THE SOCIAL CONSTRUCTION OF SALMON FARMING IN BRITISH COLUMBIA:
POWER, KNOWLEDGE, AND PRODUCTION

by

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ABSTRACT

My study deals with the controversy over salmon farming as a problem in the sociology of knowledge. I demonstrate the reality of social constructs of salmon farming by locating knowledge within people's everyday, lived experience. By thinking with and against one another, people are able to recreate the conditions under which salmon farming is possible in the first place. At the same time, the interactions through which these meanings about farmed salmon are constructed take place in historically unique and culturally specific contexts. I find that the things of salmon farming are continuous with the patterns of social action and interaction in which people are enmeshed. I try to understand the relationship between power and knowledge by looking to people's interests and activities for the basis of their understanding of salmon aquaculture. My study focuses largely on the relationship between two First Nations groups, the Namgis and the Ahousaht, and the salmon farming companies operating in their territories. I examine how the colonial conflict over modes of production reappears in the controversy over salmon farming, and how farmed salmon is constructed by salmon farmers through the exercise of colonial power. In particular, I explain the techniques used by salmon farmers to exercise control over natural resources and over opposing environmentalist and Native forces.
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<td>Vancouver Island and the adjacent mainland, divided roughly into aboriginal language groups. The two study locations, Ahousaht and Alert Bay, as well as the locations of the Leggatt Inquiry, are indicated.</td>
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CHAPTER 1. INTRODUCTION

SALMON FARMING AND THE (POST) COLONIAL CONTEXT

Simon Lucas, hereditary chief in Hesquiaht, co-chair of the BC Aboriginal Fisheries Commission, former chair of the Nuu-chah-nulth Tribal Council, and generally a well-known Native leader in British Columbia made the following statement on September 24, 2002, at the opening of the BC Aboriginal Fisheries Commission’s Fish Farming and Environment Summit:

I have been thinking for a few days now about the conference that’s happening now, and thinking about it’s just a few short years ago that our people saw the greatest change that began in a place called Yuquot, where Captain Cook landed. And the people from there said that from that landing they knew that change was going to come, some changes were going to affect our people, and our people had that vision about the change that was going to impact the lives of great-great-grandchildren; and here we are today. Another man that spent a great deal of time in Yuquot, known as Friendly Cove, was John Jewitt. As you know, history tells you that the Mowachaht people slaughtered off the sailboat and its crew, and the reason that John Jewitt – the reason his life was spared was that he was to tell why his mates were slaughtered... So we have seen some slow changes and some extreme changes in our lifetime. So we’re here to talk about the future. What is that – how are we going to handle the future in our hands along with the changes that are coming forth?

What Simon Lucas points out very clearly is that in order to talk about salmon farming at all, we must locate the industry in both time and space. By launching directly into a discussion of the ways in which the past is relevant to the present controversy over fish farming, Simon Lucas seems to acknowledge the continued colonial context of this industry. Simon Lucas’ tribe, Hesquiaht, inhabits the peninsula that forms the southern edge of Nootka Sound, where Captain Cook landed in search of supplies that fateful day in 1778. Since then, salmon farmers have landed in the region, and the entire territory represented by the Nuu-chah-nulth ("all along the mountains") Tribal Council of western
Vancouver Island is dotted with ocean net pen sites. I focus in this thesis on salmon farming in the Ahousaht territory of northern Clayoquot Sound, just south of the Hesquiahts and Mowachahts encountered by Captain Cook and his crew.

Directly across the mountains that form the backbone of Vancouver Island are the Namgis, one of a group of Kwakwala speaking tribes inhabiting the northeastern part of the Island. The Namgis, though now restricted to a tiny reserve at Alert Bay, once had command of the entire Nimpkish Valley and part of Johnstone Strait. In fact, the same Nuu-chah-nulth people who directed Captain Cook's ship to "go around - 'Nootka'" the point to find safe harbor in the inlet were involved in a lucrative overland trade with the Namgis. The European fur trade was slower in coming to Namgis territory than to the Nuu-chah-nulth and other people of the outer coasts of British Columbia, but by 1792, the Namgis had obtained muskets and other European commodities by trading them with the Nuu-chah-nulth for ooligan grease.¹ Many such "grease trails" traversed British Columbia, sometimes far into the interior. Ooligan grease is a valuable oil rendered from fish that return to spawn in only a few large rivers on the mainland of British Columbia. Today, all ooligan runs are in critical condition, and many members of the Namgis First Nation blame, in part, the presence of fish farms in and around Knights and Kingcome Inlets for the continued decline in the ooligan fisheries there. The Namgis First Nation is currently experiencing the highest concentration of fish farms anywhere in British Columbia, and their ocean territories, and those of the adjacent tribes of the Broughton Archipelago, quickly became another focus of this study (see figure 1 for an overview of reserve and town locations).
Salmon farming appeared in British Columbia in the early 1970s, but at that time it was restricted to a few small operations on the Sunshine Coast. Problems with toxic algal blooms and poor water circulation plagued these early attempts at raising salmon in net pens, and by the mid 1980's the industry had moved to the northeastern and northwestern coasts of Vancouver Island. It was only after Atlantic salmon were introduced into netcage operations that the industry, and a market crash in 1989, during which many salmon farming companies went bankrupt, that the industry began to expand quickly and in earnest. By 1991, the salmon aquaculture industry held 173 tenures. In the meantime, the troubled wild fishery had been undergoing considerable re-organization, and new license limitation schemes that started with the Davis Plan of 1968 continued after the recommendations of the Pearse Commission in 1982. The fishing industry was losing vessels, and becoming increasingly capitalized. The salmon farming industry too had changed, from small, family-operated netcages to large, capital-intensive, and globalized operations. Today, over 80% of fish farms are held by five corporations, only one of which is Canadian-owned.

Throughout the 1990s, environmentalists and other local people, particularly Native people, began expressing serious concerns about the impact of salmon farming operations on wild fisheries and coastal habitats. Although a brief moratorium on the industry in 1986 had been lifted following David Gillespie’s inquiry in 1986, new environmental concerns over the rapid expansion of the industry led to a provincial moratorium on further netcage aquaculture expansions in 1995. A 16-month long Salmon Aquaculture Review began, and Native people from throughout the salmon farming regions in Nuu-chah-nulth and Kwakwaka’wakw territories were invited to make submissions. From the beginning,
aboriginal people, like environmentalists, have been suspicious of this industry and claims that they would benefit from it. The Review’s report recommended proceeding “with caution,” and while it did not recommend a dramatic change in salmon aquaculture practices, it did not lift the moratorium on permits for new netcage sites either. However, when the BC Liberals took power of the provincial government in 2001, the moratorium was lifted, and the application process for new sites and site relocations was streamlined.

As of this writing, there are 121 licensed marine salmon farms in British Columbia. Most of the sites are now concentrated in the bays, inlets, and channels between the northeastern coast of Vancouver Island and the adjacent mainland. This area, between roughly Campbell River in the south and Port Hardy in the north coincides with the traditional territory of the Kwakwala speaking peoples. The siting of 25 fish farms in the Broughton Archipelago alone is of special concern to the Namgis First Nation, and the Musgamagw-Tsawateinuk Tribal Council has been actively working to get fish farms out of that area. The Nuu-chah-nulth people have also been heavily impacted by fish farming, and fish farming sites extend from the northernmost boundary of their language area, Kyukut, to Port Renfrew at the southern boundary. The Ahousaht First Nation, its present-day reserve at Ahousaht, and its traditional territory, Clayoquot Sound, is located at roughly the midpoint of the Nuu-chah-nulth coastline. Over the years, Ahousaht has had an ambivalent relationship with the local fish farming industry, and currently there are around 16 sites in Ahousaht territory alone (though not all of them are presently in operation).

The appearance of this new industry on the coast of British Columbia cannot be properly understood without considering the changes that began with contact and continue to the present day. Aboriginal people are often invited to give presentations at public
forums about issues of common concern like forestry, health care, education, and salmon farming. Afterwards, they are thanked for their presentations, but it is clear that others in the audience usually do not know what to make of what they have just heard. When Michael Marker, for example, told the faculty at Western Washington University that there are many stories told by Lummis and other Indian people about the terrible conditions for Native people at the school in the 1970s, and that these stories must be considered in the university’s attempts to attract more Native Americans, the dean told him “around here, we don’t spend a lot of time dwelling on the past. We are more interested in the present and the future. We like to think positive.” What this response denies, Marker says, is the fact that from a Coastal Salish perspective, “the past is a living and resonant part of the present,” or, as his friend from Musqueam said: “that history is more a part of the present than it ever was in the past.”

Both the distant and the recent past take on new guises in the present day, and the damage exerted by colonial power continues to be felt in the context of salmon farming. Shawn Atleo, a hereditary chief (ha’wiih) from Ahousaht, said at the Fish Farming and Environment Summit that his father was always very careful to ensure that I was alert to ... how these changes have occurred to our people, the movements of colonization. The thoughts that were beginning to spring up in the 1500s in Spain, when reports were being sent back by the early explorers about these people, these Indians... He’s always been very careful that I understand the tremendous force of colonization, not as it pertains necessarily to Atlantics [Atlantic salmon], but as it pertains to my people and the movement across the Americas.

Here, Shawn Atleo is making a direct connection, not just between early colonialism and the present, but also between colonization by an exotic and possibly invasive species,
Atlantic salmon, into the rivers and streams of Clayoquot Sound, and the movement of strangers into First Nations lands.

For thousands of years, Native communities were flourishing, Simon Lucas and others point out, but recently, during the past 150 or so years of contact, the abundance of resources has been interrupted. It is only by contrast with the past that the present dearth of resources can be fully understood:

In our tribe several years ago we had an archaeological dig, and they went down 5,000 years and decided to quit because it was consistent. Seventy-five bones of different kinds of fish. All the clams there in the case with the remains of our people, cedar bark. Only thing that they found was a slight hint of arthritis. Everyone of the skeletons had perfect teeth.

John Jewitt, as Simon Lucas pointed out, was well aware of the great abundance of dried salmon, smoked salmon, herring, and other fish products that were available before Europeans became interested in these resources: “If you read John Jewitt’s writings, he’ll tell you that he lived among people where there was ... dried salmon, herring, in the same place that they were living.” In fact, Simon Lucas told me, “when Captain Cook visited a chief’s house in Mowachaht, he couldn’t believe the amount of smoked, dried fish that was in there.” By the time John Jewitt was taken captive by the Mowachaht tribe, the trade for sea otter pelts was already well established on the west coast of Vancouver Island. The first prolonged contact with Europeans had come in 1778, with the arrival of Captain Cook, and by 1785, the first trading ship had arrived in Nootka Sound. For a time, the Mowachaht became powerful intermediaries between the Europeans and other Native groups. Nevertheless, there remained the constant threat of being taken over by the newcomers. In the account of his captivity, John Jewitt writes of one day in 1803 when gunfire from the Natives caused two ships that had arrived in Nootka Sound to turn around.
"Our Chief soon regretted having fired upon them, for he feared that they would inform other vessels and prevent them from coming to trade with him."\(^9\)

By the 1830s, however, the sea otter populations of the outer coast of Vancouver Island had been more or less completely depleted. Trade with Europeans from that point on largely bypassed the Nuu-chah-nulth people, and shifted to other locations. The Kwakiiutl, as they were called at the time, now known as the Kwakwaka’wakw, were able to inject themselves as intermediaries in the new land-based fur-trade. Furs from the interior were supplied to European traders on the coast through the coastal Kwakwala-speaking people. This period of relative freedom from colonial rule came to an abrupt end in 1849, when the Hudson Bay Company became entrusted with the task of establishing permanent settlements in the area. In the decades that followed, the colonial Indian Administration gained a foothold throughout British Columbia,\(^10\) and in 1881, the Kwawkwelth Indian Agency was established in Alert Bay.

By the time Indian agencies were being established throughout British Columbia, the alienation of lands and fishing locations was already well underway, and government commissions and agents began allotting the Kwakwaka’wakw to restricted reserves. The Nuu-chah-nulth of the west coast of Vancouver Island fared no better; they came under the control of the West Coast Agency in Port Alberni. Cole Harris’ map of the area just to the south of Ahousaht show that the reserves laid out by reserve commissioner O’Reilly in 1882 confined the aboriginal people of the region to tiny spots of land scattered along the coast, that were intended as fishing stations but did not secure access to the fishing grounds.\(^11\) Much of the good land at the head of the inlets had already been pre-empted by settlers, and O’Reilly was unwilling to return it to the Nuu-chah-nulth. The reserve
commissioners, who worked on allocating reserves between 1876 and 1890, including Sproat, Anderson, and O'Reilly, nevertheless thought that their work had guaranteed exclusive Native fisheries. But with the support of the province, and sometimes the Dominion, cannery owners and logging companies were increasingly able to use the fisheries laws to justify their exclusive use of the salmon fisheries.12

The Hudson Bay Company’s settlement of Fort Rupert was established in 1849, near what is today Alert Bay, and it quickly became a regional center of economic and social activity. The establishment of Fort Rupert reinforced the middleman role of the Kwakiutls, and it provided the incentive for the four extended lineage groups, known thereafter as the Fort Rupert Confederacy, to drive out the previous communities near Fort Rupert. The decades between 1849 and 1921 are often described as the “potlatching years.” During this period, Native people in the region enjoyed great economic and cultural prosperity despite the cultural repression and hardship that had to be endured in order to take advantage of changed conditions. The institution of the feasting, or potlatch system, is central to all Northwest Coast aboriginal societies. Native people, particularly those living in and around Alert Bay, often mention the ban against the potlatch in connection with their fight against salmon farming, and many of the older people remember when the ban was still in effect. In fact, one historian has suggested that the struggle over the potlatch illustrates the contact experience in a microcosm.13

The particular circumstances of the Fort Rupert Kwakwaka’wakw allowed the potlatch to take on new and extravagant forms. The number, frequency, and types of goods that were given away increased dramatically. For example, the amount of standard, Hudson Bay Company woolen blankets distributed at the largest potlatch before 1849 was
only 320, but by 1909, this number had grown to 18,000. The variety of goods expanded too, and European commodities replaced many of the traditional potlatch gifts. Both lay and missionary authorities condemned the potlatch, for it seemed to them to exemplify wastefulness, a lack of understanding of thrift and finance, and laziness during the many days required to attend or give potlatches. Among anthropologists, there has been a great deal of disagreement over the meaning of the potlatch. Some, like Drucker, were convinced that potlatching was the hallmark of a highly ranked and prestige-centric society, others, like Codere, thought that potlatching was a form of “fighting with property,” while still others, like Boas, believed potlatching to be an interest-bearing investment in property. Even missionaries and government agents were frequently unclear about what it actually was they were forbidding, and this confusion led to legal and practical difficulties in enforcing the ban against the potlatch. At the root of the Euro-Canadian complaints over the potlatch seemed to be a discontentment with the seasonal and spatial patterns of production and consumption that went along with the potlatch. One missionary, for example, wrote in a letter to Ottawa that “once winter was over and the Indians had squandered their summer earning, they were ‘compelled to leave their homes and roam about in their canoes in search of food, and thus neglect cultivating their lands and sending their children to school.” Similarly, George Dawson, the geologist and amateur ethnographer, wrote in 1885 that the potlatch led to a waste of property, and “saving but to no good result.” Potlatching prevented aboriginal people from becoming farmers, and from abandoning seasonal rounds and engaging fully in wage labor.

Helen Codere, an anthropologist who worked extensively among the Kwakiutl, said that in most cases, the missionaries and Indian agents had no real understanding of the
meaning of the potlatch.\textsuperscript{19} According to Codere, the potlatch allowed people to maintain and validate their rights to particular names, and the rights and privileges that accompany those ranked positions. Thus an endless series of accumulating, distributing, and receiving property has always characterized Kwakiutl social life, and the capitalist economy could, at least to some extent, be exploited in support of long-standing social and economic traditions. Had the colonial administrators at the time understood the close relationship between resources, production, and the potlatch, they may have felt even more threatened by the systems of governance and power embedded within the institution of the potlatch. The potlatch is evidence of the great surplus Northwest Coast people were able to generate through their systems of production, and anthropologists have tended to comment on the ways in which the people they encountered on the coast were “lavishly supplied” with resources.\textsuperscript{20}

Franz Boas identified the numaym, or “house group” as the basic socio-political body of Kwakwaka’wakw society, as well as the basic unit of production.\textsuperscript{21} For nobles, membership in a numaym indicated descent from a common ancestor, but for all others (the commoners and slaves), the house group was not a kinship unit as such. Instead, membership was controlled through the bestowal of names that belonged to the numaym, and this bestowal took place at potlatches. These names were the basis of people’s social identities, because they described distinctions of rank and privilege. The highest ranking individuals of the numayms, the “chiefs” had control over particular resource procurement sites, and over the labor of lower-ranking individuals. At potlatches, numaym chiefs materialized the weight of their name by giving out goods, thereby affirming to their challengers their continued right to hold that name.\textsuperscript{22} Seen from within the framework of
“resource management,” this system ensured that the owners of resources were accountable stewards of the resource, and that long-term sustainability was not sacrificed for short-term personal gain.23

With the influx of European trade goods, and with access to new sources of wealth that did not depend on acquiring high-ranking names, the Kwakwaka’wakw intensified their potlatch system in an attempt to accommodate new conditions while holding on to the old ways. The onslaught of new diseases like smallpox and tuberculosis brought about drastic population decline, and more potlatching positions than ever before became available. Even people to whom certain positions were formerly inaccessible began to participate in the potlatching system. As a result of this individualization, the original cosmological relationships between chiefs and the animal world, which in the past had legitimated the authority of the ruling class, was no longer the basis for explaining material success.24 In fact, nine Nishga chiefs, who felt robbed of their names and title by potlatchers against whose displays of wealth they could no longer defend themselves, openly condemned the potlatch tradition, saying that it was actually part of a “system of unjust corruption by which ‘our names, fishing streams, and hunting grounds are taken away from us.’”25 At the same time that the traditional power of chiefs over resources and labor was greatly reduced, however, the potlatching system provided incentives for people to stay and contribute the labor to the numaym.

In 1885, the potlatch was outlawed, and remained outlawed until a revised version of the Indian Act in 1951 omitted the clause pertaining to the potlatch. This repression of the potlatch traditions is often remembered by Native people living in Alert Bay, who for the past several decades have been struggling for access to land and resources and the
ability to take control of their own lives. As Art Dick pointed out at the Leggatt Inquiry into salmon farming, and during other meetings about salmon farming, “it all started with the banning of the potlatch – and every Native in here better start believing that because if we don’t, our voices are going to fall apart.” In spite of the law forbidding it, potlatching continued, and in December of 1921, Dan Cranmer held a legendary potlatch on Village Island – some say it was the “biggest ever.” The regalia confiscated and sold by Indian Agent W.M. Halliday was repatriated in the 1980s, and today, the “Potlatch Collection” is housed in the U’mista Cultural Centre, a museum run by the Namgis First Nation. This collection has become a symbol of political resistance for people living on the reserve in Alert Bay, and it serves as a constant reminder of the contrast between the rights and territories held in the past, and the present-day, post-contact realities of life.

