up fry stocking," which entails incubating wild Atlantic salmon eggs and sperm together in tanks and releasing the resulting fry into ideal habitat throughout the Conne River watershed. Unfortunately, we were only able to continue with this until our funding ran out a few years later. Still, we developed a new management plan, which mandated that the river be opened to fishing two weeks later than other Newfoundland rivers—in order to reduce the initial pressure on the stock. All of these efforts stabilized the stock and resulted in a small increase in numbers. After these enhancement efforts ceased, the runs once again went into decline, and the sea survival rate of Conne River salmon fell to less than 3 percent. We often use small boats within the bay to catch lobster, crab, and cod, but as we were concerned with the effects fishing in the estuary might be having on the salmon stock, we decided to limit ourselves to river fishing, and began negotiating with the province for in-river license agreements.

The Little River is another salmon river, about five kilometres south of the Miawpukek reserve. When we began noticing a decline there in the late 1980s, we proposed a salmon enhancement program for that river also. Despite funding problems we were

able to collect, strip, and fertilize brood stock and release the resulting fry into ideal salmon-rearing habitat, above all the downriver obstructions. Only 10 percent of the river was clear of major obstructions. We continued to study the up-migrating and down-migrating fish, and found that the river's salmon, though they had rebounded initially, had declined to less than two hundred returning salmon.

Why were our salmon stocks still declining, while the rest of the province's salmon populations were stable and even showed signs of recovery? There were two possible culprits: one was the Saint Pierre and Miquelon sea salmon fishery, which was catching salmon coming from our rivers; the other was finfish aquaculture.

Finfish farming began in the Bay d'Espoir area in the mid 1980s. This new industry was supposed to compensate for the Upper Salmon Hydro Development. As part of the compensation deal, a hatchery was constructed near the main power plant. The warm water discharged from the power plant was channelled into the hatchery. The compensation package also included funds for developing experimental fish farms and training staff. The fish farming industry has continued to develop up to this day, with the infusion of millions of dollars from the federal and provincial governments and private industry. As a consequence, salmon farms have appeared throughout the traditional harvest areas and Atlantic salmon migration routes. In the Bay d'Espoir area, large companies like Gray's Aquaculture and Cooke Aquaculture are setting up operations. Many local residents are being employed, and support industries are springing up.

Aquaculture has taken over traditional fishing areas, leading to disputes. Some of our fishing spots are no longer being used, and other areas have been deemed unsuitable for fishing. Cod caught in many of these places are unfit to eat, as they have been feeding on excess feed and waste from the aquaculture sites. These fish are not eaten because their flesh appears changed and often has a distinctive rotten odour, and also because of the fear that the fish are contaminated with medications used on the farms.

One thing we have found through the tagging of smolts and kelts (adult fish that have already spawned once) is that migrating salmon spend an extraordinary amount of time in the Bay d'Espoir estuary, where they are exposed to veterinary drugs, parasites, and other disease organisms from fish farming sites. It is unknown why these salmon spend time in the estuary, and how important this area is to the life cycle of

the salmon, but we do know that some of the kelts rejuvenate there, before returning to the river to spawn once more. Some of the smolts also follow the routes of the kelts in the estuary, before continuing their ocean migration. Up to 20 percent of the Conne River salmon stock is made up of repeat spawners. Therefore, if the estuary is affected by aquaculture development, those changes will certainly affect the returns of salmon to the rivers.

As aquaculture production has increased in the area, salmon runs have decreased. Some people have disputed this link, saying that factors other than aquaculture may have contributed to the decline. No doubt there are other factors. But it seems to me that the supposed social and economic benefits of aquaculture are seen to trump the importance of, as some people call them, "just a few salmon."

As you can see from this presentation, the developing fish farming industry may be having a dramatic effect on the number of salmon returning to the Conne and neighbouring rivers. Even with all the efforts the Miawpukek First Nation has undertaken to help the salmon runs, the decline continues. It appears that sea survival of salmon has dropped dramatically. Continued finfish aquaculture development in the estuary may lead to further declines if the industry does not improve its production efficiency.

I would like to commend all the employees of the Miawpukek Natural Resources department for their hard work and dedication during trying times. I would also like to thank the organizing committee of this workshop for inviting me to speak. I am sure that the information we are gathering here, and the contacts we are making will lead to a united voice for the once almighty *Plamu*.

Authors

David Frank is a member of the Ahousaht First Nation. He was a commercial fisherman for most of his life. Frank later went back to school to earn a degree in clinical counselling, and now works as the Community Health Services Manager for the Ahousaht First Nation. He was appointed by the hereditary chiefs to the Fish Farm Committee.

Paul Robinson is a member of the Ahousaht First Nation. He was a commercial fisherman for over thirty years and now works for Creative Salmon Ltd. Robinson serves his community as a member of the Fish Farm Committee.

Wally Samuel is a member of the Ahousaht First Nation. He was born and raised in Ahousaht and spent his childhood on a fishing boat as his father was a commercial fisherman. He has worked for over 30 years in community development and public service, and for a number of organizations in various management capacities. He was appointed by the hereditary chiefs to the Ahousaht Fish Farm Committee and worked with the Committee to negotiate the terms of the protocol agreement between Ahousaht and Mainstream Canada. Samuel wanted to ensure that the protocol agreement not only provided economic and social benefits to the community, but also an ongoing meaningful voice for Ahousaht.

David Frank, Paul Robinson, and Wally Samuel

From Opposition to Understanding: An Overview of Ahousaht's Relationship with Fish Farms in Their Ha'houlthee (Traditional Territories)

David Frank

We are from Ahousaht, on the west coast of Vancouver Island, which is on the west coast of Canada in British Columbia. We live on an island, off Vancouver Island, called Flores Island. Within our territory there are sixteen fish farm tenures, of which twelve are in operation at any one time.

First, I'll present to you a little bit of our history. We were a fishing nation. Up until a few years ago, 90 percent of our people were commercial fishermen: they owned their own boats and equipment, and sold fish to various companies. A few years ago we experienced a collapse in the salmon industry in British Columbia. We admit that we were part of that problem too, because we were commercial fishermen. I saw what we did to the spawning grounds of the herring—I saw the destruction of that, and I was a part of that too.