Of the forty-nine people convicted of having participated in Dan Cranmer’s potlatch, twenty-two were sentenced to prison terms. Donald Angermann, the local RCMP sergeant, who also handled the prosecution, pressed for severe sentences, and it was only in exchange for the “voluntary” surrender of potlatch regalia and gifts, and a signature on an agreement to stop potlatching, that most were given suspended sentences. All the others were sent to a prison farm in Vancouver for two months. Harry Mountain was one of the 17 people who refused to sign the agreement and give up their wealth, and his great-grandson, Brian Wadhams, still lives in Alert Bay and carries on his great-grandfather’s tradition of resistance and political activism. In fact, the presence of fish farms in Namgis territory reminds Brian Wadhams of the oppression suffered during the potlatch ban: “You know, when I look back at my grandfather, my great grandfather, Harry Mountain, I understand the struggles and the fights and why he went to prison to protect the way of life
for us that we are witnessing today. And for us to give up all the struggles they went through, I just don’t know what he would say to me today.”

Brian Wadhams and other members of the Musgamagw Tribal Council travel often to Victoria and Ottawa to speak to politicians and government bureaucrats, and are preparing to take their grievances to court. Brian Wadhams frequently visits the fish farms in the Broughton Archipelago, and inspects the sites, asks questions, and carefully monitors the salmon farming around his family’s fishing spots and clam beaches. He continues to do this even as the industry is steadily expanding. Harry Mountain and the other Kwakwaka’wakw charged with illegally potlatching spent around $10,000 on legal fees, and even though they lost their case, they would not, as Brian Wadhams said, “give up all the struggles they went through.” In fact, the events of the winter of 1921-22 only strengthened the resolve to defy the potlatch ban. As soon as Herbert Martin came back from prison, for example, he went directly to the ooligan fishery at Knight’s Inlet, where he gave a “grease potlatch,” at which he distributed 4,000 gallons of ooligan oil, “to cleanse those that were put in prison with [him].” Just a few months after being released from prison, Harry Mountain and four others formed a delegation and attended a meeting of the Allied Tribes in Vancouver, but quickly found out that this organization was more interested in questions over aboriginal title than in dealing with potlatch grievances. However, Brian Wadhams’ grandfather Harry surely continued potlatching, and in the Alert Bay area, potlatching in the 1920s and 1930s continued even more vigorously than ever before. At Kingcome Inlet, for example, the Gilford Island bands began overwintering at Gwayi village, several miles up a river that froze in winter and was difficult to access in any case. Surprise was therefore impossible, and potlatchers were left
unimpeded by government agents. Potlatching also continued with great enthusiasm at Village and Turnour Islands, and even in the more accessible locations, like Alert Bay, potlatchers found clever ways of disguising their potlatches as “White” celebrations.

Because these potlatches depended on income from European sources, the accumulation and distribution of wealth through the potlatch is evidence that Native people on the British Columbia coast played a central role in the production of fish and other coastal resources even after contact. The colonial context enabled Native people to adjust their own forms of economic and social life to new realities, but it also greatly restricted their access to resources and to participate in their own economies. As the First Nations were increasingly assimilated into Euro-Canadian forms of production, cultural repression and cultural assimilation became possible, through potlatch bans, residential schools, restrictions on citizenship and movement, and other colonial techniques. As Cole Harris has pointed out, the surveillance of Native people at missions, in schools, and particularly, on reserves, was directly linked to colonial attempts at constituting Native people as agrarian producers or wage laborers. But Native people also resisted, and continued their potlatch traditions and seasonal rounds. Native people’s knowledge about who they are and how to make a living was, and is, therefore inseparable from their struggles to reclaim their lands and resources.

When Europeans first encountered Native people, and for thousands of years prior, production on the Northwest Coast was organized in a seasonal round. In both Kwakwaka’wakw and Nuu-chah-nulth territories, the arrival of particular fish species was anticipated at certain times and places. Winter was a sacred time, but as soon as fish began once more to enter into the nearshore environments, people would disperse from their
winter villages to other, less sheltered, village sites. For the Nuu-chah-nulth, the appearance of the herring heralded the arrival of spring. One Ahousaht elder, Peter Webster, remembers that

Before the herring was due to arrive, the family moved from Clooth-Pich to Yarksis, the village of the Kelsemat on the east coast of Vargas Island. From there, especially in the Summer, the people moved out to a number of temporary camps at places such as Ahous and Blunden Island. In all, there were eight places people could live during the Summer and others such as Bare Island that could be visited. While staying in these places the people hunted seal and collected sea food such as sea urchins, mussels, and chitons. On Bare Island, we collected sea gull eggs and gooseneck clams. At the end of summer the families would return to Yarksis to gather together for the trip to O-in-mi-tis in September to start the cycle over again. After the herring had spawned, Peter Webster says, the herring could be used as bait to troll for spring salmon. Both spring salmon and coho could be caught in the summer at either Yarksis or one of the other Vargas Island camps such as Ahous. Chum salmon was abundant in the fall in Bedwell Sound, when the Ahousats camped at O-in-mi-tis, Bear River. Herring spawn was also important, and in March or early April, when spawning was about to begin, entire trees were submerged to gather the eggs. In Kwakwaka’wakw territory, the seasonal round was similar, except that there, the ooligan was the first fish to arrive after the long winter. The relative importance of various food items varied between and within the Kwakwaka’wakw and Nuu-chah-nulth regions. In some areas, halibut seemed to be almost more important than salmon, whereas in others, it was not pursued at all. The Ahousahts in particular are known to have been great whalers. The particular combination of sea foods harvested by any one group appears to have been a function of abundance, rights of access to fishing spots, and the availability of salmon.

After contact, First Nations people on the coast were able to incorporate new economic activities into their seasonal rounds. Starting in the mid 1870s, cannery work
provided a source of employment for both men and women during the summer months. Both Nuu-chah-nulth and Kwakwaka'wakw traveled to several canneries on the Fraser River, but by 1880, canneries had also appeared at and around Alert Bay. Native people were able to continue to fish for salmon for their own purposes, because coho, pink, and chum were in low demand by canneries, and were abundant after the seasonal peak of sockeye and commercial fishing. However, new regulations had already begun to severely restrict Native rights to fish as formerly. The only treaties to ever be formally negotiated prior to the alienation of land were the so-called Douglas treaties. Governor James Douglas entered into agreements over land and village sites with 14 aboriginal groups on Vancouver Island in the early 1850s, on behalf of both the Hudson’s Bay Company and the Colonial Office in London. By signing these treaties, Douglas recognized Native title as a burden on Crown sovereignty, and the wording therefore included a clause guaranteeing aboriginal people the right to “carry on [their fisheries] as formerly.” When British Columbia fisheries came under the jurisdiction of the Dominion in 1877, government officials initially exempted Native fisheries, by stating that the Crown had a legal obligation to protect aboriginal rights to fish. However, in the years that followed, the Dominion increasingly framed Native fishing as a privilege, rather than a right, thereby securing the fishery for the benefit of the canneries.

In addition to cannery work, Native people worked in sawmills, as loggers, picking hops in Washington state, and a wide variety of other activities. The Nuu-chah-nulth were in the business of selling dogfish oil to logging camps, where it was used on skids to move logs from the forest to the water. Even today, the yearly calendar is interspersed not only with the opening and closing of various commercial fishing seasons, but with
production for non-commercial re-distribution and domestic consumption. Ooligan fishing at Kingcome River and in Knights Inlet, the preparation of ooligan grease, clam digging, and many other activities continue to the present day.

The relative prosperity experienced by the coastal tribes upon first contact with Europeans quickly came to end. Canneries became more consolidated, larger and larger amounts of capital investment were needed to fish, and Native fishermen remained dependent on fishing companies for access to licenses, gear and credit. To make matters worse, local Indian agencies controlled the financial matters of Native people, including the distribution of credit, for much of the 20th century. Today, the right to fish is determined by the ability to pay for a license, and not by residence in a coastal community or by membership in a First Nations group. Both the Davis Plan of 1968 and the Mifflin Plan of 1996 shut out smaller-scale fishers, decreased the availability of cannery rental boats, and allowed for both the pyramiding of licenses and an increase in overall catching power.

Chris Cook, who is Kwagiulth and president of the Native Brotherhood of British Columbia pointed out that salmon farming takes place in a context of greatly reduced “financial opportunities in fishing:” “All the years that I have travelled ... I have been so proud that we are the richest tribe in this world because of our fishing opportunities and the ocean. Today, I’ve never seen so much poverty as I travel up and down the coast.”

Native people became subject to the same regulations as other Canadians with regard to fishing and other types of natural resource production. This assimilationist approach was based on a definition of the Indian as a particular type of person that stood in direct contrast to European settlers. Indian status was regulated by the Indian Act, and until recently, Native women who married non-Native men lost their legal status as aboriginal.
Prior to the 1960s, only Indians who were considered sufficiently “civilized,” who had relinquished any pre-existing rights to land, and who had cut ties with their home community were granted the right to vote. In 1969, the federal government put out a “Statement of the Federal Government of Canada on Indian Policy, 1969,” which envisioned cultural assimilation as the ultimate solution to the “Indian problem.” This “White Paper of 1969,” as it is often called, was vehemently rejected by Native groups throughout Canada, because it claimed that aboriginal people’s problems stemmed from their unique legal and constitutional status. Perhaps the most scathing aboriginal response to the White Paper can be found in Harold Cardinal’s Unjust Society, in which he points out that Native culture cannot be shoved into the past: “the cultural heritage of Indians is ingrained in the historic question of Indian treaties and Indian rights. Without this basic recognition, the Indian cultural heritage can never be really appreciated by the non-Indian Canadian society.”

As will become evident in the chapters that follow, Native people at Ahousaht and Alert Bay are still cut off from their resources, and are struggling with how best to position themselves politically and culturally to regain access to land and fisheries. Daniel Clayton has argued that representations of the land and its inhabitants were realized in material form during the re-settlement of Vancouver Island. The emergence of the salmon farming industry in the same area several hundred years later suggests that resource extraction and production in British Columbia is still part of a colonial legacy of knowledge about nature, indigenous people, and natural resources. My thesis takes a look at how farmed salmon is socially constructed in this colonial context. In particular, I show how the physical construction of farmed salmon relies on the participation of First Nations people and local
environmentalists, who are wrapped up in complex networks of power not entirely of their own making.

I make the connection between power, knowledge and production by suggesting that salmon farmers are at the center of a web of social relations and are positioned in a way that makes them *localizers*, rather than people who are themselves *localized*. This follows from Bruno Latour’s discussion about how power relations are exhibited within otherwise seamless webs of interaction simply by virtue of certain people having the power to bring back people, places, things, and events back to the center of calculation, where they are then made combinable, transferable, and manipulatable. The circulation of knowledge about salmon farming therefore takes place within the material contexts and productive relations in which people are involved. To use the imagery of Latour, “going away,” “crossing other people’s paths” and “coming back” again allows salmon farmers to gain a kind of mastery over a set of social relations. Thus, the strategies of surveillance and techniques of knowledge used by salmon farmers have to be negotiated within the context of resistance and the pre-existing struggles Native people and environmentalists are involved in.

In this thesis, I want to examine how the colonial conflict over modes of production reappears in the controversy over salmon farming. By being specific about the First Nations territories within which salmon farming takes place, I show that the controversy over salmon farming is in many ways continuous with past struggles over the means and modes of production. Fish production, whether by aquaculture, fish weirs, seines, or otherwise, requires knowledge to both enable and legitimate it. Like the canneries of days past, salmon farming companies exercise tremendous power over how fish production is to
be understood. This thesis therefore takes a close look at the techniques salmon farmers use to exercise control over natural resources and over opposing environmentalist and Native forces.

But Ahousaht and Namgis people are not merely reacting to imposed knowledge. Like the other participants in the controversy, they are actively checking, adjusting, and manipulating understandings created by others. The social interactions through which meaning about farmed salmon are created are only possible because of the productive activities in which people are involved. The material conditions of fish farming therefore remain in the forefront of my analysis of how farmed salmon is socially constructed in British Columbia. I argue that the continued colonial context of fish farming is what is at issue in many of the debates over salmon farming, and that the physical colonization of marine resources coincides with the colonization of people’s knowledge.

In the controversy over salmon farming, colonial categories of Indian-ness constantly resurface. Comments like those by Ken Brooks, a biological consultant for salmon farming companies, are common:

We are transitioning from buffalo hunting to feeding people using intensive cultivation. ... If you stand in the way, and think you’re going to stop this industry, you’re just going to get run over, because it’s an evolutionary process and we are going – the world is going to produce more and more of its seafood in intensive systems.45

This idea -- that salmon farming as a mode of production constitutes “progress” -- can be heard at virtually any occasion at which salmon farmers are present. However, as will become evident later in the thesis, both salmon farmers and environmentalists are continually shifting their definitions of who they are relative to aboriginal people. Some fish farmers have tried to convey their concern for the environment to me by pointing out
that White salmon farmers and First Nations fishers are essentially the same: “We’re really not that different. For both of us, the wild stock is our biggest concern,” one production manager told me. Similarly, Otto Langer, the director of the marine conservation program at the David Suzuki Foundation referred at one public lecture to all people who live on the Northwest coast, First Nations and Whites, as the “salmon people.” “We are the salmon people.” The term, “salmon people” is used frequently by Native people to describe their long-standing cultural relationship to the salmon. At other times, white environmentalists position themselves in direct opposition to First Nations people:

The traditional [First Nations] culture means that you look after one another, and their leaders, traditional chiefs, hereditary chiefs, were chosen for their ability to be responsible for future generations. This is so contrary to, you know, ‘pillage the landscape for now and make a few people rich so they can have a big truck.’ Social equity [in Euro-Canadian society] is really skewed.46

The constantly shifting terrain of First Nations, salmon farmer, and environmentalist identities is a theme that will continue through much of the rest of this thesis, and chapter 4 deals specifically with the identity strategies of the aboriginal witnesses at the Leggatt Inquiry into salmon farming. Notions of sameness and difference allow individuals to constitute themselves as belonging to particular groups, so that they can engage with fish in particular ways.

THE CASE OF SALMON FARMING IN BRITISH COLUMBIA: INTERVIEWS, OBSERVATIONS, AND A QUALITATIVE METHOD

This study is about the particular case of salmon farming around Vancouver Island, British Columbia, a place where there is a large aboriginal population, an active environmentalist community, and where resource industries predominate. But beyond that,
what exactly is it a case of? In other words, where are the limits of this case, and how can I know what is and is not part of the case of fish farming in British Columbia? This thesis concerns itself with a number of things that do not appear to have much direct connection to the controversy over salmon farming: First Nations identity, the construction of pharmaceutical molecules injected into farmed fish, First Nations’ understandings of salmon-as-food, and the landscapes of change in which fish farming takes place, to name just a few.

Given my focus on the role of knowledge in activity, it is not surprising that I would venture far and wide within the social life surrounding fish farming to gather the pieces needed to construct the particular case of salmon farming. By following knowledge through to its purposes and consequences, I began to understand farmed fish as the social product of interaction between employees, production managers, regulators, environmentalist opponents, skeptical First Nations fishers, and the non-human “things” they mobilize in their activities. In fact, Hacking points out that “one of the reasons social construction theses are so hard to nail down is that, in the phrase ‘the social construction of X,’ the X may implicitly refer to entities of different types, and the social construction may in part involve interaction between entitites of the different types.”47 In the end analysis, salmon farming represents a particular type of production that comes about when a network of people think and act with and against one another. By getting others to do things – by exercising power -- material things change form, value, and location, and are turned into products. This process of production involves a web of interconnected people, groups, and institutions that I attempt to give some coherence to in this thesis.
I began my study at an arbitrary point in this social matrix, by examining the most public pronouncements, in newspaper advertisements, press releases, promotional brochures, and other materials, both for and against salmon farming. This resulted in chapter 3, which deals with the framings and counter-framings of farmed salmon by proponents and opponents of the industry. I found that the meaning of farmed salmon was to be found in relationships between people, rather than in the thing itself. Frames of efficiency and production are recreated in hegemonic ways by an audience that actively adjusts, manipulates, and re-interpretes routine knowledge. Furthermore, I discovered that the landscape in which fish farming takes place is understood as fragmented and that “hyper-real” shifts in the boundaries between signs and things point to an industry that is entirely embedded within complex and wide-ranging social networks. Most importantly, I found that, even while focusing entirely on the things of salmon farming, my case would have to be constructed out of diverse and convoluted social elements. This realization is typical for qualitative research, where, as Ragin points out, “researchers probably will not know what their cases are until the research, including the task of writing up the results is virtually completed. What it is a case of will coalesce gradually….”

The Leggatt Inquiry into salmon farming, held in October of 2001, revealed that salmon farming is an activity, like all activities, that takes place only because people can find “good reasons” for doing so. By looking at these vocabularies of motive, I found that First Nations’ people’s identities were central to their opposition to, and in a few cases their involvement with, fish farming. My findings, based on transcripts of the inquiry, are presented in Chapter 4. The inquiry showed me that I must, above all, get people to speak in their own words about the context in which they experience salmon farming and farmed
salmon. It was shortly after attending Stuart Leggatt's inquiry into salmon farming that I began conducting interviews with people of the Namgis First Nation living on the reserve at Alert Bay, and representatives from the companies that farm in their territories. I later expanded my study to the Ahousaht First Nation, environmentalist organizations opposed to salmon farming, and other salmon farming companies operating in the area. I requested and received permission from the Behavioral Research Ethics Board at the University of British Columbia to conduct these interviews.

Because qualitative cases are developed through research, rather than remaining at all times external to the conduct of research, the way quantitative cases do, I decided to conduct open-ended interviews. In these interviews, I asked people about salmon farming as I understood the case of salmon farming at the time. This meant that I did not have a pre-determined list of questions but rather that I had a list of topics I wanted to discuss. These topics were constantly evolving over the course of the study and each interview required that I reformulate questions based on what I thought I already knew. I tried to follow in the tradition of interpretive interactionism, where research is conducted from the point of view of the person experiencing the problem. This approach to research assumes not only that the language of ordinary people can be used to explain their experiences, but also that careful attention should be paid to context. In doing so, it replaces the "why" question with the "how" question: how is social experience constructed by interacting individuals? I wanted those I interviewed to tell me what kind of "case" they thought salmon farming was, because I believed that their lived experience would elucidate the meaning of salmon and farmed salmon in thickly contextualized ways.
I interviewed environmentalists from each of the local or regional organizations actively opposed to salmon farming as it is currently practiced. In addition to talking to production managers and/or biologists working for the salmon farming companies headquartered in Campbell River and Tofino, I also spent a week observing and working with salmon farmers at two ocean net pen sites. I spoke with workers and site managers as they went about their routine, everyday activities on the farm site, and I participated in simple tasks like grading (sorting) fish and pulling nets. My stay in the office of the British Columbia Salmon Farmers’ Association (BCSFA) gave me insight into the ways in which the salmon farming industry and the farmed product are promoted within the context of growing environmentalist and aboriginal opposition. I also attended an aquaculture trade show, the Aquaculture Pacific Exchange, held in Campbell River in 2002. There, I was able to talk with representatives from companies selling all sorts of salmon farming equipment, from vaccines and medications to underwater cameras and nets. In the fall of 2002, the British Columbia Aboriginal Fisheries Commission (BCAFC) organized a large forum that brought prominent industry, environmentalist, and First Nations figures together to debate publicly the current state of salmon farming in the province. These discussions, as well as the other, smaller public forums that took place from time to time, provided me with valuable insights into the patterns of interaction through which farmed salmon becomes defined.

I focused on the First Nations’ people in the two areas with the highest density of salmon farms in British Columbia: (1) the Ahousaht First Nation of Clayoquot Sound, on the west coast of Vancouver Island, and (2) the Namgis First Nation of Alert Bay, just off of northern Vancouver Island. I chose informants haphazardly based on lists of individuals
provided by the band administration, while at the same time also seeking out individuals that had spent time as workers on the local salmon farms. On a number of different occasions, I accompanied the fisheries guardians from the Kwakiutl Territorial Fisheries Commission as they inspected fishing spots, clam beaches, migration routes for particular runs of salmon, and the plethora of salmon farms that dot this landscape. This organization is based in Alert Bay, but monitors the bays, inlets, and beaches that make up the traditional territories of all Kwak’wala speaking people. Although there is no comparable institution in Nuu-chah-nulth territory, some employees of the Ahousaht band administration’s fisheries office took me out on their boat for a first hand look at fish farming sites. In September of 2002, the Ahousaht First Nation entered into a “protocol agreement” with Pacific National Aquaculture, and they staged an official ceremony, complete with speeches by Ahousaht leaders and company representatives.

My pattern of sampling incidents and events follows the advice of Strauss and Corbin, who suggest that this kind of theoretical sampling (rather than pre-determined, numerical sampling) aims to maximize opportunities for the comparison of events and concepts as they arise during the research. Instead of sampling persons, I made an attempt to sample happenings that were relevant to the struggle for control over salmon farming places in the two salmon farming hotspots I have identified. Although the number of interviews I did was in some ways arbitrary, I continued to conduct interviews, and to return for second and third times to many of my interviewees, until I thought I could create constructs of fish farming as those I have studied live and experience that industry. Chapters 5, 6, 7, 8, and 9 try to follow Ely’s suggestion that in developing themes, we should present in miniature the essence of what we have seen and heard over time.
Although other chapters could have been written, I believe that the ones I did write present people's experiences as unified and multi-layered while firmly anchoring the analysis in the first-hands ways in which those experiences are had.

For example, chapter 5 deals with the ways in which understandings of food enable First Nations' people in Alert Bay and Ahousaht to oppose what they understand to be the threats salmon farming poses to their land, their people, and their understandings. In that chapter, I show how for many Ahousaht and Namgis people, wild salmon as "good food" condenses a whole lot of understandings not directly related to the consumption of food. By constructing farmed fish, "whiteman's food," in opposition to wild fish, or "traditional food," people are able to resist fish farming and gain control over the context in which fish farming is evaluated. However, the farmed-salmon-as-commodity is the place where taken-for-granted meanings meet those meanings designed to sell farmed fish. Chapter 6 therefore explains how the provincial salmon farmers' association appropriates particular versions of First Nations' experience, only to commodify those meanings and give them away as their own. What is desirable about farmed salmon (the product) appears to always be a step beyond what salmon farmers have already captured. This fear of losing control, of losing a connection to reality, also becomes evident in chapter 7. There I deal with the ways in which salmon farmers, while trying to radically separate nature and society, actually create hybrid worlds in which things like chemicals and equations can change their goals and courses of action.

Chapter 8 deals with how environmentalists, First Nations' people and members of the industry act in and through the physical places in which salmon farming takes place. I explore the ways in which the shifting and transitory forces that shape landscapes are
directly understood through experiences of place and placelessness. As investment touches down on coastal Vancouver Island, marine landscapes become completely revamped, and relations of power become evident through these rearrangements. Numbers, like places and the other "things" of salmon farming, appear themselves to be social actors, in that they can create a variety of social outcomes. In chapter 9, I focus on the measurements and standards that populate the controversy over fish farming. Instead of treating these numbers as objective indicators of truth, I look to the ways in which people create, use and replace numbers as ways of structuring people’s possible fields of action.

In all of my chapters, I attempt to deal with the problem of how controversy over the fish farming industry in British Columbia has come about. I try to arrange the results so that they refine an image of what kind of thing fish farming is and how it got that way, rather than looking to variables and causes. I found that my chapters allowed me to understand the individual cases of my informants and the particular case of salmon farming in British Columbia by making connections between personal troubles and public issues, or between history and biography, as recommended by Mills and Denzin. The data, as it was firmly rooted in people’s first-hand experiences, allowed me to use what Clifford Geertz calls “experience-near categories.” In this way, I constructed a case that was idiosyncratic yet had something about it that, like other good cases, transcends the specifics of the individuals and events involved.

It was my use of grounded theory that assisted me greatly in the constant back-and-forth conversations with data that are required before one can understand experience in sociological terms. Grounded theory, as developed by Glaser and Strauss is explorative, in the sense that even the process of data collection is controlled by the emerging theory.
found that open-ended interviews with constantly changing sets of questions best allowed me to verify my findings throughout the course of my research. By sensitizing myself to the data through questions and comparisons, I tried to create “conditional matrices” that describe the conditions under which meaningful social action takes place. In this way, I wanted to eliminate the distinction between people’s “micro” realities of fishing, fish farming, work, identity, food, or a sense of place, and their “macro” realities of the movement of capital, changing access to resources, taken-for-granted knowledge, colonialism, and other relations of power.

In grounded theory, every negative case presents an opportunity to refine the explanation (or the problem) to make it more consistent with all the data. Verification of theory is part of its discovery, and this approach towards verification puts grounded theory in line with other interpretive approaches. If others do not accept the adequacy of our interpretation, we can only appeal to further interpretation – further attempts to make coherence out of incoherence.\(^56\) After all, I have not drawn a “sample” of environmentalists, First Nations people, and salmon farmers, whose understandings I claim are representative of these groups as wholes. In fact, interpretive, qualitative research tends to reject this concept of validity because it relies on a simple cause-and-effect universe that is burdened with the assumptions of positivistic context independence. This study is about the relationships between meanings, their expressions, relations to other meanings, and the contexts in which those meanings arise. Kincheloe and McLaren suggest a concept of validity in which comparing the cases of different researchers allows us to reconfigure what we know in new contexts.\(^57\) The traditionalist concept of external validity, they say, assumes a kind of transferability that is inconsistent with the ways in which understandings
are reached in real life. I have therefore tried to explain how the controversy over salmon farming has come about, not in probabilistic terms, but by incorporating all that I observed and heard my informants say and do. This was achieved not by throwing out testimonies that did not fit, but rather by constantly redefining what kind of “case” the interactions of these people represents.

In the last chapter, I argue that what the preceding chapters have in common is the problematic of salmon farming as production and farmed salmon as a product. I trace the attempts of salmon farmers to “black-box” farmed salmon -- to turn farmed salmon into a commodity that people take for granted – through to the human and non-human entities they must enroll and negotiate with in order to do so. Production and commodification appear to be the central dynamics in how knowledge about farmed salmon gets created, distributed, and used. The focus on salmon-as-product is in some sense inevitable, because the things of the production process and the methods employed in salmon farming are not mere context: we can speak of net pens, feeding machines, fishing places, food and so on as social constructs because through their use and manipulation, these things entrain people in diverse activities.

I suggest that, through production, the fish farm industry physically produces value by thinking with and against First Nations and environmentalists. This is because places and objects are mobilized in activities through which salmon farming is both promoted and resisted. Just as the pigments fed to farmed fish can create consumer preferences, fish farms can, in certain contexts, destroy former places, rebuild new ones, and in the process, render people placeless. Salmon farming takes place in particular kinds of places, very different from those same places as they are inhabited and understood by First Nations
people or local environmentalists. Farmed fish are not ideas but material things -- products through which people interact. Salmon and the production of salmon as food create identities and opportunities for resistance for many First Nations' people, but those same meanings can be appropriated by salmon farming companies who wish to market and sell "heritage" fish. Farmed salmon is maintained as real because of the ways in which it and other meaningful objects are turned into products and techniques of production.


3 This is according to the Coastal Alliance for Aquaculture Reform. See http://www.farmedanddangerous.org/farm_history.htm, accessed November 19, 2003.


5 Michael Marker, ""That history is more a part of the present than it ever was in the past,"" *History of Education Review* 28/1(1999): 17-29, p. 27.

6 Marker, p. 17.

7 This quote is taken from an interview with Simon Lucas, and not from the transcript of the Fish Farming and Environment Summit.


18 Cole and Chakin, p. 21.

19 See note 11 above.

20 Cole, p. 19.


24 Wolf, p.95.
25 Cole and Chakin, p. 48.

26 Fish Farming and Environment Summit, North Vancouver, September 25, 2002.

27 Herbert Martin, quoted in Cole and Chakin, p. 122.

28 Cole and Chakin, p. 139-143.


35 Webster, p. 32.

36 Knight, p. 83.


40 Duff, p.48.


44 Latour, p. 220.

45 Fish Farming and Environment Summit, September 25, 2002.

46 Interview with Leslie Hill, environmentalist with the BC Conservation Society. In this thesis, all names associated with interview material have been changed (including the names of companies, societies, or other organizations which the interviewed individuals represented). However, when quotations were part of the public record, as they were at inquiries and other public meetings, I identified people using their real names.


49 See note 48, above.


CHAPTER 2: METHODS

To say that this thesis is about the social construction of farmed salmon is not terribly informative. This became evident early on, when I tried to explain the real purpose of my study to those I was interviewing. What was I hoping to achieve, they wanted to know? Why was I going around with a tape recorder asking easy questions and getting people to talk casually about salmon? My answer would inevitably include the words “social” and “understandings.” “Oh, I see, you’re looking at people’s attitudes and beliefs!” “Not exactly,” I would say, but it was already too late. They were convinced that I had been sent to separate fact from fiction, knowledge from beliefs, and attitudes from truth; as far as they were concerned, I was either (a) going to help them, by proving once and for all that their opponents have “perceptions” while they themselves have “facts” or (b) that I was going to harm them by concocting an explanation in which their knowledge is “social” and has no truth value.

Much of the confusion demonstrated by my informants is mirrored in the academic literature about social constructionism. In recent years, the term “social construction” has come under heavy fire from critics in the natural and social sciences alike. Social constructionism has been tricky terrain ever since 1996, when the physicist Alan Sokal published a jargon-laden spoof in which he argued that gravity is a social and linguistic construct. To say that something is socially constructed, be it farmed fish, nuclear waste or climate change is not by any means to deny its reality. Critics of social constructionism like Bricmont and Sokal\(^1\) are quick to accuse social constructionists of a disinterest and disregard for the concrete and surely known world in which we live. This is a criticism of which social constructionists are keenly aware. Williams, for example, is dismayed that
many sociological formulations of environmental problems become mired in relativism (any claim to reality is as good as any other) when the purpose of those analyses is to expand environmental consciousness and liberate it from constraining social bonds. One way to avoid the pitfalls of relativism, Williams says, is to focus on the role of *power* in the construction of environmental problems. That is what I have attempted to do in this thesis.

The thesis is therefore about how people understand salmon aquaculture and how their beliefs about fish and the production of fish exist as a system of interaction that is continuous with other parts of social life. Instead of trying to find the beliefs that “cause” certain behaviors, I trace out the step-by-step process through which subjective meanings lead to particular courses of action. Beliefs about farmed fish and fish farming are public meanings that exist only in interaction between salmon farmers, the Namgis, the Ahousaht, and the local environmentalists. Meanings are constructed *socially*, and not individually, and are therefore necessarily embued with power relationships.

One of the individuals who has perhaps done the most to encourage sociologists to be more clear about their use of the term “social construction” is Ian Hacking, author of *The Social Construction of What?* For Hacking, to say that something is socially constructed is to speak against its inevitability and against the ability of powerful interests to control people’s understandings about a thing, X:

Social construction work is critical of the status quo. Social constructionists about X tend to hold that:

1. X need not have existed, or need not be at all as it is. X, or X as it is at present, is not determined by the nature of things; it is not inevitable.

Very often, they go further and argue that:

2. X is quite bad as it is.
3. We would be much better off if X were done away with, or at least radically transformed.
In this thesis, I ask specifically about the social construction of farmed salmon and salmon farming, and not about the social construction of knowledge, per se. Instead of looking for instances of power in the places to which it is usually relegated -- attitudes and “ideologies” -- I look for power in the very things that are socially constructed as objective entities. I consider knowledge, therefore, as something that is a pre-condition for the material things of salmon farming and the production, circulation, and consumption of those things. This approach is in line with the view of Hacking, who wrote the following precondition for statement (1) above:

(0) In the present state of affairs, X is taken for granted; X appears to be inevitable.4

Salmon farming and farmed salmon, as activities and things, are taken for granted by all parties involved in the controversy over the industry, whether they be the production managers of ocean farm sites or the protestors who slice open net pens. Farmed salmon are real: you can look at them, count them, medicate them, boycott them, and oppose them. This formulation of reality, however, completely ignores the fact that farmed salmon also have a social life. In the current debate about whether the farming of Atlantic salmon should continue on the coast of British Columbia, and whether it damages the wild fish stocks, environmentalists, First Nations people, and salmon farming companies seek to unveil the farmed salmon, to expose it as it “really is.” For at least the past five years, salmon farming opponents and proponents alike have struggled to collect evidence for their position, while paying little overt attention to the power dynamics which both shape that struggle and inform its outcome. A study of the social construction of farmed salmon inevitably deals with issues of power, because the point of social constructionism is less to describe than to change how we see things,5 in this case, farmed salmon.
THE IMPORTANCE OF ACTIVITY

Social constructions of farmed salmon can be found in the midst of the activities that surround salmon farming: the actual raising and promotion of farmed fish, people's engagement in the nearby "traditional" wild fisheries, and the vehement opposition to the industry on the part of environmentalists and many Native people. Another way of formulating what this thesis is about is therefore to say that it asks how knowledge of farmed salmon and salmon farming gets people to "do things", to mobilize human and non-human entities in pursuit of particular ends. How do social constructions of salmon farming get people to grow fish, develop net pen sites, buy, oppose, advertise for or against farmed fish, or choose wild fish as food? How does what people know about farmed fish create the worlds in which First Nations, environmentalists, and salmon farmers live? The idea that knowledge is always oriented towards activity is not new. The sociologist of knowledge Barry Barnes urges us to reject the popular "contemplative" model of knowledge, in which knowledge is the product of isolated individuals who see reality in varying degrees of clarity. Instead, Barnes suggests, all knowledge has a role in activity and is developed and modified in response to the need for manipulation, prediction, or control. Because knowledge is used by particular people to achieve certain ends, an analysis of the social construction of salmon farming can unmask the connection between knowledge, purposes, and the means to achieve those purposes.

Activity implies a social matrix, a social context within which meanings and the actions and interactions implied by those meanings exist. Social constructionism speaks against inevitability, and it does so because "the matrix of rules, practices and material infrastructure in which [a construction] is embedded are not inevitable at all." When we
talk about the social construction of salmon farming and farmed salmon, we are talking about the idea of salmon farming as it is manifest in siting criteria, vaccines, feeding machines, aboriginal fisheries guardian patrols, boycotts, protocol agreements, and so on. In other words, it is the context of salmon farming that constructs farmed salmon as we know it. The “idea” of salmon farming has no existence outside the sheer materiality of this industry and the people who work in it and oppose it. At the same time, the matrix can construct farmed salmon as a certain type of fish, and salmon farmers, environmentalists, and First Nations people as certain types of people.

In this way, the social matrix is not a passive background to farmed salmon, but interacts with and shapes farmed fish and the fish farming industry. The power to engage in salmon farming, and the power used to oppose the industry, is therefore diffuse and sometimes difficult to recognize. Knowledge appears in unexpected places: in logbooks filled with numbers, at net-pen sites, and even in the fish themselves (as for example in a farmed salmon prepared “Native style” by the salmon farmers’ association). Although my study is indeed about the social construction of farmed salmon, it is also about place, food, identity, fishing, numbers, and other things and relations that make up the social context in which salmon farming takes place. My analysis treats these elements of the social matrix as real, active entities that do not merely sit passively in the background. I try to demonstrate that power works through the networks of knowledge that constitute the salmon farming industry, and its opponents and supporters.

This study looks at how constructions of farmed salmon allow people to “act with and against one another in diversely organized groups, and while doing so … [to] think with and against one another.” This does not mean that there is a “group mind,” but rather
that salmon farming and opposition to salmon farming takes place because individuals live in an intersubjective world. It is a world they share with others – a lifeworld – which, following Alfred Shutz, is not just a world given to individuals by social circumstances, but a world actively interpreted and manipulated by them.\(^9\) The social constructions that arise through the controversy over salmon farming can only be accessed through the words and actions of individuals, and yet, those constructions are *socially*, and not *individually* constructed. As Weber points out, "it is a monstrous misunderstanding to think that an 'individualistic' method should involve what is in any conceivable sense an individualistic system of values."\(^10\)

I wanted to know about belief in terms of what Hammersley calls "courses of action."\(^11\) For C. Wright Mills, this kind of sociology can be achieved neither through the non-comparative, a-historical, and psychologicistic tendencies of public-opinion research, nor through the development of grand theories removed from any concrete experience.\(^12\) His alternative, the sociological imagination, exists at the boundary between individuals and their social structures. Because this form of sociology examines the relationships between private troubles and public issues, it has a supremely liberating function. As Mills points out, a person “can know his own chances in life only by becoming aware of those of all individuals in his circumstances.”\(^13\) I decided that on a practical level, a focus on the “life-world” of salmon farmers, local First Nations people, and people in environmental organizations opposed to fish farming would allow me access to this nebulous realm between people and society. I wanted to know how people experience salmon farming through the everyday, common-sense reality in which they exist. I found that the
methodology of Max Weber, particularly as it has been explicated by Alfred Shutz, and the methods of the symbolic interactionists, provided me with the means to do so.

I did not include an analysis of the behavior of the government employees who deal with the salmon farming industry. Ever since the Department of Fisheries and Oceans granted permission in 1984 to two aquaculture companies to import Atlantic salmon eggs, government agencies have been active in promoting salmon aquaculture in the Province.\(^\text{14}\) Today, site leases are allocated by Land and Water BC, and even the federal government is heavily involved in promoting salmon aquaculture in the form of subsidies and regulatory support. One entire branch of the Department of Fisheries and Oceans, the Office of Sustainable Aquaculture, is responsible for helping to streamline technology transfer, training and development, and regulation, and is a self-professed “enabler” of the industry.\(^\text{15}\) The provincial Ministry of Agriculture, Food and Fisheries has recently allowed fish farms to be essentially self-regulating under new “performance-based standards” that are heavily geared towards the kind of conditions known to be good for salmon farming (see the discussion in chapter 9 on this).