The Government of Canada and the provincial government placed fish farms in our territory—the Ahousaht territory—without consulting our people or our chiefs. At one time I think there were 19 fish farms within our relatively small territory. So we protested and we took action—we even had some people who ended up in jail. Our people were cutting up nets, cutting anchor lines, and doing other things to disrupt the industry. It wasn't until we started doing those things that the government saw that we were serious and began to listen to us. We were ready to do things that would make it difficult for the industry to work in our territory, and we were prepared to go to jail if need be. That's when they began to hear us, and allowed us to sit in on meetings with them. But we were just what we would call "token Indians." We wanted to be more than that; we wanted a voice, and we wanted to be the actual decision-makers, because we believed that we had never given up the rights to our land. We had some small victories that way, by getting our foot in the door.

In the year 2000, the hereditary chiefs were under a lot of pressure: some people in the community wanted fish farms, and some didn't want fish farms at all. So our head

chief, his name is Ookwakum, convened a meeting and said that we were going to discuss this amongst our people. We, our people, he said, are going to make a decision as to what we're going to do today, and we're going to stand by it. And then there was a really, really contentious meeting, with people throwing hard words at one another. It was at that meeting that we voted on it. I was on the losing end of it, along with the guys I knew who also opposed fish farms. We lost by two votes, and we demanded a recount. We did it three times, and they said "we could recount all night and you'll still lose." So we accepted it, and it was at that point that the Fish Farm Committee was formed to begin a dialogue with Pacific National—that's what they were called at the time, and it was during our first negotiations that they became Mainstream Canada, part of the Norwegian company Cermaq.

We began a dialogue with them. One of the things that we asked for is that we use our local knowledge. We had always heard from the government: "Hey, I've got my scientist here, he's going to tell you what to do. He knows everything, my scientist, and you guys don't know anything." That's what they said. But we said "no, that's not going to cut it for us—how are you going to operate these farms if you can't come to a place of respect for us?" And "if you're going to continue on as you have been," we said, "then there's no use sitting here. We can all just go back to doing the same things that we've been doing all along." That's when they came back and said "okay, we'll hear each other." So we did that. They heard us, and they agreed that we would be able to use our local knowledge.

I've got local knowledge. "I've lived here," I told them, "I've lived here for thousands of years." "I can sing you a song from the last Ice Age—we do have a song from the last Ice Age. We have the names of two men, Ahkishpiih and Kliihiyiichistuulth, who used to hunt and feed our people through the Ice Age," I said. "We've got that knowledge. The question is, how can we both look at this issue of fish farming as *heshook-ish tsawalk*, that everything is one?"

We lost the vote I just told you about. We were licking our wounds, but the very same chief who had called the meeting then asked me to sit on the committee that was to begin a dialogue with Mainstream. Some of the things we were successful in negotiating were: that Mainstream exceed the minimum environmental quality standards set by the government; that Mainstream meet Ahousaht's needs and comply

with Ahousaht's regulations; and that the company understands that Ahousaht wants to make sure that *heshook-ish twawalk*.

Paul Robinson
I've come at the matter of fish farming from several different angles. I was a commercial fisherman for over thirty years. It was what I loved to do, it was my passion. For the past five years, I've worked for a fish farming operation. You're unlikely to have heard of it, as it's probably one of the smallest fish farming companies in the world. It's called Creative Salmon, based in Tofino. We grow chinook salmon, which is a species native to Clayoquot Sound. It was tough to make the move to fish farming, especially since I had friends—people from Bob's nation and from all over British Columbia—who were opposed to the industry. Now I just tell them I'm a spy. As they say, keep your friends close—and you know what the other part of that is!

I've learned a lot working with Creative Salmon, because it's such a small company. I run a vessel with my captain's ticket. My many tasks include delivering feed, changing nets, harvesting fish, and transferring brood stock. It's a multi-purpose boat, so I'm in a unique position to see everything that goes on there. Clayoquot Sound is one of the most environmentally sensitive places on the planet, and, because of tourism and conflicts over logging, we get worldwide media attention. So the standards are high, and this company meets them. I believe that fish farms are here to stay; so, as Dave said, we've got to make our own, local regulations. And this little company that I work for is doing just that, insofar as they are not using copper on their nets, and not using night lights, for example.

As far as our protocol with Mainstream is concerned, all the other First Nations in British Columbia were frowning upon us for signing an agreement with the fish farmers. But as we just heard from Bob, when you go through the government channels the paper just stacks up and the years go by and nothing changes. That's why we took it upon ourselves to deal directly with the fish farming company. The government is not even in the picture. That's how we got results. I'm not saying our agreement is written in stone; it's an open, living document. We are able to protect our clam beaches, because we can determine how far away the farms must be. We're also currently moving one farm tenure out of our northern section, which will keep that territory—three inlets in the north—farm-free. Mainstream is actually helping us with salmon enhancement too, and

they're providing us with the funds to follow through with the testing we've begun to do. So there are all kinds of angles to our protocol that, for the time being, work for us.

Wally Samuel
In our nation, Ahousaht, we have two types of government. We have the elected government, which is under the control of the Department of Indian Affairs. But we also have our real government: the traditional chiefs who have authority over our lands, the territories we call our *hahoultlee*. Our hereditary chiefs have authority over our lands and our resources, and they appoint people to look after certain things in our territories. These include the people who are appointed by our hereditary chiefs and our government to represent them in negotiating with the fish farms. We have all different types of expertise, different types of knowledge.

We have elders who, like Dave, are long-time fishermen, and who know all our territories and where all our resources are found. We also have our own experts from the Ahousaht Fisheries Department, like the late Darrell Campbell, who worked in our Fisheries Department for twenty years or so and knew every clam bed and all the 23 rivers in our territory. And we have our scientific advisor, Katie Beach, who helps us with the biological work and is employed by the Nuu-chah-nulth Tribal Council.

We learned the hard way, by entering into a protocol agreement with Mainstream, that there were some things that were missing, and some things that needed improvement. But the fish farmers at Mainstream had the courtesy and the respect to sit down and talk with us. We negotiated for two years, detail by detail, word for word sometimes, because English is fairly new to us. A lot of us didn't speak or write English as kids, so the English language and writing was fairly new to us. We had to have some other non-First Nations people help us with the wording, and to help explain and interpret the text so that both parties understood what was being agreed to. So it took us two years or so to negotiate the present agreement.