Although the role of the provincial and federal governments is undoubtedly important, I leave aside questions of bureaucratic power and the role of government institutions in facilitating large-scale capitalist production like salmon farming. This would have required an examination of the bureaucracy of both the federal and provincial fisheries departments, and a look at the links between investors and those bureaucracies. In this thesis, I am more interested in the mundane and unexamined sources of power that salmon farmers have accumulated in unexpected places throughout the social network.
PHENOMENOLOGY AND THE MEANING OF FARMED FISH

So far, I have emphasized the importance of understanding social constructions of farmed salmon in terms of their role in activity, whether that activity be fish farming, attempting to fish as traditionally in the areas around fish farms, or working towards an environmental awareness of the fish farming industry. The idea of “action” is central in Weber’s sociology of understanding: “In ‘action’ is included all human behavior when and in so far as the acting individual attaches a subjective meaning to it. ... Action is social insofar as, by virtue of the subjective meaning attached to it by the acting individual (or individual), it takes account of the behavior of others and is thereby oriented in its course.”

Farmed salmon can be grown, eaten, opposed, culled, and marketed because people share a world of meaning in which they can work with and against one another. In this sense, meanings can never simply be the product of people’s individual minds, but rather the result of continuous interaction.

Phenomenology is a system of interpretation that attempts to get access to the lifeworld of individuals, that social, interactive world through which meanings and understandings are created. Although phenomenology originated in philosophy, in the work of Husserl and others, its application to sociology has been extensive. The pioneer of phenomenological sociology, Alfred Schutz, found a way to use the methodology of Max Weber and the search for social actors’ subjective meaning. Most importantly, the phenomenological approach does away with any apparent contradictions between the “real” world of things or actions (anchors, fishing, or moving net pens) and the experienced world of individuals (meanings and understandings of identity, fish or work). This is because in order for things to be real in any sense of the word, they must first present
themselves to our experience. Phenomenology is concerned with the outside world, but it gains access to the outer world from the inside of human experience.\textsuperscript{18}

If individual experiences are the fundamental building blocks of social life, then what prevents each person from remaining sealed within their own individual experience? Through his concept of the “life-world”, Schutz provides us with a solution to this problem. The life-world is a social world, one that is prestructured for the individual, but not one that is in any way deterministic. Ideas, meanings, and understandings exist only when they are actively interpreted, manipulated, and put to use by the individuals that make up social life. This type of intersubjectivity is central to phenomenological thought. Reality is possible because it is buttressed by involvements other than our own. Members of a First Nation can agree on the “places” of their fishing grounds; this intersubjective understanding allows them to fish, to oppose or engage in fish farming, and to plan for the future of their bays and inlets. Similarly, we can speculate that on the most basic level, a group of salmon farmers has a common understanding of their fish as a biomass-accumulating investment, and that this enables them to engage collectively in salmon farming.

Social interaction is made possible by the “experience of the we.”\textsuperscript{19} In the “we-situation,” environmentalists, salmon farmers, and First Nations people can engage in debate over salmon farming in the first place because they experience the experiencing of the situation by the other. This does not mean that an environmentalist’s and a salmon farmer’s experience with the fish farming industry correspond, but rather that things are said and actions are taken because of the imagined, pre-constructed reaction of the other. In this way, social interaction over salmon farming evolves because of a continual re-negotiation of places, ecology, and economy in which this industry takes place. These
negotiations involve relationships of power, and the production of farmed salmon in British Columbia represents a field of intense conflict and social struggle. While the various participants experience this industry very differently, they are embedded in networks of power that make even acts of resistance dependent on the knowledge of their opponents.

Weber’s sociology of understanding gives us a way of getting at the material world of farmed salmon through the experiences of individuals. The crucial link between experience and reality is the actor’s intended meaning. Our understanding should therefore be explanatory, in the sense that it must be more than simple, direct, observational understanding of social acts. Explanatory understanding of the actions of salmon farmers, environmentalists, and First Nations people involves “placing the act in an intelligible and more inclusive context of meaning” than we would have been able to achieve through direct observation. This can be accomplished, Weber suggests, by focusing on motive, “a complex of subjective meaning which seems to the actor himself or to the observer an adequate ground for the conduct in question.” Proponents and opponents of salmon farming alike must navigate the social world of structures, groups, and organizations so that others can understand their reasons for acting as they do.

Social constructionism guards against the reification of society’s functional units. For Berger and Luckman, all meanings originate in the prototypical face-to-face interaction. Through typifications, social actors can create a common sense about reality. Just because these typifications become progressively anonymous, and further from the face-to-face situation, does not mean that they do not remain anchored within interaction. The environmentalist framing of salmon farming in an advertisement, or the pollution regulations for salmon farms, to name just two examples, are based on recurrent patterns of
interaction through which the entities like "space," "waste," "responsibility" and "wilderness" become real. While a salmon farmer may be capable of privately doubting the reality of ocean tenures or regulations, he or she must suspend such doubt in order to exist in everyday life. Sampling logbooks, reports, and licenses are maintained as real by the actions and thoughts of this and other salmon farmers. Because meaning implies participation, the "distinction between 'physical' and 'psychic' phenomena ... is entirely foreign to the disciplines concerned with human action."²³ This unity of meaning and action, must not, Schutz says, lead us to believe that subjective understanding involves either sympathetic introspection or grasping the complexities of another's total personality. Instead, we must gain an understanding of the other's motives, and it is this that I have attempted to do for the salmon farmers, First Nations people, and environmentalists I encountered.


⁴ Hacking, p.12.

⁵ Hacking, p. 6.


⁷ Hacking, p. 12.


13 Mills, p.5.


19 See note 9, above.

20 Weber, p. 95.

21 Weber, p. 98.


CHAPTER 3: THE FRAMING OF FARmed FISH: PRODUCT, EFFICIENCY, AND TECHNOLOGY

INTRODUCTION

This chapter analyzes the framings of salmon farming as social constructions rather than as objective ways of interpreting the controversy around this industry. In this controversy, salmon farming in British Columbia has been embroiled in a public relations battle for the past several decades. Environmental and industry groups vie for influence over the social construction of fish farming by creating and disseminating competing frames. Frames define situations by making them meaningful. They tell us what is going on, by placing an event or issue into a socially understood context. In an effort to communicate meanings to would-be supporters, both salmon farmers and environmentalists engage actively in the framing of the industry through advertisements, brochures, and press releases.

"Framing," as developed by Goffmann, is a type of social meaning-giving activity that occurs across a wide range of phenomena, from everyday talk to news occurrences, ceremonies, and make-believe events. Benford and Snow developed the framing perspective through their concepts of "frame alignment," in which they argue that certain pre-existing values and beliefs are invigorated for a particular framing purpose. Indeed, there exists a now rich literature on the frame analysis of public discourses that examines how meanings come about and become socially distributed. To name just a few examples, Gamson and Modigliani examined nuclear power in relation to the culturally available meanings used in constructing frames; Coy and Woehrle used frames in their discussion of
the Persian Gulf War\textsuperscript{4}, and Doyle found the BC Forest Alliance was able to “greenwash” the practices of forestry companies by framing the industry in terms of environmentalist values.\textsuperscript{5}

Recently, however, Benford has critiqued the framing perspective as leading all too often to the treatment of frames as “things,” rather than as dynamic processes of meaning construction and transformation.\textsuperscript{6} In an attempt to focus on meaning, I examine the social processes that are implicit and explicit in the framing activities surrounding the BC salmon aquaculture industry. Much like Clifford Geertz’s “natives,” opponents and proponents of aquaculture “use concepts spontaneously, unselfconsciously, as it were, colloquially; they do not, except fleetingly on occasion, recognize that there are any ‘concepts’ involved at all.”\textsuperscript{7} In other words, I look for the symbols and meanings by means of which people create the common-sense context they use to understand salmon farming. In describing the framings of aquaculture by these different actors, I don’t claim to know what it means to “be” them, but I am able to get a handle on the symbolic forms — written words and printed images — through which they perceive fish farming and attempt to convey such frames to a broader public. Furthermore, my analysis attempts to stay as close as possible to the ways that environmentalists and salmon farming proponents actually understand salmon and salmon aquaculture, by building my interpretations around quotes taken directly from advertisements and brochures.

Following Goffman, I examine “strips”\textsuperscript{8} of activity, or slices, taken arbitrarily from the stream of advertising about fish farming, that constitute the starting points for our frame analysis of salmon aquaculture. This chapter does not deal with the transformation of frames through time in response to changing meanings or evolving frames. Nor does it
tackle the question of how people actually react to or understand the framings of salmon farming that are presented to them. However, it does offer some ideas on how fish farming frames in British Columbia are actively and socially constructed in newspaper advertisements and promotional literature by the most public proponents and opponents of aquaculture. I do not separate these individuals’ own constructions from those they create to persuade others. Following C. Wright Mills, I treat people’s justifications as “vocabularies of motive” – answers to anticipated questions about conduct. Movement actors’ “motives” therefore are the meanings I am trying to discern. By critically questioning and comparing advertisements, brochures, and press releases, I found that three main categories of meaning emerged: product, efficiency, and technology. These categories, their properties and dimensions, are detailed in the analysis that follows.

**FARMED FISH AS PRODUCTS**

Atlantic salmon are framed by the industry as a product. The cognitive transformations that go along with this shift from “animal” to “product” extend a pattern of control over nature already established through other sorts of interactions with the environment. In many ways, farmed salmon have ceased to be fish, both physically and conceptually. During the process of becoming more like a commodity, salmon are physically changed from a swimming animal to one that is advertised, packaged, and sold. In fact, one British Columbia Salmon Farmers Association (BCSFA) publication describes the process of “processing and packaging the product.” It declares: “live salmon is delivered to the plant where it is dressed, washed, graded, chilled, and boxed for the premium fresh market.” (NetWork Information Sheet #3). As products, fish become generic and interchangeable, to the point where a wild and a farmed filet are equivalent:
In 1995, for example, BC and Alaska faced a major crisis due to dwindling stocks of wild chinook. By comparison, BC salmon farms produced four times more chinook than the commercial fishery, and one small salmon farm raises more fish than the two nations were arguing over. (BCSFA, NetWork Information Sheet #4)

In the traditional capture fisheries, salmon become products only once they are dressed and sold, but salmon born in stock-enhancement hatcheries are created specifically for the purposes of improving wild catches. Aquaculture goes one step beyond stock enhancement by tightening our grip on the distribution and growth of fish even further. Wild salmon, hatchery-raised salmon, and farmed salmon represent three stages in a process through which fish are increasingly constructed as products. The BCSFA makes this link to hatchery salmon explicit in an apparent effort to point out the normality of aquaculture: “In fish farming, salmon are retained for their whole life cycle, while in wild stock enhancement programs, they are released for a portion of their life cycle.” (NetWork Information Sheet #2). This framing inverts the assumption of wildness by naturalizing the fish’s captured state. The assumption throughout these framings of farmed fish as “products” is that we can exercise control in order to improve upon the products that nature has already made. Recently, Scarce found that in hatcheries, salmon are turned into products that research and “enhance” themselves. He identified the “tooling” of salmon in hatcheries and research as a symptom of rationality: a desire to methodically control our environment. Within this framework, actions on nature are not only viewed as means to an end, but their consequences can be anticipated and carefully taken into account.

Farmed salmon is not only a product in terms of the end result — neatly cleaned, dressed, and boxed fillets — but also in terms of the very process that creates those products. One advertisement proclaims that salmon farmers “produce a premium food product for an increasingly competitive world market” (BCSFA advertisement, Vancouver
Sun, August 24, 1996, A7). Here, salmon is a very different sort of product. Although it is still a seafood, it is now also a product of trade and production decisions. Aquaculture products are not only products in the strict, edible, sense of the term, but also in terms of their role in “feeding” the economy. In fact, salmon aquaculture is justified on the grounds that “more than 2,400 workers depend on the sustainable management of this renewable resource.”

Environmentalists, too, use the concept of “product” as a point of departure for their framings of the aquaculture industry. One Georgia Strait Alliance publication highlights the metaphorical change that occurs when fish are turned from animals into products. Under the heading “messing with mother nature,” fish farming is placed in stark contrast to wild salmon which are “one of Nature’s miracles”: “no one really understands the homing instinct that brings them from thousands of miles away back to the exact river, stream or creek where they were born” (Fish Farm Fiasco Factsheet #1). As soon as fish are accepted as being mysterious and miraculous, we can no longer easily turn them into the carefully crafted, boxed, and marketed products that farmed salmon become in the frames employed by the industry. In fact, salmon farming is rejected on the grounds that it invades and circumvents nature’s own processes for growing fish: “like factory-raised chickens, farmed salmon are fooled into fattening faster. Some farms use bright lights to confuse them into thinking all day — and night — is feeding time.” (Georgia Strait Alliance, Fish Farm Fiasco Factsheet #3). Farmed salmon are compared to farmed chicken that spend their “short, miserable lives” in “cruel conditions”; “that’s why many consumers spend a little extra money to buy free-range eggs” (Georgia Strait Alliance, Fish Farm Fiasco Factsheet #3). In place of salmon as a product, the environmentalists here create and attempt to have
us respond to nature as a living, organic whole. It is this organic solidarity which is presented as an alternative to the more mechanistic solidarity of the aquaculture industry’s ‘product’ frame.

The Georgia Strait Alliance, however, describes a coastal environment filled with products. It sees orcas, sea lions, seals and otters, as well as bears and birds as having once abounded at the sites on which salmon farms are now located (Fish Farm Fiasco Factsheet #2). The factsheets are filled with images of clambeds, blue herons and killer whales, and of native Pacific salmon together with their predators: grizzlies and eagles (Fish Farm Fiasco Factsheets 1 and 2). All these charismatic organisms are part of a phantasmagoria that represents British Columbia’s coastal ocean. Although merely a simulation, this imagineered nature organizes people’s thoughts and activities around aquaculture.

Similarly, Luke, in his study of the Arizona-Sonora Desert Museum, noted that the museum’s depiction of the desert environment is entirely hyper-real, in the sense that it has created a display that is a drastic departure from anything someone might actually encounter in the Sonoran desert. He explained that “reality just looks too dry, dead, and deserted to work. But, at man-made sites, like the Desert Museum, the Sonoran Desert can be artificially imagineered, like Disneyland or Disneyworld, by concentrating real dirt, fake rock, real animal groups, fake plant communities on 12 acres of artificial caves, trails, cages and habitats.” Just as most visitors to the museum assume that the desert they experience there is real, readers of Georgia-Strait Alliance factsheets are drawn into the simulated reality of the ocean. This use of simulation is possible because we generally live in a world filled with copies of real things.
In some ways, this understanding of nature is uniquely British Columbian. The industrial landscapes of the province are not so much characterized by factories and smokestacks, as they are by degraded “wilderness” settings, like vast clear-cuts, log booms, open pit mines, and fish farms. British Columbians are everywhere “hemmed in by mountains and forest,” and the intermediate farming landscapes that elsewhere mediate between “wilderness” and “civilization” are absent in most of the province. The imagineered nature of the Georgia Strait Alliance could therefore work to make more accessible and manageable the vast wilderness city dwellers may believe they have at their doorstep.

People, like animals, can be framed as imagineered products. For a period of time in the late 1990s, the BC Salmon Farmers Association ran a newspaper advertisement that featured a photograph of a man, with the headline: “Salmon farming is a sustainable, high-tech industry that allows me to live and work in a coastal community” (Vancouver Sun, August 24, 1996, A7). The caption indicates that the man is in fact “Jamie Bridge, Biologist, Salmon Farm Technician, Nanaimo, BC.” Most likely, this is a real person, with a real job, in the real community of Nanaimo. Although this person is pictured, the photograph hides the fact that it has become almost impossible to isolate one instance of the salmon farmer. Jamie Bridge is a fish farm technician, yet his work seems to be superseded by the industry’s growth potential, of which he is cited as a mere example. The advertisement describes finfish farm workers’ careers as built up around, and defined by, the “increasingly competitive world market:” “today we employ skilled workers and advanced aquaculture technology to produce a premium food product.” It therefore becomes difficult to determine, in typical post-modern style, whether a human-being is at
the center of what it means to be a salmon farm worker, or whether it is instead “productivity,” “competitiveness” and “expansion” that are the models of which actual people are the instances: “Sustaining the health and productivity of our farms is one of the reasons BC salmon farmers need more farm sites. ... I’m proud to be a salmon farmer.” A whole world of simulated meaning closes in on the meaning of farmed salmon. Subject and periphery are no longer distinguishable; whenever they try to locate one example of a fish farmer, the salmon farming proponents are already on the other side in their talk about the nameless and faceless forces of efficiency and control.

The common-sensical concepts surrounding fish as products become dissolved in a set of simulated people and activities that are themselves turned into products. In this way, as I will be explain later, common-sensical and hyper-real framings can build upon and depend upon one another.

EFFICIENCY AND FARMED SALMON

Atlantic salmon are further framed in terms of the process that creates them. Because it efficiently improves on the workings of nature, fish farming is presented as more natural than nature itself. Efficiency highlights the supposed normality of the process through which farmed salmon are turned into products. All the costs and benefits that accrue through the process of producing a particular crop of salmon are known and carefully taken into account. Salmon farming is agriculture in a wilderness setting: it brings control to the frontier of a wild and otherwise unmanageable nature. The separation of adults worthy of becoming broodstock from those that are not is seen not as an end in itself, but as the means to an end: “Veterinarians must ensure optimal health standards at every stage of the salmon’s life cycle. This requires extensive health testing of prospective
parents, eggs, juvenile, and mature, market-ready salmon” (BCSFA advertisement, Vancouver Sun, August 10, 1996, A15). Instead of letting nature choose which fish get to reproduce, we intervene.

Efficiency depends upon human selection acting on the fish at particular times and places. Efficiency seems to have been equated with natural selection, or at the very least, an extension of natural selection. To come back to a quotation presented earlier in the context of “products,” salmon farmers need to “produce a premium food product for an increasingly competitive world market.” The fact that farmed salmon are profitable is presented as evidence that the fish is a quality product: “Farmed salmon is a relatively new kid on the aquaculture block, one which has grown to become the leading product in the industry” (BCSFA NetWork Information Sheet #4). Here, “leading” seems to refer not as much to the physical product, as it does to the rate and price at which that product is sold. In this construction, farmed fish are valuable first and foremost not as fish, but as contributors to the economic process that again turns those fish into products.

Intervention into the life cycle of the salmon is carefully planned so as to maximize the probability that the product will fetch a good price. Salmon farming is framed as an efficient, instrumentally rational activity. As originally formulated by Max Weber to describe the use of conscious choice and calculation as the means to achieve certain goals, rationality is a powerful structuring force in our society.\(^\text{14}\) It appears to have a particularly strong presence in the case of our relationship with the natural environment. Murphy\(^\text{15}\) suggests that almost all of contemporary thought with regard to nature is guided by the principle of rationality; indeed this tendency towards the objectification of nature began when nature and humanity became conceptually separated from one another.\(^\text{16}\)
The use of antibiotics, for example, is efficient in this way. Although antibiotics can be used to get fish through life in closely crowded pens, they must not end up in the final product. To this end, salmon farmers claim that veterinarians are specially hired to assure that “medication is not present in farmed salmon destined for market” (BCSFA advertisement, *Vancouver Sun*, August 10, 1996, A15). The selection that occurs in wild and human-induced selection becomes fused into one. Salmon farmers respond to environmentalist concerns that escaped, farmed, Atlantic salmon will take over the spawning habitat of wild Pacific species by pointing to failed, early 20th century attempts at establishing wild runs of Atlantic salmon on the BC coast. Salmon farmers consider Atlantic salmon to be poor competitors in nature because our own efforts at establishing them have been unsuccessful: “Experience has shown that Atlantic salmon are extremely poor competitors. In fact, all attempts to establish sea-run Atlantic salmon have failed” (BCSFA advertisement, *Vancouver Sun*, July 18, 1996, A12). Here, the artificial selection that occurred when sport fishers in the early twentieth century attempted to create wild runs of Atlantic salmon in British Columbia is directly equated with natural selection.

Like salmon farmers, environmentalists tend to blame “inefficiency” when efforts at control fail. The David Suzuki Foundation laments in a newspaper advertisement that: “Norwegian taxpayers had to shell out $100 million to halt one epidemic. Caged salmon in New Brunswick were slaughtered to prevent the spread of infectious salmon anemia – at a cost to taxpayers of $10 million” (*Times-Colonist*, October 13, 1999, B11). In this framing, salmon farming is inefficient when it detaches the actual cost of the industry from a production process that is supposed to evaluate all farm site management decisions relative to the end product. For this reason, fish farming is at times framed not as a pollutant to the
environment, but as hazardous to "the economy." According to the Georgia Strait Alliance, for example, "fish farming is a net loss to the provincial economy because it undermines industries like tourism and the commercial fishery" (Fish Farm Fiasco Factsheet #4). From an environmentalist perspective, farmed fish is deemed unworthy because it interferes with the larger process of economic efficiency of which it is supposed to be a part.

Although farm-raised salmon are bred, fed, vaccinated, and created on actual farm sites, the fish are not framed as active players in their own production. Instead, they are considered simply as cogs in an efficient, economic machine whose efficiency is dependent on the design and operation of that machine. The David Suzuki Foundation justifies environmental protection in terms of its contribution to the economic process: "We can have job creation that results in environmentally safe technology and protection of our waters and marine resources. It makes no sense, economically or environmentally, to continue to operate with these outmoded cages that allow escapes, pollution, and disease transfer" (Jim Fulton, David Suzuki Foundation, News Release, April 6, 1999). In these environmentalist constructions, farmed fish facilitate the movement of money, products, and work, rather than the movement of nutrients and energy through trophic levels. It is this context which makes the crafting of salmon as a product understandable.

A BCSFA advertisement that features a photograph of the salmon farmer scooping fish out of a net (Vancouver Sun, July 18, 1996, A12) is a hyper-real simulation of efficiency. Despite its headline — "how salmon farming puts food on the table in British Columbia" — the advertisement does not make the argument that farm salmon allows people to eat, or to feed themselves and their families. Instead, the model of eating — the "economy" — comes first, and serves to make the experience of eating real: "World
consumption of farmed salmon is expected to overtake wild salmon by the year 2000. British Columbia is in an excellent position to benefit from this burgeoning demand.” In this way, we no longer eat, but we satisfy world economic appetites, a far cry from a cooked salmon meal on a plate. Next to a picture of a dinner plate is the statement: “Fresh farmed salmon from B.C. waters is now the province’s leading agricultural food export.” When presented in isolation, the related signs of world consumption, demand, and industry growth seem distant from farmed salmon. However, in the context of an advertisement such as this one, these signs become simulations within which the real salmon — caught, cleaned, cooked and consumed by actual individuals – becomes dissolved.

However, this focus on the efficient operation of the economic machine is questioned at some times by environmentalist framers. The Georgia Strait Alliance turns its readers’ attention to First Nations groups, who they say “lived in harmony with cycle of Nature” for “thousands of years” (Georgia Strait Alliance, Fish Farm Fiasco Factsheet #4). Here, it is “nature,” rather than the economy, that is guiding the production of fish. At one level, nature makes its own efficient decisions: “one of the benefits of polyculture is that it creates virtually no waste, because the waste of one fish becomes food for another,” (Georgia Strait Alliance Fish Farm Fiasco Factsheet #5). However, in this framing of nature, salmon is reconstructed as an active player in its own efficiency. In the following description of antibiotic use, efficiency in the creation of market-ready, disease-free fish is criticized because it is the result of doing things to fish, rather than acting with fish: “hundreds of thousands of farm salmon on the BC coast are being bombarded with powerful antibiotics to prevent disease outbreaks” (David Suzuki Foundation advertisement, The Province, July 30, 1997, A11).
The process of efficiency therefore brings about fundamental changes in salmon that are recognized and disputed by at least some environmentalists at particular moments. Just as religion extends over an ever diminishing slice of social life, nature is no longer sacred, and aquaculture seems, in these framings, to be moving towards the profane – that is, towards an arena in which efficient, ecological forces have freer reign. Environmentalists resist this tendency to see nature as withdrawing from the functioning of the environment. Thus, in some environmentalists' communications, modern Atlantic salmon culture is contrasted with ancient Chinese aquaculture, where “the pond becomes a perfectly balanced ecosystem just like nature herself, with different types of fish feeding on different parts of the pond” (Fish Farm Fiasco Factsheet #5). Fish are framed, not as pawns in their creation as a product, but as active contributors to their own meaning. An advertisement decrying the presence of aquaculture in coastal waters is headlined: “32,700 escape BC farm,” and includes a picture of a herd of cattle stampeding down a residential street (Times-Colonist, October 13, 1999, B11). This simulation appears to point to an instance of the production machine gone awry. Here, efficiency, or rationalized production, is rejected as a proper frame for the salmon aquaculture industry. In this construction, the inputs and outputs of the production process are clearly out of place, and nature is inamenable to the types of rationalized human control needed to produce farmed salmon.

Efficiency can also be rejected on the grounds that it fails to recognize that the boundaries of the efficient system are open to negotiation. In this sense, the scope of the efficiency frame, rather than the efficiency frame itself, is what is contested by environmentalists. Salmon farmers appear to confidently know the opportunities and constraints that nature imposes on the production process. This knowledge allows growers
to change wild breeding into carefully planned broodstock selection, and wild growth into meticulously planned feeding regimes, all with reference to the creation of a much sought-after product. However, some opponents of the industry have raised questions about whether “larger and more efficiently managed” fish farms, capable of “saving costs at each level of production” (BCSFA NetWork information sheet #2) are able to account for all externalities. The David Suzuki Foundation wonders, in one of its advertisements: “will the hatchlings [from escaped and spawning Atlantic salmon] displace sockeye, coho, and other native species?... again, nobody knows — any more than people knew zebra mussels would run rampant in Lake Ontario” (Times-Colonist, October 13, 1999, B11). Here, it is implied, nature cannot be known in its entirety, and certainly not well enough to be able to control and predict the effects of the farming process. That is, it is argued that when the frame of reference for efficiency is the commodity, we may fail to recognize those effects of the production process that are external to the commodity. The David Suzuki Foundation seems to be dealing with a nature that cannot be broken up into parts, either conceptually, in terms of farming processes that are separate from the rest of the ecology, or physically, in terms of net cages: “the outbreak of disease common to BC salmon farms are something no net can contain” (David Suzuki Foundation advertisement, Vancouver Sun, July 16, 1998, A10).

Even the salmon farming association sometimes backs away from the concept of efficiency. Instead, the framing becomes almost “value rational,”18 in that there is a belief in the intrinsic value of salmon farming. These frames are oriented not towards a set of (efficient) means used to achieve a goal (salmon production), but rather towards a set of values. Meanings are abstracted from the rest of the activity, and are consciously regarded
as values. For example, one advertisement showed a picture of an underwater photograph of a school of salmon and a silhouette of a fish farmer standing above, gently scooping them up with a large net (Vancouver Sun, July 18, 1996, A12). The scene is harmonious and peaceful, the scoopnet appears to be slowly drifting through the water, and the fish are circling the net, but not fleeing it. A similar image reappears in the BCSFA “Question and Answer” brochure, and in both cases seems to evoke nostalgia for simple harvesting (scoop nets) and living off of the sea as a lifestyle. No pen structures or netting are visible, and salmon are seen to be acrobatically and leisurely swimming at low densities. Such framing of salmon farming is powerful because it embodies a nostalgia for rural life, of humans in harmony with nature, and of people relying on nature for its bounty.

A nostalgia for a rural life was also prevalent in the early colonial period. This movement, known as Arcadianism, sought to escape the rigid rationality and moral decay of industrial society, through a renewed interest in country homes, aesthetically pleasing agrarian landscapes, and the moral virtues of the countryside. As David Demeritt has pointed out, agriculture in the province was always somewhat marginal, and so this ideal was difficult to achieve; however, the discourses around Arcadianism allowed for certain truths about agriculture in British Columbia to be sustained. Perhaps this agrarian ideal continues in British Columbia and works to frame the province’s production of raw, unprocessed commodities, like trees and fish, in a more favorable light.¹⁹

This framing, though it appears in many ways to be a rejection of efficiency, actually packages these sentimental obstacles as items that can be neatly and efficiently handled. The BCSFA has tended to create an abstracted, symbolic community, and by doing so, it shifted the target of concern about the social implications of salmon farming
not towards real communities, but instead towards mythified, simulated, and nostalgic communities and lifestyles. Baudrillard argues that when the real is no longer available in its previous form, nostalgia takes over.\textsuperscript{20} As a result, myths about the origin of things are proliferated and turn into signs of reality. When communities are concocted instead of real, aquaculture can likewise be imagineered to blend into this idyllic setting. In this framing of aquaculture, meanings really are just "values:" manageable signs and simulations that stand apart from actual social practice.

THE TECHNOLOGIZED FARmed FISH

Although we on the one hand appear to have replaced natural selection, our methods of producing and selling farmed fish have on the other hand placed us conceptually within a system of supplies and demands that we have socially constructed as natural and beyond our control. In this construction, we are just like animals in nature, in that we compete with other groups for the ability to grow as individuals and as a population. Technology, then, is like the much-needed mutation that allows us to increase the efficiency of our production process over that of other groups. Specialized scientific and technical knowledge is brought to bear on hazards that range from unforeseen toxic algal blooms to feeding regimes that waste fish food and money. The BCSFA boasts that "veterinarians use a number of tools to keep salmon healthy, including routine health testing, vaccinations and various handling, feeding and density strategies" (BCSFA advertisement, \textit{Vancouver Sun}, August 10, 1996, A15). We seem to assume that it is normal for the number of externalities resulting from the farming of salmon to be carefully brought under increasingly tighter control. When one method of control fails, others technologies can be called on to save the production process from inefficiency. For
example, despite the best efforts of veterinarians, some fish will not remain healthy enough to be turned into product. “When this occurs, veterinarians can prescribe a limited number of antibiotics” (BCSFA advertisement, *Vancouver Sun*, August 10, 1996, A15).

Technology serves as a means of perfecting farm-raised Atlantic salmon into a finished product through increasing efficiencies. This enables the industry to turn into a “real growth industry which is globally competitive.” (BCSFA NetWork information sheet #2). Whereas dominant framings of technology view it as something that facilitates that much sought-after goal of efficiency, environmentalist framings specifically reject the tendency of technology to control nature for human purposes. Technology is seen as a force that separates the salmon from its natural context. The Georgia Strait Alliance (Fish Farm Fiasco Factsheet #5), for example, contrasts modern fish farming — “big agribusiness” — with the low technology Chinese aquaculture of 300 years ago. The salmon aquaculture industry “control[s] the way our food is grown and distributed”; as a result, “our coastal waters are fouled with more and more open net pens.” Traditional Chinese aquaculture is low in technology, because it depends on a pond that “becomes a perfectly balanced ecosystem ... with different types of fish feeding on different parts of the pond.” “Agribusiness” conjures up images of a lifeless and technologized animal production facility, one which has completely lost touch with the surrounding environment. However, when the frame of reference is restricted to the farmed salmon as a dressed, chilled, and boxed product, technology is natural and necessary. As soon as the production process ceases to organize our thinking about fish, technology appears to break up the wholeness and integrity of nature. One David Suzuki Foundation advertisement, for example, remarks that net-pen bottoms are characterized by “two feet of silt, a profound lack of diversity, and a
disruption to the continuity of life on the sea floor” (Vancouver Sun, February 17, 2001, A17).

Somewhat unexpectedly however, technology is also sometimes framed by opponents of the industry as a way that a separate, non-human nature can be protected from the human processes that threaten to corrupt it. The advertisement goes on to claim that, while netcage salmon farms can threaten to wipe out wild salmon stocks, technologies such as closed-containment systems are “fully sealed systems from which no fish, sewage, or antibiotics can escape.” Closed containment systems quite literally separate the farming of fish from the rest of the environment. Technology therefore appears to fish farm opponents as a menace when it interferes with those elements of the world designated as “nature,” but as a savior when it prevents us from taking elements of that “nature” and transferring them to the human realm of production and efficiency. In other words, counter-framings of technology see technology as a means of saving technology from unleashing its own capacities. Here, technology is no longer justified “rationally,” in terms of the eventual goal of making commodities, but in accordance with the immediate value of environmental integrity. One David Suzuki Foundation advertisement praises the countertechnology of closed containment by saying that “BC can lead the world in this technology — if we act now” (Times-Colonist, October 13, 1999, B11). Similarly, the Georgia Strait Alliance advocates land-based aquaculture facilities in part because “such technology ... would allow farms to cut down on feed costs ...” (Fish Farm Fiasco Factsheet #5).

SALMON FARMING FRAMES AND THE STRUCTURING OF PERCEPTION

I suggest that hegemonies -- values that lie largely in the uncontested realm -- define what it actually is that requires framing. They are based on a type of moral
leadership that originates in dominant social groups but are actively recreated by masses of people. In this way, consent is not the result of domination in the traditional sense, but rather the result of individuals internalizing and actively creating societies in accordance with hegemonic principles. Since these principles are actively created by people, rather than imposed in a heavy-handed way, the type of consent they are able to provide is constantly subject to interference. Similarities between the understandings of aquaculturalists and environmentalists arise because both must make use of the same set of ideas in order to be understood by any other group. The alliances between salmon farmers and environmentalists are fleeting and fragile, and salmon farmers must continuously reproduce their knowledge in order to gain acceptance for this industry. The concepts of product, efficiency, and technology therefore dominate framings of aquaculture, but these concepts are contested and are the site of intense struggle.

These meanings manifest themselves in a particular vocabulary — one that centres around efficiency, technology, and productivity. I argue that “nature” is therefore apprehended through these elements of rationality, rather than directly, as a distinct entity. In the case of aquaculture, “progress” and “efficiency” legitimate economically dominant modes of production, particularly careful control over harvestable natural resources. Rationality provides a set of standardized motives that are recognized by others as “good reasons” for farming fish.

Some opponents of the salmon farming industry, however, do not always recreate these constructions in their framings of aquaculture, and instead make use of other, opposing constructions. Common-sense and hyper-real knowledge of salmon farming are brought together by movement actors in the contexts of products, efficiency, and
technology. My observation that concepts of rationality are closer to the experience of movement actors than are concepts of either “nature” or “society,” suggests that aquaculture is indeed a hybrid in Latour’s sense of the word.\textsuperscript{23} An analysis of salmon farming forces us to deal with the fish-in-itself, and how it is produced through techniques and narratives of efficiency, and not with mere representations of the fish. Latour’s concept of hybridity encourages us to take seriously our involvement with things and to interpret that involvement -- which often manifests itself as a technology or a form of material production -- as a form of social interaction. The ways in which environmentalists and salmon farmers construct fish farming does not bracket nature off, but creates fish that are simultaneously social, narrated, and scientific. Farmed fish are too much like commodities to be entirely biological, and yet their production is too full of naturalized efficiencies to be purely social. Much like Donna Haraway’s primates,\textsuperscript{24} the bodies of farmed and technologized Atlantic salmon represent the union of the political and the physiological. Haraway focuses on the ways in which organisms are actually embodiments of sets of social relations, and suggests that the narratives inscribed onto living things turn those organisms into social actors in their own right. Instead of rejecting the scientific aspects of farmed fish, we should look to how those fish are physically constructed for clues to how they become tools in the production of our social worlds.

From an industry perspective, people and fish are turned into the generic products of growth and progress; for some environmentalists too, simulations depend on the construction of salmon as a visual and aesthetic product that is part of a Disney-fied landscape of animals. The hyper-real addition to this common-sensical framing of aquaculture takes the process of fish farming and turns it into a model that sets an example
for nature — it is already more efficient, more rational, than anything nature could ever provide. At the same time, constructions of ecology — trophic levels and energy flows — become connected with the functioning of an economic machine that outputs fish as products. But fish are crafted into premium products for the marketplace through a strictly monitored process, and are thus set apart from nature. This rearrangement of constructions surrounding fish and products makes understandable the implosion of meaning that occurs at the level of the sign. Rather than creating new and revealing constructions, the simulated way in which fish farming tends to be framed dissolves the meaning of fish into something that satisfies not hunger, but economic demands exerted by nameless and faceless forces. Environmentalist framings can directly challenge concepts of efficiency in our dealings with salmon by pointing out the hyper-real similarities between escaped salmon on the coast and escaped cattle in cities.

Given this context of shifting meaning, it is not unexpected that pro-industry framings deflect this harsh aura of machine-like efficiency through a hyper-real nostalgia for a slow and simple life. Fish farming therefore makes use of both common-sensical and imagineered knowledge. This is because fish farming is in fact a natural-social “collective,” and knowledge of that collective takes indirect and convoluted paths from the real to the hyper-real and back again. According to Latour, shifts in the boundaries between signs and things can result in shifts in meaning, which in turn allow us to construct our natural-social collectives. This may explain our finding that in the controversy over fish farming, common sense and hyper-reality are in constant negotiation with one another. Like a frame’s matting, signs and simulations can lead people towards certain elements that may otherwise have passed unnoticed in the ongoing talk and advertising about salmon farming.
Thus, the hyper-real part of aquaculture frames relies on the hegemonic knowledge of the main frame but is able to highlight certain signs from the stream of events and controversies surrounding aquaculture.

CONCLUSION

This chapter suggests that an awareness of the performance aspects of environmental framings may allow people to live more astutely in a world of burgeoning controversy over natural resource issues. Just like performances, frames can only convey their intended meanings if the framer makes use of a body of institutionalized, socially available sign-equipment. In a performance, a "front" serves to define the situation by placing actions within a socially-understood context. Environmentalists and salmon farmers perform for the public their frames of aquaculture, in that they put forward idealized versions of environment, individuals, and community that fit entirely within socially accredited knowledge about how things are. Like performances, frames are ways of talking and acting that present particular versions of a situation and are sometimes interpreted as realistic depictions of reality. When this occurs, the power fish farmers or environmentalists wield comes not from their own knowledge, but from the context, or knowledge, that the opposing parties bring to the dispute.