We are ocean fishermen. Our whole community was involved in commercial fishing. Every family owned a boat; we had a total of 50 or 60 boats. You could go out and catch fish all day long—we're within an hour or two of all the fishing grounds. We trolled, gill-netted, and seined in the inlets and around the islands and also fished for halibut and cod. There were a lot of perch when we were kids too, but they've

disappeared now. Herring was also abundant when we were kids; herring roe is a real delicacy for us. And then the Japanese found out that we knew how to fish for herring roe, and that industry helped wipe out the herring. Everybody was catching that roe to sell to the Japanese. A lot of guys became millionaires, but they're all broke now.

We're located on Flores Island in Clayoquot Sound. Our community numbers around two thousand individuals. We're the largest First Nations community on the west coast of Vancouver Island. We have three principal chiefs in Ahousaht: Maquinna, Lewis George, and A-in-chut or Shawn Atleo. The *hawiih* is the collective leadership shared by the three chiefs, but they have individual responsibilities to look after the territory as well—each of them looks after certain rivers and beaches, for example.

We started off by using the old protocol agreement, a previous agreement we had with Pacific National Aquaculture, as a template for this present agreement. We had learned from that earlier experience what can happen, and what tends not to happen with these sorts of agreements, as well as what works and what doesn't work. We worked on our new agreement for a couple of years, and it was finally approved in 2010. It allows Mainstream to operate in our, Ahousaht, territory. If they had not met our conditions, they probably would not have been able to continue operating there. They would not have been able to stay because the government acknowledges our authority, and as Paul said, we've got bigger grenades than them. It's an isolated area, so our First Nations have a lot of control, and it's ours. The agreement we have in place provides jobs and economic benefits to our Ahousaht people.

Yes, we were opposed to fish farms. That's why they had to show us how they were going to meet our needs, how they were going to abide by our wishes. We wanted to ensure that they understood how we wanted to see them operate. So the agreement is based on trust, respect, and performance. Performance is the expectation that Mainstream will follow up on its promises, report to us on any incidents, and seek out our approval—not the government's—first, before making any changes. We agreed that the Ahousaht *hawiih* and community, along with Mainstream leadership and staff, would work to establish a sustainable finfish aquaculture business in Ahousaht. Obviously, doing so will demonstrate respect for, and seek to create balance among, all living things. As Dave said, we have a saying: *heshook-ish tsawalk*—all things depend on one another to survive. Every little plant, every little animal makes the world go

round. And this is what Mainstream said: "we'll meet or exceed the environmental standards." The provincial government and the federal government don't live there. They don't know what it really means day-to-day, to use our resources, to use our foods. For our environmental standards we look to the quality of our foods—to our daily needs.

Right now we have 67 people who identify themselves as Ahousaht working on fish farms. But there are other First Nations people, not from Ahousaht, who work there too. Included in our protocol agreement is a provision for jobs and skills training, as well as financial benefits; we receive money from Mainstream to help train our community members to use computers and operate boats. We also have a fund that people can apply to if they want to start a business, but we decide to whom, where, and when that money is paid out. Mainstream is also providing some assistance by way of salmon-enhancement funding, and Katie is part of our effort to restore some of the habitat for wild salmon. If the environment is healthy, it's good for the fish farmers too. It's good for everybody to have a healthy environment.

We get 3.9 million Canadian dollars annually in wages coming into our community, our small community of a thousand people. So it not only benefits those people who work there; there are little businesses in our community where people spend their money: bakers, stores, water taxis, and so on. So the employment we have affects the whole community, not just the workers. In fact, the fish farm workers are becoming quite aware of the benefits, like the medical benefits, of being a full-time employee. These are all the sorts of benefits that we never really had when we were fishing as individual, independent operators.

There are some Ahousaht that have contracts with the fish farms, and we're working on getting bigger and better contracts for people in our community. There are a lot of big contracts available, but we're just gradually learning about them, and educating our people about the opportunities. Mainstream agreed that we would get a first crack at the contracts. Mainstream supports a lot of our youth sports, they sponsor teams and tournaments, and they also sponsor individuals who are going back to school.

The benefits to Mainstream include access to new sites. However, we've already denied them a couple of applications for new sites, and they've respected that. We declared one area a pristine area, and they agreed to remove the Dixon farm site. We continue to work together to improve the sustainability of fish farming and related activities in our territories through regular meetings.

Author

Katie Beach is from Ontario, but moved west to study and then work with the Nuu-chah-nulth nations on the west coast of Vancouver Island. After completing her master's degree in resource and environmental management at Simon Fraser University, she began working for Uu-a-thluk (the Nuu-chah-nulth Tribal Council's Fisheries Department) in 2006 as a fisheries biologist and resource management advisor. She has worked closely with Ahousaht (among other Nuu-chah-nulth nations) and was appointed to the Ahousaht Fish Farm Committee in 2006. Beach has been involved in coordinating sea lice research, and acts as a technical advisor for Ahousaht on environmental questions relating to fish farms.

Katie Beach

Wading through the Science and Sensationalism of Fish Farming in Ahousaht's Traditional Territories

I am going to discuss the potential impacts of fish farming on Ahousaht's traditional territories. Of course, fish farming may be experienced differently in the Ahousaht First Nation's territories in Clayoquot Sound than in the Broughton Archipelago, or in Norway. There are important geographical differences to consider, ranging from variations in salinity and temperature to the complement of native species found in a particular place. For instance, native wild Pacific salmon react differently to sea lice and other disease organisms than do wild Atlantic salmon. This means that the threats to wild Atlantic salmon from fish farming may be different from the threats to wild Pacific salmon, even though the farmed salmon are often Atlantic salmon even in Pacific waters.