Framing is therefore a carefully nuanced process in which even minor errors in impression management may shatter the faith that an audience places in a set of constantly changing ideas. This problematic arises because social actors can never know for sure the structure of knowledge residing in a group, even if they themselves are members of that group. My interpretations have therefore attempted to demonstrate the degree to which aquaculture promoters and opponents must have access to routine knowledge, and get
people to participate in the things “everybody knows,” before their reasons become believable. This theory of power is in line with that of Barnes,\(^{27}\) who argues that society, by virtue of being a distribution of knowledge, is an ordered array of powers. Neither hegemonies nor hyper-realities are directly apprehended, yet both guide the reader of advertisements in coming to their own conclusion. Through hyper-reality, commonsensical ideas are brought into new contexts and become represented by signs, yet at the same time, the models present in the collective imagination are shaped by taken-for-granted meanings.

Part of the tension between the hegemonic and hyper-real meanings of farmed salmon may be due to the apparent confusion about whether nature is “more like us” or whether we are “more like it.” In both cases, nature is constructed as a “thing” out there that needs to be distinguished in some way from society.\(^{28}\) It appears that the layers of meaning through which fish farming is framed allow for the coexistence of conflicting constructions about what sort of “thing” nature is. Because signs are refracted by other signs in hyper-real ways, farmed salmon can, for example, at the same time be “products” (visual and physical) and “wild,” without any apparent contradiction. This is because even environmentalist framings of salmon seem to find it difficult to escape from the knowledge that socially constructed animals and ecologies are more perfectly real and “natural” than any instance of salmon found in nature. Culturally available knowledge therefore offers both constraints and opportunities to framers of salmon farming.

When frames are interpreted as actively constructed and negotiated phenomena, rather than as static “things,” then the frame expands so that the thing being framed, in this case, farmed salmon, actually becomes part of the frame. In part, this is because farmed
fish are socially constructed as part of ourselves, our communities, and our nature, and have no existence outside of these constructions.

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7 Clifford Geertz, “From the native’s point of view: on the nature of anthropological understanding,” in *Interpretive Social Science: A Reader*, Paul Rabinow and William M. Sullivan, ed. (Berkeley: University of California Press, 1979), 225–241, p. 228.


18 See note 14 above.

19 Demeritt, pp. 32-40.

20 See note 12 above.


26 See note 1 above.

CHAPTER 4. IDENTITY AND ENVIRONMENT IN THE LEGGATT INQUIRY

INTRODUCTION

In October of 2001, the Leggatt Inquiry into salmon farming traveled to four small communities (Port Hardy, Tofino, Alert Bay, and Campbell River) close to the centers of operation for the finfish aquaculture industry in British Columbia. In doing so, it gave local people, particularly First Nations' people, an opportunity to speak about salmon farming using their own vocabularies, styles of speaking, and forms of knowledge. Their testimony, however, was about much more than salmon farming. In fact, most of the talk at the inquiry focused around people's sense of place and community, and their understandings of their way of life. In particular, the inquiry brought to light the legal and political context in which the salmon farming industry operates, and much of the colonial context described in chapter 1 is relevant to this discussion of identity and salmon farming.

This chapter focuses on narratives that in technical and scientific circles would probably be considered rambling, anecdotal and off the topic. Much of the background needed to make sense of these accounts of fish farming lies hidden in the colonial context of the industry and the on-going struggles of Native people in British Columbia for recognition of their rights to land and resources. In particular, the material practices of the colonizers seem to produce Native identities very different from the ones Native people themselves know about and rely on. My analysis of the Leggatt Inquiry tries to give voice to the Native people who appeared at the inquiry by showing that while they are certainly the victims of continued intrusions into their territories and ways of life – and, as I hope to demonstrate, salmon farming represents such an intrusion – they are not passive bystanders.
in the process. Instead, the aboriginal people who spoke about salmon farming at the inquiry creatively and strategically employed a variety of devices that would help others see the controversy over salmon farming as they themselves did.

People evaluate situations using particular vocabularies that are known to be unquestioned explanations for behaviors or attitudes. Therefore, First Nations’ people may encounter resistance or misunderstanding when justifying their rejection of fish farming to non-First Nations’ people. The theoretical work on how people use accounts in social interaction suggests that at this point, two strategies are available to an aboriginal opponent of salmon farming: her or she may either (1) reassure the listener about the type of person they are, as a member of a First Nation, or more rarely (2) switch identities and provide accounts in line with who they think they are expected to be. In the first instance, the witness strives to reset the social stage on which the drama of the account is played out to reflect an identity more favorable to his situation. In the second instance, testimonies are placed within the context of an identity that may honor only very different types of accounts. In this way, people’s accounts of their behavior generally reflect a commitment to being a particular type of person by responding to the expectations associated with that identity.

While I structure my analysis of the speakers’ identities around these two strategies, it will soon become clear that these categories – “affirming” identity and “negotiating” identity – are more fluid than is sometimes supposed. I challenge the assumption that “aboriginal peoples have yet to significantly affect the construction of their own identities within mainstream Euro-Canadian contexts.” Although Native people at the Leggatt Inquiry seemed to recognize that they were constrained by outsiders’ understandings of
who they were, those constraints were transformed into opportunities for resistance. In the
course of interpreting what it means to be aboriginal, the witnesses seemed to be actively
selecting, checking, and transforming both the meanings that were ascribed to them by non-
aboriginal people, and those they had previously constructed on their own. As a result, aboriginal people were able to speak about salmon farming in terms of uniquely Native identities.

This perspective on identity is relevant to much of the recent work on the subject. From the symbolic interactionist point of view, identities are generally considered to be symbols in their own right. These symbolic identities imply relationships between people that must be negotiated through interaction. Therefore, identity is never a pre-determined and stable feature of the self, but rather something that is always in progress and constructed within discourse. Joane Nagel, for example, observed that ethnic identification as an American Indian seems to lie at the boundary between ascribed and self-created identities; indeed identities are the context-specific negotiations that make up these clashes in meaning.

In recent years, the David Suzuki Foundation, along with other environmentalist organizations in British Columbia, has raised serious questions about the environmental impacts of salmon farming. In addition, most coastal First Nations in British Columbia seem opposed to or suspicious of salmon farming in their territories, though one First Nation on the north coast, the Kitasoo/Xai’xais operates its own salmon farm. The Salmon Aquaculture Review, conducted by the British Columbia government’s Environmental Assessment Office in 1995, did not appear to adequately answer either Native or Euro-Canadian people’s questions about this new industry. The Leggatt Inquiry, although
organized and funded by the Suzuki Foundation, was part of a public relations battle over salmon farming that has been raging for many years. The Coastal Alliance for Aquaculture Reform, which includes the Suzuki Foundation, has been trying to raise public awareness over the potential for salmon farms to transmit disease to wild, Pacific salmon, and the polluting effects of high concentrations of fish and feed at farm sites. In addition, the reality of Atlantic salmon escapes has outraged environmentalists who, like many British Columbians, understand salmon as a part of the region’s natural heritage and fear for the continued survival of the wild species.\textsuperscript{10}

British Columbians, aboriginal and non-aboriginal alike, are frequently involved in intense controversies over logging, fishing, and mineral exploration. In 1993, for example, environmentalists took part in large demonstrations against logging practices and committed acts of civil disobedience in Clayoquot Sound, on the west coast of Vancouver Island. In addition, many aboriginal groups in the province have been deliberately challenging their continued exclusion from, and lack of control over, resources and territories that were never ceded by treaty or otherwise. These legal challenges, though not always successful, have placed strong pressure on government fisheries regulators to recognize pre-existing Native rights.\textsuperscript{11}

The David Suzuki Foundation, an environmentalist organization with a strong focus on the oceans and sustainable fishing, initiated, organized, and financed Stuart Leggatt’s inquiry. Stuart Leggatt, a retired British Columbia Supreme Court judge, was appointed inquiry commissioner. Leggatt’s terms of reference, however, stated that the inquiry was independent and that it provided a much-needed opportunity for people to speak publicly about salmon farming. Judge Stuart Leggatt not only allowed these sorts of personal
testimonies, but actively solicited them. In doing so, he followed in the footsteps of Judge Thomas Berger, who led an inquiry into the proposed MacKenzie Valley Pipeline in 1974. Berger had been interested in hearing from more than expert witnesses; he wanted to come to grips with different ways of understanding the environment, and with people’s hopes and fears about their continued relationship with the land.\textsuperscript{12}

CONTESTED IDENTITY AND NATURE

When Native British Columbians at the Leggatt Inquiry spoke about fish farming, they tended to emphasize their first-hand knowledge of people, territories, and ways of making a living, rather than restricting their explanations to second-hand, scientific “facts.” Much of the evidence placed fish farming within the context of memories about colonial attempts to destroy a way of life. Art Dick (Alert Bay, Namgis First Nation, hereditary chief, Mamalilikulla tribe), said that

it all started with the banning of the potlatch. And then they implemented the residential school because this government of ours has a hundred year plan for Canada … and Natives are not included. … That wasn’t successful, what other option do they have? They are going to the very substance that sustained us throughout our history: our food supply.

The importance of people’s social lives is a thread that wove itself through much of the opposition to fish farming and appeared to be inseparable from the discourse on the natural lives of fish and other marine resources. Distinctions between culture and tradition on the one hand, and economy and industry on the other, so often made in non-aboriginal society, was not one that was made by any of the First Nations’ witnesses at the inquiry. Fish farmers, on the other hand, typically talk about controlling a valuable yet separate nature such that its “productive potential” can be tapped (BC Salmon Farmers’ Association
advertisement, Vancouver Sun, July 18, 1996, A12). For Rod Sam (Tofino, Ahousaht First Nation), like many of the witnesses, people's reliance on the productive capacity of the environment is the very thing that makes them human. This understanding is in direct contrast to that of the authors of the Salmon Aquaculture Review, who "had stated that there is little or no impact to the environment and to humans. Basically stating that First Nations' people aren't human, because we are impacted. You cannot even begin to put a price on the resources we have lost (Rod Sam, Tofino, Ahousaht First Nation)."

First Nations' people have unique ways of understanding their relationship with the environment that are different from their colonizers. However, the huge diversity of indigenous ways of life calls into question the usefulness of easy generalizations about Native environmental understandings. Levi-Strauss tried to characterize the "savage mind" by saying that indigenous people operate at a different "strategic level" of thought – one that is "adapted to that of perception and imagination."  

Some contemporary anthropologists have argued that non-agriculturalists relate to resources differently than agriculturalists, and have a tendency to endow elements of nature with subjectivity, in the same way that we (non-aboriginals) endow humans with subjectivity. These sorts of conclusions probably have more to do with our own (Euro-Canadian) problems in understanding the nature of objectivity than with the cultural worlds of exotic or far-away peoples. In fact, it seems most useful to focus on differences in these understanding as they apply to particular social situations at specific times and places.

Those who testified at the Leggatt Inquiry highlighted the reliance of their meanings and understandings of salmon on contemporary, real, and productive fishing economies, rather than on vague notions of traditional values. The divide between the cultural and the
economic has been imposed by Euro-Canadians because it is a powerful way of telling First Nations’ people who they are: traditional people who know nothing of economy. Foucault has suggested that power constitutes people as subjects – that it tells people who they are in relation to each other and the material world.¹⁷ In the particular context of British Columbia, the appropriation of First Nations’ lands by colonists has gone hand in hand with the relegation of First Nation people’s ways of understanding those lands. Foucault says that power is not so much a confrontation between two adversaries as it is a question of government, and as a result,

the things with which in this sense government is to be concerned are in fact men, but men in their relations, their links, their imbrication with those other things which are wealth, resources, means of subsistence, the territory with its specific qualities, climate, irrigation, fertility, etc.¹⁸

What counts as material production – as opposed to social production – determines the types of access Native people have to resources in their territories. This is also the view of Bruce Braun, who found that the colonial history of British Columbia is being kept alive through a kind of “silent colonial violence” that separates understandings of Native people from understandings of modernity and culture.¹⁹

ACCOUNTS: AFFIRMING FIRST NATIONS IDENTITY

Identity and fishing

Fishing appeared to be understood by First Nations’ speakers, most of whom had fished all their lives, as inseparable from who they are as people. Fishing was not just described as an activity among many others; instead witnesses spoke of a dynamic and active nature in which the continuity of people is linked to the renewal of natural resources. This renewal takes place through use: “Our access to our traditional foods is a major link to
our traditional way of life, and our culture. To watch this being destroyed is to witness
genocide.” (Bill Cranmer, Alert Bay, elected chief, Namgis First Nation). Fish are therefore
not an entity to be acted on, but with: “To me, this wild fish is who we are, what we are”
(Stan Hunt, Alert Bay, Namgis First Nation). In this view, fishing should not be viewed
simply as the extraction of consumables, but as an activity that recreates people and their
so-called “traditional” knowledge, at the same time as it recreates the environment.

Speakers talked about how, in their societies, people take care of the environment
not by simply talking about culture, but by actively engaging with the material world so
that knowledge of the resources, and the resources themselves, will endure into the future.
In much the same way that it recreates nature, fishing allows for continuity in the identity
of these First Nations people despite the drastic changes they have faced over the past
century. Coast-wide buyback programs, individual quotas, and other moves towards the
privatization of commercial fishing have resulted in the elimination of all but a handful of
salmon licenses in Alert Bay. Although the federal government continues to bracket
fisheries off from community life, the Namgis people are committed to maintaining the
possibility of a wild fishing economy for generations to come. This commitment is
expressed in cultural terms, as something that

commands ... the sacred duty of stewardship of the land, sea and air resources for
future generations, and the ability to harvest those resources for food, ceremonial,
and social purposes has been ongoing for years and years for [Native] people (Bill
Cranmer, Alert Bay, Namgis First Nation).

For the aboriginal people of northern Vancouver Island and the adjacent mainland,
expectations about how people should behave towards and with natural resources are
created not through idle thoughts of past cultural ideals, but by fishing – by being engaged
directly in the resource of the present. Fishing makes it becomes difficult to discern where
the fish stops and the human begins. As Mike Stadnyk (Alert Bay, Namgis First Nation) put it, “the salmon fishing industry is responsible for everything I am today.” This is consistent, even today, with Franz Boas’ documentation of the metaphorical use in the Kwakiutl language of salmon as people:

The guests of a person as well as wealth that he acquires are called his ‘salmon’ … a great many guests a ‘school of salmon’ and the house or village of the host his ‘salmon weir’ into which he hauls his guests.21

When Darrell Campbell (Tofino, Ahousaht First Nation) talked about the survival of fish stocks over millennia, he pointed out the fact that: “Since time immemorial, the Ahousaht First Nation managed the fish, the aquatic resources, and the environment under their own laws, law systems. The law is respected, the fish, aquatic resources and all its environment surrounding it [are also respected].” This is how he introduced himself and his testimony. All his later claims were subordinate to this fundamental social fact: his people have always managed and harvested salmon precisely because these fish are so valuable. By making extensive use of references to fishing, Darrell Campbell explained his practical knowledge of fishing as itself a cultural resource that integrates present realities with traditional practices.

By explaining who they are as fishers, First Nations’ witnesses generally sought to create expectations in the listener with regard to fishers’ behavior. Mano Taylor, a clam digger from Alert Bay (Namgis First Nation) can “just look at the beach and know what’s there, whether it’s a butter beach or a littleneck beach.” He checks up on the condition of clam beds near fish farms because he “like[s] to find out what our old people used to do and where they used to go.” Mano Taylor is one of the few seafood harvesters who continues to hold a commercial license in Alert Bay, and he argued that it is the practical
implications of his knowledge that assure its validity: “Clams,” as he went on to point out, “are a renewable resource enjoyed by most people. ... I don’t know anybody in this room [who has eaten] a farmed fish.”

When a fisher talks about the ocean, their first-hand knowledge is regarded as true not because it is “cultural”, but instead because it was used by generations of fishers from past to present. Art Dick (Alert Bay, Namgis First Nation) remembered how he learned about pit-lighting “as a herring fisherman with [his father] on the mainland thirty-five years ago:”

We used to pit light. ... And when we did that we attracted herring plus everything else that lives in the ocean came to that light. And when we made our set to catch these herring, it was quite a common occurrence for us to catch 50, 70, 125 spring salmon that were in the areas at the time.

When he saw that fish farms were using lights at night, it bothered him, because he knows “what happens when the lights get turned on to these little fish that are escaping the rivers and heading out to sea.” In his presentation, Art Dick “chose not to have a title.” He has many -- hereditary chief of the Mamalilikulla people of Village Island, a councillor of the Namgis First Nation, senior fisheries guardian at the Kwakiutl Territorial Fisheries Commission -- but instead, he testified “on behalf of [his] family,” who were the people with whom he fished and who taught him to make a living through fishing.

Like the environment experienced through fishing, the environment in which fish farming takes place is fundamentally social. Willie Moon (Alert Bay, elected chief, Namgis First Nation) found that when outbreaks [of fish disease] erupt [on salmon farms], it is not the fish that are quarantined, but the people: “We the Tsawataineuk Nation, our travel mode is basically by boat. If they have an outbreak in our territory that basically means we are quarantined in our community.” This is because fish farming, like tree farming, precludes
many other, uniquely Native, economic activities. According to Art Dick (Alert Bay, Namgis First Nation):

> Everybody knows the effect that fish farms have on a cultural way of life of the Native. Up at the head of Knights Inlet, where I go to make [ooligan] grease on a yearly basis... there's tree farms. We no longer have access to that land to hunt.

Kingcome Inlet is the home of the Willie Moon's people, the Tsawataineuk, just as Knights Inlet lies in the traditional territory of Art Dick's ancestors, the Mamalilikulla. Both these locations are geographically removed from the reserve in Alert Bay to which government Indian agents moved many Kwak'wala speaking tribes. However, these two men continue to be "from" those areas as long as they continue to fish in those inlets, thereby recreating their families' culture in real and productive ways.

As with fishing, fish farming is not considered to be separate from social life. Joe Campbell (Tofino, band manager, Ahousaht First Nation), for example, observed at the fish farm at Bare Bluff that: "The dogfish come around and it creates dependency [on the feed]. Just like when there's a free meal, lots of people go there." Ultimately, Joe Campbell says, the dependency of wild fish on fish pellets is "going to be at the cost of the public." He wonders whether "the government [is] going to be liable ... for any damage to the environment and to the lives of [his] people?" Joe Campbell's comments relate directly to the economic condition of his community, Ahousaht, where, unlike Alert Bay, which remains more or less steadfastly opposed to any involvement in the industry, as many as 60 people work at, and have slowly become dependent on, the nearby fish farms and processing plant. In fact, fish farming is the only major employer in the community besides the band administration. Like other aboriginal communities along the coast, the licensing schemes and other governmental fisheries regulations deprived the Ahousaht of
commercial access to their adjacent, wild fisheries and many Ahousaht work as wage laborers disconnected from the fishing economy.

Just as wild salmon are known to be closely intertwined with First Nations as people, so farmed salmon are thought to represent the beliefs and agendas of non-aboriginal people. In fact, Native witnesses often described fish farming as part of a larger program to either exterminate or assimilate aboriginal people, “This is all being done, this genocide of a race, being done under the guise of farming, under the guise of economic development” (Art Dick, Alert Bay, Namgis First Nation). Here, he is interpreting farmed fish as an extension of the colonizers, just as wild salmon are viewed as an extension of his people.

The Namgis people are particularly sensitized to the cultural violence that comes from attempts at assimilation. Vera Newman (Alert Bay, Namgis First Nation) is no longer able to dig clams because she “live[s] in a different world... we are told to get educated... we come home with an education and we don’t get the jobs.” What Vera Newman points out very clearly is that her inability to harvest wild marine species is a direct and material consequence of non-Native intrusions into Native understandings of people and the environment. In other words, non-Native understandings of fishing, when imposed on Native people, are more than mere discourse: they do perceptible damage to the lives of real individuals.

When fishing is no longer an option, people are starved of their life and meaning: “I sit here and I watch our [fishing] boats, I feel like crying. I feel like our community has just laid down and died” (ibid). Here, cultural meanings are not understood as mere beliefs or attitudes, but as resources critical to survival. In it’s U’mista Cultural Center, the Namgis
Nation remembers the potlatch ban of the early 20th century in a display of the seized and repatriated items. The Fall 2000 edition of U’mista news explains that the center is designed as a place for people to "inform themselves about the genocide that is our history."22

Identity and place

The aboriginal testimonies at the Leggatt Inquiry were filled with references to the traditional territories of particular bands and nations. People discussed places in highly specific ways, by always associating places with their inhabitants. Each day’s proceedings were opened by a statement welcoming the audience and the speakers to a particular territory, thereby letting the non-Native listeners know what sort of place it was that was hosting the inquiry. Pat Alfred (Namgis First Nation) introduced the Port Hardy meeting by stating that his mother is Kwagiulth:

She lives here in this village, and the land that you sit on today I welcome you to come share with us on the land of the Kwakiutl people, the traditional territory. ... In following the proper protocol, I had to do that scene as you [Judge Leggatt] didn’t – someone should have explained the protocol ... they [First Nations’ people] should always be there to welcome.

Pat Alfred went on to explain that “the first thing you do when you arrive at Port Hardy” is “you go and meet the chief and council of that village because you’re in a traditional territory.” Bill Cranmer (Namgis First Nation) from Alert Bay pointed out that the testimonies given on that day “will address only our territories.” These welcoming procedures created an environment in which First Nations’ meanings of place, and by extension, people’s meanings of who they are as people in those places, could permeate the discussions about salmon farming. Consequently, the welcoming speeches gave authority
to a way of common-sense thinking that understands places in a very different way from salmon farming interests.

It is not surprising that the notion of place plays such a central role in the debate over First Nations and salmon farming, given that conflicts over land have always been the primary point of contention between aboriginal groups and their colonizers. Historically, colonizers have failed to recognize the specificity of First Nations notions of place, and "according to the province, Indians didn't need land because they owned everything in the sea, so they gave us [Indians] basically ten acres per family of five as opposed to 350 for every British subject when they allocated land" (George Alfred, Alert Bay, Namgis First Nation).

The colonial emphasis on space, rather than place, treats fish farms as though they act on a generic coastal environment. As Bruce Braun has pointed out, non-Native people often construct nature as empty space, with only particular actors authorized to speak for it. When nature is understood as a separate object of environmental contemplation and scientific calculation, indigenous people come under colonial control, and are variously placed in, around, or outside of carefully delimited places. The treatment of places as homogenous spaces allows land to be separated from its original inhabitants and reconfigured in ways that satisfy colonial agendas. Bruce Braun has discovered such expressions of place-as-space in the public relations materials published by the forestry company MacMillan Bloedel operating in British Columbia. It should come as little surprise therefore, that salmon farming companies in the province construct place in much the same way.
Cole Harris has noted that in British Columbia, the allocation of reserves, the opening of land to settlers, and the extinguishment of rights of Native usage, custom, and law all contributed to a particularly oppressive form of colonial power.24 By reorganizing Native space, Native people's possibilities for action became severely constrained. As a form of disciplinary power, the alienation of Native people from their land was an attempt to rid people of knowledge about who they were. Not only do seasonal rounds now lie outside reserve boundaries, but the spatial control of aboriginal people has given the colonizers the ability to attempt to force aboriginal people to assimilate into mainstream Euro-Canadian culture. As Daniel Clayton has pointed out, the redefinition of Native space, particularly its redefinition as Crown land, was central to the imperial fashioning of Vancouver Island.25 The idea that Native culture cannot be reinvigorated until ancestral lands are restored therefore lies at the center of present-day rights claims.

For many of the Native people who appeared at the Leggatt Inquiry, salmon farming represents a direct infringement on the right to use and occupy particular ocean territories. This sense of loss was articulated by Russell Kwakseestahla (Campbell River, hereditary chief, Laich-Kwil-Tach First Nation) who said that “some of those areas are our homeland and we don’t want to lose our clam beaches and fishing reefs et cetera to fish farms.” These places are not at the frontier, near the edges of the territorial boundaries, from which resources are extracted and transported back to the center. Instead, homelands are at the center of wealth, and the fishing spots and other resource-gathering sites that make up these homelands provide people with a way of life. Witnesses seemed to consider themselves to be at the very center of places, many of which are now occupied or affected by fish farms, and they saw no difference between physical and cultural marginalization.
Robert Joseph (Alert Bay, Namgis First Nation, hereditary chief, Gwawaenuk tribe) explained this marginalization by making reference to his people’s traditional territories:

If it does indeed … impact our access to these resources we are going to see more and more of our people marginalized and more and more of our people moving into places like downtown east side Vancouver and to other places of poverty living on the periphery of the wealth that other people are accustomed to (Robert Joseph).

Russell Kwakseestahla’s presentation began with a statement about the alienation of his people’s lands without treaties, and his past work in a “society [created] six years ago on fishing in the commercial fishing industry and fishing rights for critical issues with Laich-Kwil-Tach people.” “We still enjoy 100 percent sovereignty and we own 100 percent of our homelands,” he said. The present crisis over salmon farming is in his view an extension of “the crimes against humanity acted upon us by the colonial pirates and thieves that invaded our homelands.” Without the wealth of his people’s territories, “people have suffered since … [other] people feel or assume that they have jurisdiction in our homeland.” Chris Cook (Alert Bay, Namgis First Nation), as president of the Native Brotherhood, a fishers’ union and the oldest active Native organization in Canada, sees the same thing from a more general point of view. He emphasized the discrepancy between the “fishing opportunities in our ocean” and the adjacent people’s lack of access to those riches: “today, I’ve never seen so much poverty as I travel up and down the coast,” he concluded.

The places at which fish farming takes place are not abstract spots that are “out there” in the wilderness; instead they are specific locations that are intimately known. The status of these places, as places, seems to come from their involvement in the fishing economy. Sydney Sam, Sr. (Tofino, Ahousaht First Nation) was a herring fisherman who discussed the differences between Cypress Bay, “where there was about three or four
farms, which used to be at one time one of the best spawning areas for herring" but which hasn’t “had a spawn there for years now” and Sydney Inlet, “where there’s no farms at all” and “herring [have] come back.” This kind of detailed knowledge of place is central to the “protocol” agreement, signed in the fall of 2002, between the Ahousaht First Nation and Pacific National Aquaculture. The agreement recognizes, at least in principle, Ahousaht’s traditional territories (ha-hoolthee) and the hereditary chiefs who own them (ha’wiih).

Ahousaht agreed to allow the already existing salmon farms onto its territories in exchange for influence over siting decisions and farming practices. For Ahousaht, the consequences of fish farming are specific and anticipated at named and known locations:

I guess the reason I say local knowledge plays a key role is – a good one is the Bare Bluff issue. … We told them no, we don’t want that farm there [Bare Bluff]. Despite our opposition, they went and did it anyway. Lo and behold this year what happens? The biggest mortality rate you’ve ever seen. We’re told 20 feet of dead fish on the bottom, maybe even more, plus floating fish on top (Darrell Campbell, Tofino, Ahousaht First Nation).

The signing of this new agreement may address Darrell Campbell’s concerns and could represent a significant attempt by both parties to move the salmon farming company towards an understanding of fish farming locations as places, rather than mere spaces.

Bays, inlets, and other kinds of fishing spots are not mere background, but are well-known characters that participate in a social life made possible through the harvesting, processing, and consumption of fish. Places invite, allow, and facilitate a way of life centered around a fishing economy, and seem to contain the essence of what it means to be a First Nations’ person. This seems to be true also of northern, interior First Nations in the Arctic. Judge Berger, in the report of his inquiry into the proposed MacKenzie Valley Pipeline, wrote that “the relationship of the northern Native to the land is still the
foundation of his own sense of identity. It is on the land that he recovers a sense of who he is."

While non-Natives often equate agriculture with place and hunting and fishing with the lack of place, First Nations’ people tend to come to the opposite conclusion: that a way of life based on fishing is closely tied to locations, whereas agriculture (like fish farming) does away with the need for specific places. Finfish aquaculture is a form of farming, and Atlantic salmon can be cultivated in waters from Chile to British Columbia, assuming that a set of temperature, salinity, and ocean current conditions are met. Fish farming, like agriculture, is tied to places, in that particular spots are occupied with rows of net pens. Fishing places, on the other hand, are less visible to the outsider. This contradiction between the importance of a place and its outward appearance to non-Natives led Stan Hunt (Alert Bay, Namgis First Nation) to compare the destruction of fishing places to the destruction of farms. He used a vocabulary he thought his listeners would understand, when he said:

- It’s almost akin to you having a farm and you have certain crops that you are planting and then I come in without telling you what I was going to do and uproot everything that you have got and plant something else. That’s basically what these fish farms have done to us. They have absolutely ruined the way we lived.

As the speakers at the Leggatt Inquiry explained in great detail, places along the coast are not occupied by people as colonizers of a non-human nature. Instead, salmon and people together lay claim to places. Commitment to a homeland precludes people from moving on to other places because salmon too are constrained to particular rivers, runs, and habitats: “People have come and gone in our area, and no matter how bad it’s been, we’ve still been here ... we are the salmon people, Kwakwaka’wakw” (Mike Stadnyk, Alert Bay,
Namgis First Nation). Dan Smith of Campbell River (Laich-Kwil-Tach First Nation), also a Kwakwaka’wakw, concurred:

The wild stock have a *homeland*. They have their respective streams, their respective rivers to ensure that they continue. And they do not want to be dislocated or disenfranchised or pushed out by the exotic or foreign species that are being introduced.

Dan Smith used the same vocabulary to talk about both biological invasions and the intrusion of people into his territories. Because there has been “a desire of many people to move into these areas, [the traditional territories of the Laich-Kwil-Tach people, they] extended the hand of friendship and hospitality as [their] ancestors had.” Indeed, Campbell River, with its abundance of pulp mills and other industries is the most urbanized of the four Vancouver Island communities visited by the inquiry. However, these industries have not made Dan Smith’s people wealthy; as he pointed out, “the legacy that is now left ... is a legacy of exploitation”.

Identity and groups

Fisheries that are regulated by local people are considered legitimate because they “respect the fishing right of the Ahousaht First Nation, their people, houses and chiefs” (Darrell Campell, Tofino, Ahousaht First Nation). But in practice, Darrell Campbell said, “DFO manages the fisheries – there is no respect either for the fish or for the rights of the First Nations”. Group life is disrupted when “other people come into [the] area” and “make rules and regulations about how things are going to work” (Stan Hunt, Alert Bay, Namgis First Nation). The changed rules include decisions about who has rights of access to resources. Traditionally, Art Dick (Alert Bay, Namgis First Nation) was able to make ooligan grease at a specific location, his access granted by the owners of the fishing spot: “I
thank the Tanakteuk and the people from Knights Inlet to allow me to do this,” he said. Around the same area, there are tree farms in hunting territories to which his people “no longer have access... because someone has decided in their lofty towers that this is what they are going to do” (ibid).

Leaders of bands and organizations in particular expressed a great deal of anxiety over what fish farming would do to their people as a whole. Percy Williams (Alert Bay, Namgis First Nation, hereditary chief, Kwicksuntaineuk tribe), for instance, remarked that the biggest insult that salmon farming brings to his people is its effect on group life: “Our territory and our people have endured the worst impact above all calling to question our traditional way of life, an issue that we will not tolerate.” Russell Kwakseestahla (Campbell River, Laich-Kwil-Tach First Nation) spoke of fishing for family members who were unable to fish for themselves: “A couple of years ago I fished at the Kakweiken in Thompson Bay ... on the Cape Georgia – I was fishing for my baby brother – we had 35 of these Atlantic salmon in one catch.” Generally, the speakers wondered not about their own future, but about “what’s going to happen to us” (George Alfred, Alert Bay, Namgis First Nation).

Concern about the survival of First Nations as distinct groups of people was common among the witnesses at the inquiry. They voiced great fears that they would not be able to pass on knowledge about their way of life to their descendants. As Darrell Campbell (Tofino, Ahousaht First Nation) said, “the reason we are fighting here ... it’s not for us, it’s for our children’s children.” It appears as though fish farming is in conflict with fishing, not only because it constitutes an altogether different form of production, but also because it implies a very different type of cultural reproduction. Darrell Campbell was dissatisfied
with the prospect of having to “go to the Clam Bucket in Port Alberni and pay whatever for that little bucket of clams” because his “little girl alone can eat twice that amount.”

The combination of lost fishing opportunities and the rise of the salmon farming industry implies a great loss of knowledge. When people are no longer engaged in fishing, they are unable to teach their children the things they know about salmon through their everyday involvement with the fish. As a case in point, Willie Moon (Alert Bay, Namgis First Nation) described the impacts of government fishing regulations:

The Davis Plan came and took all our licenses away. … Fifty years from now when I talk to my kid about a salmon, it’s just going to be a picture I’m going to have to show him. And I don’t think that’s what we want as First Nations people as that is part of our everyday life is the salmon.

The observation that cultural production, like fishing and other economic activities, and cultural reproduction are dependent on one another and work together to sustain and create images, ideas, and symbols, is also one that has also been made by others. Merchant, for example, notes that when the biological and social manifestations of production or reproduction come into conflict, the social whole can be transformed in profound ways.\textsuperscript{28}

The change for the salmon people from wild salmon capture to industrial fish farming seems to be inseparable from changes in the transmission of knowledge. The arrival of fish farms to their area signals the imminent incompatibility of a new kind of fish production and social and cultural reproduction that has allowed people for generations to teach children about salmon in relation to daily life.

\textbf{ACCOUNTS: NEGOTIATING FIRST NATIONS IDENTITY}

The preceding sections suggested that First Nations’ speakers at the Leggatt Inquiry frequently spoke proudly \textit{as} aboriginal people whose everyday, common-sense realities
attach unique sets of meanings to fish and people. These accounts were believable because they provided the listener with information about the cultural context in which the testimonies are good reasons for speaking against salmon farming. The speakers who appeared at these hearings seemed to anticipate discrepancies between the identity under which they oppose salmon farming, and the identity that has been imposed on them by non-aboriginal listeners: “like we’re cave men, like we’re running around in the bushes throwing rocks at birds and bears was the vision they had of Indians” (George Alfred, Alert Bay, Namgis First Nation).

George Alfred also recalled the experience he had in the early 1970s during meetings with forestry companies who wanted access to the traditional territory of the Namgis. At that time, the First Nation’s representatives were unable to get their point across to the industry: “every time we came to a meeting they said: ‘oh, no, no, you guys got your facts wrong. This is scientific.’ You know, ‘You guys don’t know what you’re talking about.’” As a result, George Alfred used a different identity in order to strengthen his own preferred definition of who he is by pointing out to himself that only science will be able to make his testimony believable. He described this process and pointed out its transferability to the case of salmon farming:

So we thought, well, okay, we’ll go play their game. So we started getting scientific information trying to fight facts with facts, you know. So hopefully we are going to come out ahead on this [salmon farming]. … When we saw what happened with open net-pens, well, it wasn’t right.

In other words, science may serve to defend aboriginal people’s conceptions of who they are as people. However, promoting the use of science to solve resource-related controversies may endanger the ability of First Nations’ people to maintain the identity of their particular band. A focus on science can easily cause First Nations’ knowledge claims
to be dismissed; this is because Native people know that their own oral history is often
considered to be the opposite of “objective” science. For example, Bill Cranmer (Alert
Bay, Namgis First Nation) related his experience sending letters to government ministries
who had a hard time accepting First Nations accounts: “At times replies were received
informing us that our concerns did not have scientific evidence and were only oral history
and the fish farm application would be approved.”

Witnesses appearing at the inquiry seemed to know that, despite the recent flurry of
interest in “local ecological knowledge,” the ways that local people understand their
adjacent resources is not considered altogether credible, unless this knowledge can be
directly translated into a scientific vocabulary. Even explicit attempts to integrate
harvesters’ local knowledge and fisheries science, such as that of Rowe and Feltham,29
seem constrained by the constant need to assess the truth of these alternative
understandings of ecosystem processes through scientific data.

Nevertheless, most First Nations’ speakers clearly saw the need to have science on
their side to support and legitimate their claims based in traditional knowledge. Chris Cook
(Alert Bay, Namgis First Nation), for instance, believes that Canada has an obligation to
First Nations’ people to give them access to a science that could help them continue
existing as distinct people. He argued that

Somebody said here earlier about the fiduciary obligation that the government has
... that they have for my people. ... I don’t see Indian Affairs or the Department of
Fisheries and Oceans saying, ‘We should be giving you money, we should be
helping you people to have whatever kind of biologist or whatever you need to help
you’.

Similarly, Rod Sam (Tofino, Ahousaht First Nation) used his knowledge of place as a way
of underlining the need for scientific studies to corroborate his people’s knowledge: “Our
Pat Alfred (Port Hardy, Namgis First Nation) was also not afraid to assert what he knows about places, and by extension about himself and his people, as a way of redirecting science so that it can be useful in protecting his identity. He noted that a DFO study, in which they “sent in a dragger to go in to do some test fishery [for fish infected with sea lice] in the seine boats,” was useless because “none of those test fishing of the mainland inlets were actually done where the problem was – they were done outside those places.” Pat Alfred contends that this type of science stands in contrast to the “Guardian Program within the Kwakiutl Fishery Commission which patrols the mainland inlets” that is the “eyes and ears of [his] people.” Robert Joseph (Alert Bay, Namgis First Nation) also made a close connection between a science that makes use of First Nations ways of knowing about themselves, and the ability of that science to prevent his people from becoming “marginalized.” He looked forward to a day “when we can have a complete dialogue and we have a whole science including traditional knowledge.”

A few witnesses emphasized not only their position as First Nations people, but as types of individuals that are found on both sides of the Native – non-Native divide. Vera Newman (Alert Bay, Namgis First Nation), for example, came to give her presentation at the Leggatt Inquiry with her 18-month old granddaughter Gwinkilag. She began her speech with a declaration of her hereditary position – “I’m Gwitmolas. I come from Mamalilikula and ‘Namgis” – and she lamented the ways in which her community’s inability to fish has endangered her ability to be a First Nations’ person. She did this by continually making
reference to her granddaughter, and the fact that she is a grandmother. It is her granddaughter’s lost opportunity to take part in and benefit from the fishing industry that caused her distress, not only because her family is aboriginal. She pointed out that “this young girl’s grandfather doesn’t belong in the industry anymore.”