In the 1970s fish farms started to appear in British Columbia, but the species being farmed were mostly local in origin. In the 1990s Atlantic salmon farming began in Clayoquot Sound, and local concerns with fish farming began to grow. First Nations were not being consulted about where the farms would be placed and how this would impact the communities. Government allowed industry to place the farms wherever they wanted, sometimes directly in the mouths of rivers, which restricted access to traditional fishing grounds or clamming areas. Not surprisingly, there was a lot of contention. In 1995 the British Columbia government placed a moratorium on the licensing of new fish farms. At that time there were 121 tenures in the province. The moratorium, however, only restricted new tenures and didn't restrict increases in the size of fish farms or their stocking density. By the 2000s, fish farms were no longer

Acknowledgements

I want to acknowledge Uu-a-thluk, the fisheries department I work for at the Nuu-chah-nulth Tribal Council, and the fourteen nations, including Ahousaht, that support my role. I also want to acknowledge the Ahousaht Fish Farm Committee and the Ahousaht Fisheries Department, with whom I work closely. And of course, I want to thank the workshop organizers for inviting us all to be here today. Finally, I'd like to acknowledge Darrell Campbell, who was the Ahousaht fisheries manager. Darrell worked in the fisheries department for Ahousaht for almost 20 years and was involved in all sorts of research and policy making in Clayoquot Sound. He was a very strong and respected voice on First Nations fisheries issues in Canada. He had planned to be here and was looking forward to this trip to meet other indigenous people from Canada and Norway, but was killed in a car accident a few weeks ago. He will be missed and I wanted to acknowledge him here today.

small family businesses; operation costs had gone up, and farms were required to do more costly environmental impact assessments and to pay tenure fees to the provincial government. Therefore, during those years, fish farming operations became, to a large extent, consolidated. Today all the farms in Clayoquot Sound are run by two international corporations: Mainstream, whose parent company is the Norwegian giant Cermaq; and Creative Salmon Ltd., which is a smaller venture specializing in a high-end Pacific chinook product.

In 2000 Ahousaht representatives entered into discussions with the fish farming company (at that time Pacific National Aquaculture), and it took years of negotiations to develop a protocol. In 2002 the moratorium on new fish farms was lifted by the British Columbia government, and in that year the Ahousaht First Nation signed the first protocol agreement with Mainstream. That protocol was revisited again in 2006, and the second protocol was signed in 2010. Today, because of that protocol, Ahousaht has input into how fish farms are operated in their territories and also receives financial compensation for the use of their resources. The protocol has led to employment opportunities and greater input into natural resource management. Other industries are starting to follow suit, by seeking protocols or partnerships with Ahousaht to conduct business in Ahousaht's traditional territories. The protocol requires the company to report to Ahousaht any adverse environmental effects. The protocol agreement also ensures that if Ahousaht has concerns that it is not able to resolve through discussions with the company, there is a process for reconciliation that includes mediation by an outside party. If an agreement still cannot be reached, the Ahousaht First Nation has the legal power to shut down farming operations within its territories. This type of involvement in the management of resources is not something that many other First Nations have. The protocol agreement, therefore, puts Ahousaht in a very strong position.

Sea lice is the most frequently cited impact of fish farming on wild salmon stocks. Ahousaht and the Uu-a-thluk fisheries department have been part of the Clayoquot Sound Sea Lice Working Group since 2004. This cooperative effort helps to build trust and understanding between parties that may not always see eye-to-eye. It's one of the first studies of its kind in British Columbia, and the main focus is to look at the prevalence of two species of sea lice in migrating juvenile wild salmon. The Working Group is a partnership between industry (Mainstream Canada and Creative Salmon Ltd.) and

two local First Nations (Ahousaht and Tla-o-qui-aht). We sample throughout Clayoquot Sound, doing beach seines to capture juveniles of all species of salmon. However, our analysis focuses on chum, partly because in our area other species are not present in high enough numbers for an analysis that would lead to statistically significant results. When we catch other species, we identify the lice present on the fish and then release the fish live. When we catch chum, we keep a subset of the catch and send it to the lab for identification and for professional analysis of the sex and developmental stage of any attached parasites. We use the same field and laboratory methods that are used all over British Columbia. Some groups have now moved towards live identification of sea lice and live release of salmon, but recent research shows that a lot of those juvenile salmon still do die afterwards. Furthermore, the data is questionable, because it cannot be reproduced and depends on the individual analyzing the fish in the field. A recent study showed that even people who identified as experts on sea lice often made mistakes. So our research group has, at least for the time being, decided to continue to send samples to a professional lab for identification.

From 2004 to 2007 we captured almost 73,000 chum salmon and analyzed 5,500 of them. Of those analyzed, 636 were infected with sea lice—a low level of infection compared to other areas. We know this because I accompanied members of the Ahousaht fisheries department to the Broughton Archipelago a few years ago to work with a research group there. We noticed that their fish were covered with lice, and that's not something that we tend to see in Clayoquot Sound. Sometimes we'll haul in a seine and we will notice that there are a lot of lice covering the wild salmon in the net, but that is more of a rarity. When that does happen in Clayoquot Sound, there can be a number of factors that account for the high lice counts, including algal blooms and high salinity. In our study, we looked at water quality and the incidence of sea lice infection at various locations, including locations in close proximity to fish farms. What we found was that salinity is the most important factor in the distribution of sea lice in the inlets.

This study does not get much attention, in part because it doesn't say what people expect it to say. Critics point out that industry is involved and, therefore, the study must be biased. However, Ahousaht and Tla-o-qui-aht decided in 2004 that if they waited for the government to do research in the area, or waited for academics to conduct research in the area, then they would be waiting a long time. Instead they worked with researchers from government, the industry, and Uu-a-thluk to design a program that

would align with other research going on in British Columbia and worldwide. In doing so, they put in place safeguards to ensure that industry could not hijack the study. The resulting collaboration has created a climate of understanding and trust among local First Nations and the fish farm companies, and has allayed some of the fears of the Ahousaht leadership.

Since the results of our sea lice study were made known, other researchers have come to Clayoquot Sound to do similar work, but they're reporting different conclusions, and people often ask why that is so. The answer lies partly in how researchers interpret their findings. For example, one research group that took two plankton samples reported to the media that the numbers of sea lice larvae were extremely high in Clayoquot Sound—higher than anything that they had ever seen in the Broughton Archipelago. However, there was little data from other parts of the world with which to compare these results, and in our own experience the number of larvae found in samples from Clayoquot Sound is orders of magnitude lower than those found in samples from Europe. Moreover, the study was based on a few samples taken on one day and never replicated, which is usually considered very weak science. However, because the researchers have a good reputation, that study often gets cited by the press, which is very misleading. Another group from the United States recently began conducting sea lice research in Clayoquot Sound and has been reporting different findings. Part of the reason for this may be that these researchers have been excluding important sampling periods from their statistical analyses, thereby skewing the results. Instead they focus on the one or two weeks during the year when there are algal blooms. Basically, everybody doing research has some sort of bias. The real stakeholders in this controversy—the Ahousaht people, who are the traditional managers of the territories—need to consider these biases and not trust blindly in "science." Our own study has flaws, and if we continue with this research, we'd like to work to minimize those. For now we can only acknowledge those flaws and try out the research methodologies used elsewhere.

Our research has shown that the incidence of sea lice is not the most important factor determining wild salmon survival rates—at least it is not as important a factor as in other parts of British Columbia or in Europe. Other biological threats stemming from fish farming operations are often ignored. For example, there has been a lot of research on the use of Slice, a neurotoxin, and some attention has been paid to concerns

about its accumulation in wild organisms. However, it is not often used in Clayoquot Sound due to the lower incidence of sea lice outbreaks there. Copper is used to coat fish farm nets, because it is anti-microbial and, thus, helps keep the pens cleaner. Copper is very toxic to aquatic organisms, such as lobsters, tunicates, and prawns. Norwegian farms no longer use copper-coated nets and Ahousaht has asked Mainstream to discontinue their use.

There are many known salmon diseases that can potentially be transmitted from farmed salmon to wild salmon and vice versa. These problems may be more acute in Canada, because of how fish farms are sited. Fish farms are located in inlets and coves, where they are protected from wind, weather, and ocean currents. However, those are also places where juvenile wild salmon and herring rest and bulk up on their way out to sea, and where adult fish rest on their spawning migrations.

The companies operating in Ahousaht's territory are farming Atlantic salmon. So far, there is no evidence of Atlantic salmon successfully reproducing in the wild on the Pacific coast, but adult escaped Atlantic salmon have been found in rivers, where they may compete with wild Pacific salmon for food and prey on juvenile salmon. Farmers contend that escaped farmed fish are not successful predators since they haven't had much experience catching live fish, but it is still a concern whenever escapes occur.

There are other concerns that I have not discussed here today, but I have presented some of the ones topping the list for Ahousaht when discussions over fish farming impacts arise.

Author

Otto Andreassen has a master's degree in fisheries science from the Norwegian Fisheries College at the University of Tromsø, with a major in coastal zone management. He has wide-ranging experience with aquaculture from working both with industry and governmental management agencies, and as a consultant. Andreassen now works as a researcher at Nofima in Tromsø, where he focuses on aquaculture, governance, and the development of coastal areas.

Otto Andreassen

Sustainability in Fish Farming: Global and Local Challenges and Opportunities

My talk is based on a sustainability framework and focuses mainly on salmon farming in Norway, but I hope that at this workshop we will be able to discuss how the Norwegian experience with fish farming compares with that in Canada.

When we were flying over all the farmed fields yesterday, I thought of the enormous impact that agriculture has had on the environment. Human beings have always struggled to feed themselves, and from a historical perspective, the introduction of the plough and agriculture turned out to be humankind's greatest achievement. In addition to representing a more secure food supply, agriculture contributed to a revolution in humankind's way of life, but it also contributed to the tremendous changes of Earth's natural environment and landscape. The global population will increase to over 9 billion by 2050. In order to feed this larger population food production must increase by 70 percent, and according to the United Nations Food and Agriculture Organization (FAO), the demand for seafood will increase greatly. This demand will need to be met by aquaculture.

Although the containment of fish in ponds to secure supplies in times of shortage can be traced back to ancient times, the introduction of sea cages for fish farming was the real technological quantum leap. More than 70 percent of our blue planet's surface is covered by ocean, but we still only get about 3 percent of our food from the sea. The amount of farmed fish raised in the sea is clearly growing, and, seen in historical perspective, the sea cage could be considered as important to aquaculture as the plough is to agriculture.

Last year the production of farmed salmon in Norway was almost 1 million tons. The value of this production now exceeds the value of the wild fish harvest, and the salmon farming industry has become of vital importance for employment and settlement in many local communities. Like other food production and fisheries, fish farming involves interaction with the surroundings and leads to a number of changes in environment, economy, and society. It is also obvious that salmon farming has negative environmental

and social impacts, which must be resolved. As you already know, these topics generate a great deal of controversy among stakeholders, governmental institutions, scientists, and non-governmental organizations.

Sustainability has become a popular word to use in several situations, and is used to justify all sorts of diverse interests. The definition of sustainable development used by the Brundtland Commission, and the United Nations (UN), is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

A commonly applied framework, when defining sustainable development, consists of the following three perspectives: environmental, economic, and social. In addition, a fourth perspective called institutional or governance is also often included. This framework is also the basis for the FAO's guidelines for sustainability. A popular illustration shows sustainable development as the roof of a building, and the environmental, economic, and social perspectives are the load-carrying pillars. It is often pointed out that all these pillars must be "equally well developed," to be able to achieve a sustainable building.

Sustainable development can be carried out on a range of different levels, from the micro level for companies to a global level. Each level follows its own path, by defining specific criteria and indicators. It is clear that sustainable development is a complex task, as it can be difficult to define and categorize the various criteria and indicators. We may not have the necessary knowledge, there can also be conflicts between the various criteria, and it can be difficult to decide which criteria are the most important. The focus will also vary depending on different interests and perspectives.

There exist different international standards and guidelines on how to develop criteria and indicators. For aquaculture, the UN's Code of Conduct for Responsible Fisheries is the key international instrument for sustainability. The code was developed in 1995 by the FAO in cooperation with more than a hundred countries. Article 9 deals with aquaculture, and sets out a range of principles and standards on how aquaculture should be conducted to ensure sustainability. Besides the environmental focus, the code also focuses on livelihoods in local communities, and calls upon countries to promote the participation of both local communities and fish farmers in aquaculture development.

The FAO has also developed several principles and guidelines to assist in the implementation of the code. The UN member states are responsible for the implementation of the code, and in 2009 the Norwegian government presented a strategy for an environmentally sustainable Norwegian aquaculture industry, where the focus of attention was on escapes and genetic interactions, as well as fish diseases and parasites.

It appears, therefore, that the Norwegian government's focus is on environmental sustainability, with very few strategies and guidelines related to the social, economic, and institutional sustainability, such as questions related to local ownership rights and local economic impacts. The focus on environmental sustainability has led to improvements regarding the ecosystem, but at the same time, the industry has become more industrial and the distribution of both the positive and the negative effects has thereby changed its impact area. Communities do not see sufficient local benefits from the presence of salmon farms, and have become increasingly critical of the industry.

When fish farmers apply for a site license, there is little opportunity for local concerns to be heard, unless it can be argued that the fish farm will have a negative impact on the ecosystem or come into direct conflict with fishing grounds. Arguments about rights to local participation, and about negative social effects are not considered particularly valid. Local opposition to the salmon farming can thus often be turned into a discussion about ecosystem impacts and environmental sustainability.

Government aquaculture regulators often give little weight to the statements of local politicians regarding the environment, and consequently the opposition of local communities is often not taken into account in the decision-making process. By defining the controversy over fish farming almost entirely as a question of environmental sustainability, we are failing to address many unresolved issues regarding salmon farming industry, related to cultural impacts, local development, rights, knowledge, and governance.

The sustainability regime I have described is centralized and follows a top-down management model, though it does claim to be concerned with local participation. Municipalities have little direct influence on aquaculture policy, but they do have responsibility for coastal zone management and thereby have an indirect influence on the industry. Municipalities have far-reaching authority in coastal zone management, and may de-

cide not to allocate space for aquaculture. This is happening with increasing frequency among those municipalities that are negatively disposed towards salmon farming and that do not see sufficient benefits from the industry.

This can be problematic, because fish farms are located in a biophysical environment, where the transfer of potential diseases, parasites, pollution, and escapes occurs independently of how municipal borders are drawn. Furthermore, the end effect of such decision-making is that salmon production becomes concentrated in the remaining areas, which do not necessarily contain the best sites. Coastal zone management nowadays is a complex and demanding task. It may, therefore, be sensible to conduct such planning for larger regions, and this would require the involvement of both county authorities and the Sami Parliament in the planning process.

In drawing attention to coastal zone planning in a sustainable context, I am arguing that this type of planning is well suited to a local approach to questions of economic, social, and environmental sustainability. However, it is essential that this type of planning is a collaborative effort between local, regional, and national authorities; local interests; the fish farming industry; and the research community.

In conclusion, we have seen that:

- An international framework provides guidelines for achieving sustainability, and for including environmental, economic, social, and institutional perspectives.

- Too narrow a focus on only environmental sustainability leads to deadlocked discussion on salmon farming.

- A focus on environmental sustainability may suppress fundamental questions about the salmon farming industry—questions of rights, knowledge, development, governance, and culture.

- Integrated Coastal Zone Management can be well suited to a local approach to sustainability.

Camilla Brattland and Dorothee Schreiber

Summary and Concluding Remarks

The essays included in this publication provide rich insights into how relations between salmon and indigenous people have been transformed by Western fisheries management and by the emergence and growth of the salmon aquaculture industry. While we expected to find sharp boundaries between the positions of members of those indigenous communities that were opposed to the presence of salmon farms in their waters and those that were not, the workshop itself painted a more nuanced picture of how salmon farming is experienced in practice. In the final session of the workshop we asked participants to make suggestions for how to move forward with an international indigenous agenda on fish farming.

Otto Andreassen (NOFIMA): I have been working on aquaculture for more than 30 years, and have heard many different stories regarding the interaction between fish farming and the wild salmon. Indeed, there are many factors besides fish farming that will determine the fate of the wild salmon. These are topics that generate a great deal of controversy among stakeholders, governmental institutions, scientists, and NGOs, and there is a considerable disagreement in what way and to what extent fish farming affects the stock of the wild salmon. In order to move forward it is necessary to develop a more common knowledge base, for the salmon in general and the interaction between wild salmon and the fish farming industry in particular.

Fred Metallic (Gespegewaq Mi'gmaq): Indigenous nations are in the process of rebuilding their economies and political systems. Fish farming is an issue, but how do you take advantage of this issue to develop your economy and political system? The position from which you speak depends on where you are in that process in each of your respective nations. How can we maintain momentum so we can address future issues? We are all struggling to maintain a sense of political identity to help our people lead

quality lives, have good jobs, good food, responsible industries, and so on, but each nation is experiencing a different situation. At the same time, we have a common global vision. This is not something we can answer right away. We need to continue talking a while longer in order to be able to answer this.

Based on the talks and discussions held during this workshop, we found that indigenous positions on fish farming included ones of zero tolerance, cautious acceptance, and precautionary action, but also contained significant points of agreement, especially when it came to concern for wild stocks, indigenous rights, and moving forward with an international indigenous agenda on salmon.

Katie Beach (Nuu-chah-nulth Tribal Council): Each nation asks for their authority to be recognized in their territory. So it's not about "we are all against," or "we are all for."

David Frank (Ahousaht): We have to acknowledge that we have two factions working together: those that work with fish farms and those that don't. We have to have dialogue with one another so that we can work together and document and share the things that are working and the things that aren't working. Acknowledgement of title is key, whether by government or industry. It has to be done. We just won a court case—they recognized Ahousaht as a nation—so it can work for other First Nations in Canada.

A number of indigenous communities, such as some of those in the Broughton Archipelago are engaged in an ongoing conflict with the salmon farming industry. The First Nations represented by the Musgamagw Tribal Council, along with other First Nations, such as the Homolco of Bute Inlet, have in recent years appealed to Norwegian authorities to consider the impacts of the Norwegian-owned fish farming industry on wild salmon. Fish farms in this area are located in narrow inlets and in close proximity to salmon migration routes, traditional clam beaches, and fishing spots. These First

Nations believe that fish farms operate in places to which they hold aboriginal title and do so without their consent, and that the industry is a threat to the wild salmon of the area. Bob Chamberlin of the Kwicksutaineuk Ah-Kwa-Mish First Nation spoke of his people's history of engagement with environmental groups, industry/nongovernmental organizations (NGO) "dialogue" tables, and provincial environmental assessment processes—none of which led to results that were acceptable to leaders of the communities.

Kjell Magne Johnsen (Tana Salmon River Association): The way fish farming is managed is a threat to the wild salmon. There is a huge amount of research all around the world to show its negative impact on many levels. All our discussions show the impact on wild stocks.

Wally Samuel (Ahousaht): At this meeting, I learned more about where Bob Chamberlin is coming from. We need to talk to each other more locally. We believe that there is risk—and we could have shut the industry down. The government in Canada is realizing that we have authority over our lands, and times are changing now. We have a new generation that's lived among us for a few hundred years. We have different organizations much like your Sami Parliament, for example the Assembly of First Nations, and Metis and Inuit organizations. We have our own government, and we are dealing government to government. Because of the court cases we've won on aboriginal rights, they have to meet with us. I'd like to see more of our own scientific information that we can believe. We have to get together more locally, and take the time to sit down and take in information. We need to get to know one another more in Canada before we can reach out to appreciate the situation the Sami are in. I also want to be involved with experiences in our countries, and with issues such as lights, copper, etc. But we are ocean fish people. That's our food.

In some cases, there is a cautious mutual acceptance between the indigenous peoples and the industry. After an initial phase of conflict and direct action against the fish farming industry and an extended negotiation process, the Ahousaht entered into a pro-

tocol agreement with Pacific National Aquaculture (now Mainstream Canada, which is owned by the Norwegian parent company Cermaq) in 2002. The Ahousaht First Nation agreed not to oppose the placement of fish farms in their territories in exchange for recognition by the company of its hereditary chiefs. This agreement was beset by problems of implementation, expired, and then was renewed in 2010. From the perspective of Ahousaht, the agreement is aimed at limiting environmental impacts and contributing to employment. Several other First Nations in British Columbia have joint venture or protocol agreements with the aquaculture industry. Mi'gmaq in Newfoundland do not explicitly disallow fish farming on their territory, but are experiencing decreases in the wild salmon stocks of two rivers. The representative from Conne River, Ross Hinks, believed that the industry is probably going to be operating in his community's waters for some time to come, and that it therefore needed to be held accountable for escaped fish and for impacts on the wild stocks.

Ross Hinks (Conne River Mi'gmaq): Everyone must realize that aquaculture is here to stay. The industry needs to be held accountable. Maybe closed containment is the key. It is said that it's non-economical, but is it economical to lose your stock through escapes? I would like to see fish marked so that we can know where the escaped fish originated.

Bjarne Johansen (Tana Sea Salmon Fishers' Association): For the future we have to demand that the fish farms are in closed containment. This may be hard for the fish farm industry to hear but we have to have this as a goal, because this is about our future. I like the suggestion from the Sami Parliament, but we have to realize that only half of the existing licenses for fish farms have actually been put into use. Also, the Gulf Stream may help the lice to spread along the coast of northern Norway if those extra licenses are put into use. If we lose one generation of fish we are in deep trouble. As a response to David: we have to be in dialogue with one another, as we have been in the same situation in Norway.

Paul Robinson (Ahousaht): Closed containment is being pushed in western Canada. My boss said that if they relocate somewhere else in the world, it

becomes another group of indigenous peoples' problem, where they can continue doing what they're doing. What I hear all the time is sea lice being studied—this issue has everyone's attention. There should be a global ban on the use of night lights on cages. Fish are attracted to the lights, it's been observed in our area by our people for a couple of decades. This should get a lot more attention than it has. Everything goes to the light in the water. That could be a reason why the fish stocks are so low.

Indigenous groups who have little or no salmon farming in their own areas but who are critical of the industry and understand it as a threat to wild salmon are exemplified by the Gespegewaq Mi'gmaq and the sea and river salmon fishers of northern Norway. The number of fish farms is still low in the Canadian Maritimes and in Finnmark, Norway. Yet concern about the industry's environmental impacts on migratory populations of salmon and cod populations is growing, among both river fishers and sea salmon fishers. Sea salmon fishers in Finnmark currently are strictly regulated by state fisheries authorities. In addition to an increase in sport fishing tourism, this has the effect of greatly limiting where the traditional sea salmon fishery can be carried out. The impact of fish farming on indigenous access to salmon is therefore cumulative. Some herring, cod, and juvenile salmon are attracted to the feed available in open net pens, which may promote the growth of these wild fish. Yet fishers in other areas have reported that wild fish seem to shy away from the fjords and bays where salmon farms are located. Salmon farming is now intensifying in Finnmark, and Sami concern over problems with sea lice and diseases in wild salmon is growing. Likewise, despite the government moratorium currently in place in their territory, Fred Metallic and his father, Isaac Metallic, see that the Mi'gmaq fishery, Mi'gmaq law, and the treaty relationship may soon be undercut by industry expansion.

Isaac Metallic (Gespegewaq Mi'gmaq): If fish farms are established in our territory, we as Mi'gmaq will have to discuss this. Before they come to our territories they are going to have to sit down with the Mi'gmaq nation and discuss the state of the salmon. We must be prepared.

Despite their differing interpretations of the economic and environmental impacts of the salmon aquaculture industry, the indigenous participants: (1) shared a common concern for the future of the wild salmon as an inextricable part of who they are as indigenous peoples; (2) expressed a strong desire to work on a global level with other indigenous peoples on emerging issues in salmon aquaculture, and to speak with a united voice on those issues; and (3) talked about a clear need to work, simultaneously with their international efforts, at local and regional levels in order to get a mandate for continued, collaborative work internationally.

Liss-Ellen Ramstad (Sami Parliament): A United Nations (UN) indigenous conference on indigenous rights will be held in 2014. A preparatory conference is to be held in Alta, Norway in 2013. This could be an arena in which to meet and work towards ensuring that the UN Declaration is followed up on, and not forgotten. In order to have a voice within the UN system, it is important to gather the indigenous voices (as well as NGOs). There should be travel funding for indigenous groups to come to the preparatory conference. The meeting could also be an opportunity to discuss fish farming issues.

Marianne Balto (Sami Parliament): We have three suggestions: (1) We have concluded in the Sami Parliament that the fish farming industry is a threat to the wild salmon stock and we have seen this clearly in Norway, especially in the west. So our suggestion from the Sami Parliament is that any newly established cages should be in closed containment. (2) All the companies should be aware of local indigenous peoples' perspectives. We are working on that in Norway, but we think it should be standard for companies all over the world. (3) This suggestion is directed to Norwegian companies: all Norwegian companies should be certified to UN standards when they are operating around the world. We have made this claim in Norway. And it has initiated a project which is trying to work with these standards.

Fred Metallic (Gespegewaq Mi'gmaq): We have common concerns because salmon leave our rivers, your rivers, they go to Greenland to feed,

and come back to our rivers. Through the salmon we have a relationship. How do we foster that relationship? I am here to strengthen the relationship between the Sami people and the Mi'gmaq. The Grand Council has to get involved in this issue. We have to start formulating an agenda on how to deal with this increasingly predominant industry. How is industry being used to further the state's encroachment on our rights? This means acknowledging what has happened and changing how you are dealing with indigenous peoples. We, in our communities in Mi'gmaqi, see it as a food security issue. More of our people are being asked to eat grocery store food. Nobody has talked about the food issue. I want an agreement to work together, to strategize on how we are going to address this issue. Can we set standards that we can reference in our work? How can this be coordinated by different levels of government in Canada and in Norway?

Bob Chamberlin (Kwicksutaineuk Ah-Kwa-Mish): I'm happy that we've come together. Our concerns are echoed in other parts of the world. We need to find a way to honestly come together. A divided opponent is easier to win against. In unity we can make some changes—changes so vital to the ways of our people. Our authority is not based on science but based on who we are and our territories. The Gwawaenuk tribe has a position of zero tolerance to fish farming—this is based on the authority we hold over our territory, not on science. Our stance is that the territory is worth more than anything the industry could offer. It's not based on science, but based on our rights. That has to be our starting point. We should pull our common concerns out of these two days of meetings, and come up with a joint statement based on rights, not on science. Then we can compare that to the UN Declaration. That is the link between our two countries.

Photos from the Workshop

Salmon Voices: Indigenous Peoples and the Fish Farming Industry
Munich, 7–8 October 2011

Figure 1: The Sami delegation in front of the Amerika Haus. From left to right: Bjarne Johansen, Håvald Hansen, Marianne Balto, Kjell-Magne Johnsen, and Steinar Pedersen. Not pictured: Liss-Ellen Ramstad (Courtesy of Camilla Brattland).

Figure 2:
The delegates from British Columbia. From left to right: Bob Chamberlin, Dave Frank, Wally Samuel, and Paul Robinson (Courtesy of Felix Atencio).

Figure 3: The delegates from Canada. From left to right: Fred Metallic, Isaac Metallic, Dave Frank, Wally Samuel, Paul Robinson, Ross Hinks, and Bob Chamberlin (Courtesy of Felix Atencio).

Figure 4: Workshop proceedings (Courtesy of Felix Atencio)

Figure 5:
Håvald Hansen, Marianne Balto, and Steinar Pederson joiking "Deanu Maija" (Courtesy of Camilla Brattland).

Figure 6:
From left to right: Paul Robinson, Wally Samuel, Dave Frank, and Bob Chamberlin, performing a song from River's Inlet after dinner (Courtesy of Camilla Brattland).

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Many people contributed to the success of the workshop, October 7–8 October 2011, on indigenous peoples and the fish farming industry: *Salmon Voices*. This workshop would never have been possible without Christof Mauch's enthusiasm and unwavering support for our idea. Stine Barlindhaug (Fram Centre, Tromsø) was closely involved in the planning process from the very beginning, and also provided help with translation at the workshop. Per Hætta Klemetsen, administrator at the Centre for Sami Studies at the University of Tromsø, coordinated travel for the participants from Norway. We also wish to extend our sincere thanks to Claudia Reusch and Andrea Cooke of the Rachel Carson Center for Environment and Society for their expert help with accounting and making local arrangements. Julia Staudinger, Pierre Lipperheide, and Marie-Theres Recifo ensured that everything ran smoothly on site at the Amerika Haus. We appreciate the logistical assistance of Zoe Kusmierz, Program Director at the Amerika Haus München, and thank the Amerika Haus for allowing us the use of their meeting rooms.

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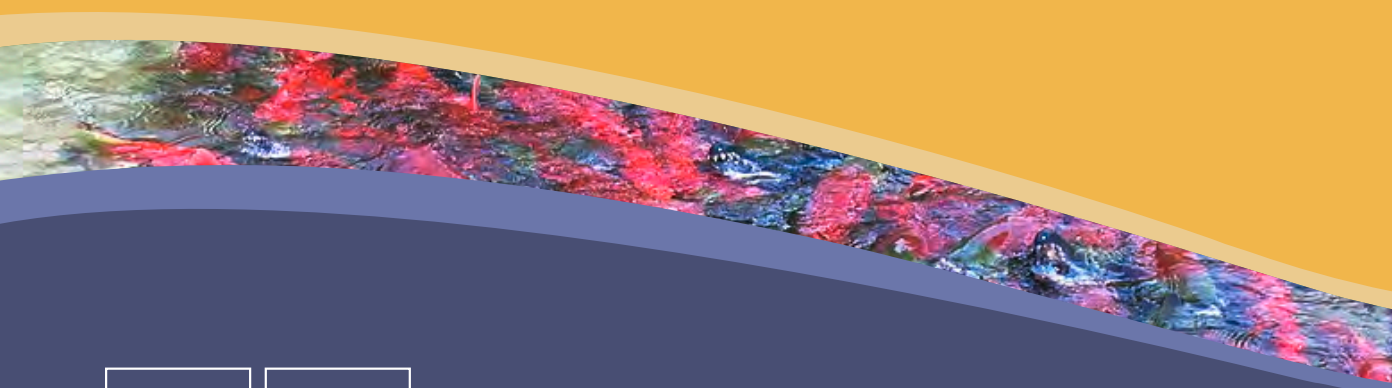
The coastal indigenous peoples of Canada and Norway have in common a globalized salmon aquaculture industry. They are also linked by their common reliance on the wild salmon—lineages of fish whose futures are intertwined with their own as indigenous peoples. In this volume, diverse salmon cultures—from the aquaculture industry and biology, to northern Sami and First Nations—speak about life and work with salmon.



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