By emphasizing her role as a grandmother, Vera Newman appealed even to those who might not know what it means to be a First Nations’ person. Apparently, “everybody knows” that grandmothers stand for care and respect: “I just see our boats sitting here and I see this community hurting … and I just want to leave that statement as a grandmother that we have to start caring and start mayaxala-ing.” In much the same way, Chris Cook (Alert Bay, Namgis First Nation) spoke to the inquiry as a “human”, rather than as a member of his band or of the Native Brotherhood: “This is not all the position of my band, my Board of the Native Brotherhood, but these are the things that I see as a human being first, but as a First Nation.”

Despite the many cases in which switched identities appeared to actually strengthen the speaker’s position as a member of a First Nation, there were a few instances in which individuals seemed to reject outright the meanings that others in their band regarded as indicative of First Nations’ status. This appeared to be the case for employees of salmon farming companies who worked as community liaison workers. Heritage Aquaculture has hired Ed Dawson (Alert Bay, Namgis First Nation) to relay information and concerns between the company and various First Nations communities. His view is that trade-offs between environment and employment exist, and that fish farming is acceptable as long as the environmental benefits lost do not exceed the benefits gained through employment. “At present, I know the employment doesn’t mean much compared to our environment, but
I've tried, I've tried," he said. Here, Ed Dawson is making use of his employers’ assumptions about the incompatibility of culture and economy. Other speakers’ understandings did not separate the ways in which fish culturally and physically bring sustenance to people. Perhaps these conflicts over what it means to be aboriginal are the reason Ed Dawson has been so unsuccessful at building connections between the industry and his people: “I'm also there to really work for our people. People don't realize that. People have never used me.”

Elmer Frank (Tofino, Tla-o-quaht First Nation), who works as the liaison officer for Creative Salmon, believes that his people do not have the ability to evaluate whether or not salmon farms should be located in their territory. He acknowledged that, “as Tla-o-quaht First Nation does not have a full understanding of salmon farms, how they operate within our territory, it would be inappropriate to have opposition to something that we don’t know about.” This is in direct contrast to the ways, explained earlier in this chapter, in which many First Nations’ people talked about fish farming as an activity they understand well in terms of their knowledge of fish, places, and community. Ed Dawson and Elmer Frank rejected the ways in which aboriginal people of their own and neighboring bands constructed the relations of salmon and people, in favor of other ways of understanding human – non-human relations.

IDENTITIES AS ADAPTABLE STRATEGIES

When the vocabularies of Kwakwala and Nuu-chah-nulth witnesses are examined in detail, it becomes difficult to rigidly separate the accounts that affirm Native identity as unique and separate from colonially-imposed identity, from those accounts that appear to
make use of non-Native expectations about what it means to be aboriginal. The legal language employed by many of the witnesses may have been called forth by the presence of Stuart Leggatt, a retired judge. However, the hearings were held in gymnasiums, and so the physical setting of the inquiry did little to remind participants of a traditional courtroom. A more likely explanation for the "legalese" used by the witness is the fact that in recent legal cases, the Native people of Canada have achieved tremendous gains in their struggle for recognition of their rights. Notably, the Supreme Court of Canada, in their decision in *Delgamuukw v. British Columbia* in 1997, ruled that aboriginal oral tradition and testimony should be taken into account in First Nations cases. Many other court cases also established that there is a duty to consult with Native people when their claims to rights and title conflict with plans for non-Native uses of the land. In some ways, the legal "tests" used to determine what constitutes an aboriginal right and whether that right has been infringed upon severely constrains the ways in which Native people can talk about themselves, their lands, and their traditions. However, the Nuu-chah-nulth and Kwakwaka’wakw people who spoke at the inquiry seemed to be creatively adjusting, manipulating, and re-interpreting the legal tools they had, in order to achieve particular ends.

Bill Cranmer, for example, noted that his First Nations’ interest in salmon farming issues stems from the fact that "According to the decision in *R. v. Van der Peet*, there is a test to identify aboriginal rights that can be proven by showing that fishing in the area has been an integral part of our distinctive culture that existed prior to contact and has continued since the time of contact." Here, he is setting out an expression of identity that follows exactly the legal test for establishing an aboriginal right to a fishery or other
resource. Although claims made on the basis of Van der Peet must be able to sustain the scrutiny of non-aboriginal standards about how Native and non-Native societies differ, Bill Cranmer can make use of such court decisions in order to get those in power to listen to his people's appeals to remove fish farms from the territories represented by the Musgamagw Tribal Council. Bill Cranmer also pointed out that Native reports of damage from fish farms to eel grass beds, fishing spots, and fish migration routes were never given a fair hearing, but that with the law on consultation emanating from recent BC Court of Appeal decisions, these claims can no longer be ignored. Similarly, Chris Cook, mentioned earlier in the context of negotiated identity, makes reference to the "fiduciary," or trust-like obligation that Canada has with Native people, in order to call on the federal government to dedicate scientists to specific issues of Native concern.

Because expressions of identity are always directed towards the expectations of others, it is impossible to distinguish an identity taken on for a particular purpose from a "real" identity. In fact, it seems that an awareness of one's self may only come by directing one's attention outside oneself, and fitting one's self, strategically, into a particular social context. This way of understanding the relationship between talk and action is consistent with C. Wright Mills' theory that reasons, explanations, and claims can only become socially relevant when they are verbalized as part of social acts, and that the things that may be talked about are constrained by socially constructed "vocabularies of motive." Darrell Campbell's talk of the Ahousaht law systems that predate European occupation, described earlier in the context of identity and fishing, represents an attempt to expand Western legal definitions of property. At the same time, his claims of prior occupancy and the pre-
existence of distinct legal systems are the same sorts of justifications for aboriginal rights used by the Canadian courts.

In much the same way, place-based expressions of aboriginal rights serve to reinforce the cosmological relationship between specific places, hereditary units, and resources, in ways that can be voiced by making reference to the same continuity of use, occupation, and meaning that must be used to prove the existence of aboriginal title in court. Art Dick described the damage salmon farms have done to his herring and ooligan fishing spots by explaining the ways in which industrial development in the particular places he knows about prevents his people from exercising their right to engage in traditional activities. Furthermore, the right to fish on the Northwest Coast, once derived from kinship and connections to place, is now based on the ability to pay for a license or quota allocation. This source of a right to access fisheries is contrary to many First Nations’ members’ understandings of property and fishing rights, and yet the infringement of those rights can be described in Western legal terms. Pat Alfred (Port Hardy, Namgis First Nation) observed that “just the word ‘lease’ itself from the province is an infringement [on his aboriginal rights]” because he “has no access to the beaches on which [his] forefathers dug clams for years and years.” In this expression of identity, rights are inseparably linked to the places that make up their aboriginal homelands, and these places, in turn, are intimately tied to people’s understandings of themselves.

CONCLUSION

Stuart Leggatt, in the report he released some months after the hearings, recommended, among other things, that no further expansion of either new or existing open net-cage fish farm sites be allowed to take place. Much to the disappointment of many of
the people who spoke at the inquiry, this recommendation has not been adopted by the provincial government, and since the inquiry, the dispute over the industry has only intensified. In September of 2002, British Columbia's new Liberal government lifted a seven-year moratorium on the expansion of the salmon farming industry. However, the province's First Nations have not been standing idly by as these events unfold. In the fall of 2002, for example, when record-low returns of fish to rivers in the Broughton Archipelago made it clear that pink salmon runs had collapsed, it was the Kwakwaka'wakw people living in and around Alert Bay that put pressure on the federal Department of Fisheries and Oceans (DFO) to help protect the wild species from the diseases and parasites harbored by salmon farms. The DFO “action plan” included emptying salmon farms of fish for a few months, along certain paths known to be migratory corridors for wild fish, and initiating a sea lice monitoring program.

Although these gains may seem small and incremental, they represent the expenditure of a great deal of effort by band councils and other Native organizations. First Nations groups disagree about the best strategies for affecting change. Whereas the Ahousaht First Nation has recently become a member of the BC Salmon Farmers' Association, and continues to reap employment and other monetary benefits from Pacific National Aquaculture in exchange for a say in farming operations, the Namgis First Nation maintains “zero-tolerance” for fish farming in its territories, and is preparing to bring its grievances against the industry to court. In September of 2002, the British Columbia Aboriginal Fisheries Commission (BCAFC) hosted the first annual Fish Farming and Environment Summit. Because of the high profile of the BCAFC, industry and government representatives appeared at the meeting, and there they were forced, at least to
a small degree, to be accountable to the Native people in whose territories salmon is farmed. In these and other ways, Native groups continue to actively engage with the forces that threaten their resources, identities, and territories.

Salmon farming is understood by many of the First Nations' people who appeared at the inquiry as a continued assault on their ability to reconcile who they are and how they understand themselves, with their opportunities for fishing, clamming, or otherwise acting in the real world. Native people rely on resource economies very different from the ones Euro-Canadians know. Therefore, understandings of identity are more than mere discourse; imposed identities disempower and do extensive damage to the lives and economies of First Nations people. As Douglas Harris put it:

...fisheries officials, cannery owners, and fly fishers, despite their differences, shared a set of cultural assumptions about progress, civilization, and the law. These shared discourses reproduced a set of relationships that excluded Native people from control of their fisheries. 37

Based on the responses of the inquiry's witnesses to these unstated but unquestioned cultural assumptions, it is clear that salmon farmers too belong in Harris' list. The Nuu-chah-nulth and Kwakwaka'wakw identities, which revolve around place, fishing, and group life, can also be understood as inextricable parts of a subsistence economy. It is with some trepidation that I use the word "subsistence" here, as the imagined separation between personal consumption and trade is what gave rise to the idea of the "food fishery" in the first place:

The Canadian government's 'invention' of an Indian food-fishing tradition in the late nineteenth century, which equated Indian fisheries strictly with subsistence harvesting is a far cry from either the past or present reality of the commercial importance of traditional foods for Northwest Coast Native communities. Pacific coast methods for what anthropologist Wayne Suttles calls 'coping with abundance' ... included establishing elaborate systems of resource exploitation, co-use of
harvesting sites among groups, food preservation and storage, patterns of specialization, and inter-village and -regional exchange.\textsuperscript{38}

However, the concept of the “subsistence” economy can help further explain the expressions of identity heard at the Leggatt Inquiry. “Subsistence” is best understood in the \textit{economic} sense, as an integrative activity that rejects the fragmentation of harvesting activities into their cultural, manual, and biological components.\textsuperscript{39} Many of the conflicts between Euro-Canadian and Indian identity that were referred to by the speakers could be understood as conflicts between a subsistence lifestyle – or at the very least a way of life that combines subsistence with commodity production – and the commercial production of marine resources. Other North American Native groups also see the subsistence economy as a key marker of Indian identity. The recent conflicts in Wisconsin over Ojibwe fishing rights, for example, involved a fundamental misunderstanding, on the part of the anti-treaty rights groups, of the nature of the subsistence economy.\textsuperscript{40} This link between identities and modes of production is possible because production is always practiced by particular \textit{types} of people, who produce and consume resources in ways consistent with their identity.

Unlike physical extermination, assimilation has long been considered by Canadians to be a morally acceptable solution to the “Indian problem.” According to Francis, “assimilation was a policy intended to preserve Indians as individuals by destroying them as a people.”\textsuperscript{41} By suppressing Native economic life, and by assimilating Native people into the mainstream market economy, individuals are stripped of their identities and assigned new ones. The appearance of salmon farming in First Nations territories may therefore constitute an attempt to culturally marginalize Native people, by forcing them into an economy that prevents them from engaging in the material practices that guarantee their way of life. Evidence presented at the Leggatt Inquiry strongly suggests that contemporary
First Nations’ people are keenly aware of the cultural violence that stems from these assimilationist techniques. “They didn’t do it to us with small pox ... but they are going to do it to us with fish farms,” said Vera Newman (Alert Bay, Namgis First Nation).

In their survey of the Kwakiutl of northern Vancouver Island, Weinstein and Morrell found that, despite the fact that people operate in a mixed subsistence-commercial economy, their core understandings of themselves still revolve around the principles of subsistence production. Three of the features of subsistence production that Weinstein and Morrell identified were (1) the sense that places are specific and not interchangeable; (2) a management theory that is based on reciprocity between fishers and fish, rather than a technical, detached process; and (3) a strong sense that fishing is for the benefit of the group. These characteristics of subsistence production correspond quite closely with the themes around which the First Nations’ witnesses at the inquiry structured their explanations of who they were as people, and why those definitions of themselves were incompatible with fish farming.

The First Nations’ people described here understand themselves as subsistence harvesters that use specific places. Because of the importance of particular places in their understandings of how they should interact with their environment, it comes as no surprise that First Nations’ fishers are oriented towards local ecosystem processes, rather than towards larger, global, and interchangeable units of production. In their view, fish farms not only produce fish for sale in markets, but also seek to homogenize places so that they fit a particular set of criteria designed to maximize fish growth.

People also saw themselves as “living” fishing in much the same way as the inshore subsistence fishery of rural Newfoundland encompassed “a whole culture – one in which
ecology and economy worked hand in hand.42 This sense of complete engagement with
the resource is another aspect of the subsistence economy. From this perspective, people do
not see fisheries management as a technical exercise that rigidly separates “resources” from
the social elements of fishing. This implies that places are not so much known, as embodied
and is reminiscent of Palsson’s analysis of “traditional” Icelandic fishers, who, he says, are
not “containers” that get filled with traditional ecological knowledge, but rather are active
participants in the places and situations through which they experience their knowledge.43
Similarly, witnesses at the Leggatt Inquiry talked about their fisheries in ways parallel to
those in which they talked about who they were as people. As fishers, they expected their
own behavior to be aligned with the behavior of the environment.

Perhaps it is the diversity of seasonally and spatially available resources that allows
subsistence harvesters to develop this sense of reciprocity between themselves and fish.
Subsistence-type fishing joins fish and people into an entity with a common fate: what
happens to fish also happens to people.44 That is not to say that wage employment has not
long played, and continues to play, a vitally important role in First Nations’ economies. In
fact, it appears that many First Nations’ people use part-time wage employment to
subsidize the subsistence harvesters they see themselves as being.45 First Nations’ people
who spoke at the inquiry, therefore, tended to oppose fish farming, not because they
objected to engaging in wage labor, but because they viewed fish farming as a direct assault
on their identity. Salmon aquaculture appeared to constitute, for them, an interaction
between fish and people that occurs in pre-structured ways and in pre-defined
environments very different from the ones they know about and identify with as their own.
Unlike subsistence fishing, in which stocks that are too small to yield a high catch per unit
effort are left alone, salmon farming does not allow for either species switching or for an adaptive relationship between the environment and the individual fisher. Furthermore, the speakers we heard at the inquiry feared that salmon farming would make it impossible for them to engage directly in the resource. Salmon farming is not seen primarily as a source of income, but as an activity, similar to other harvesting endeavors, that is about much more than either food or money. As a consequence, First Nations’ people spoke of direct links between the introduction of fish farms into their traditional territories and the colonial assumption that First Nations’ people and their ways of life are disappearing.

1 The inquiry was boycotted by the BC Salmon Farmers’ Association, government agencies, and almost all salmon farming companies.

2 A total of 102 oral submissions were made to Judge Stuart Leggatt. Of those, 71 were from individuals living in the communities of Alert Bay, Port Hardy, Campbell River, and Tofino or in areas surrounding those communities. Most of those testifying there were members of First Nations, particularly in Alert Bay and Tofino. Those testifying in Tofino were Nuu-Chah-Nulth, a cultural and linguistic grouping of 15 nations that extends down the west coast of Vancouver Island and includes the Ahousaht and the Tla-o-qui-aht. Individuals testifying in Port Hardy, Alert Bay, or Campbell River were Kwakwaka’wakw. More specific affiliations, as well as any titles, if any, are included in parentheses after quotations. The towns associated with quotations refer to the places in which the testimonies were made, and not necessarily to the places of residence of the witnesses.

3 This chapter focuses entirely on testimonies given by First Nations’ people at the inquiry. Readers can obtain copies of the verbatim transcript by contacting the court reporting service Allwest Reporting Ltd at 814 Richards Street, Vancouver BC, V6B 3A7.


11 The Heiltsuk Indian Band, for example, unsuccessfully challenged the government’s regulation of its roe-on-kelp fishery in *Regina v. Gladstone* [1993]. However, the issuance of additional licenses to the band seems to have been a direct result of this campaign. For further details, see: Dianne Newell, “‘Overlapping territories and entwined cultures’: a voyage into the northern BC spawn-on-kelp fishery,” in *Fishing Places, Fishing People*, ed. Dianne Newell and Rosemary Ommer (Toronto: University of Toronto Press, 1999), 121-144.


The Kwakwaka’wakw of northern Vancouver Island and the adjacent mainland were in Boas’ time known as the Kwakiutl. The Kwakwaka’wakw are speakers of the language Kwak’wala, and they include, among others, the ‘Namgis of Alert Bay, the Kwakiutl of Port Hardy, and the Laich-Kwil-Tach of Campbell River.


Berger, p. 88.

See note 14 above.


The Guardian Program of the Kwakiutl Territorial Fisheries Commission is funded by the federal Department of Fisheries and Oceans, in order to help deal with the clash between federal fisheries regulations and recent Native legal gains in the areas of self-government and resource rights.

According to Vera Newman, the Kwakwala word “mayaxala” is roughly the equivalent of the word “respect” in English.


34 See the discussion on the law on consultation and the Taku River and Haida Nation cases in Chapter 6.

35 See note 4 above.


44 See note 37 above.

45 See note 12 above.

CHAPTER 5. “OUR WEALTH SITS ON THE TABLE:” FOOD, SALMON FARMING, AND RESISTANCE

INTRODUCTION

“It sits on the table, our wealth. ... I mean, I can go into Safeway and I can go look at a small little sockeye for 20 bucks, where in reality, our tribe alone, we went out and got 12,000 [wild sockeye] distributed between our people.” That's what Dan Cummings from the Ahousaht Fisheries Office said, in response to my questions about the differences between farmed salmon and wild salmon, salmon farmers and fishers, and net pens and fishing spots. I had come to Flores Island off the west coast of Vancouver Island to speak to Ahousaht people about how they experienced the effects of the local salmon farming industry. Certainly, commercial fishers, former fishers, and others from Ahousaht who regularly participate in marine resource harvesting have direct experience with the environmental changes brought about by salmon farming.

In this chapter, I look at some of the ways in which both commercial and “food” fishers who live on the reserves at Ahousaht (Ahousaht First Nation) and Alert Bay (Namgis First Nation) make sense of the salmon farms that dissect their traditional territories. Aside from the sheer physical occupation of particular net-pen sites, salmon farming also appears to have made its presence known at other nearby sites that many people now avoid altogether for fear of food contamination. In addition, I am told that a number of formerly reliable food gathering areas now yield herring spawn, fish, clams, seabirds and other seafoods in temporally unpredictable and spatially patchy ways. With the growth of the salmon farming industry, farmed Atlantic salmon has become
increasingly and readily available as a food product at local grocery stores, despite the fact that both the Namgis and Ahousaht people continue to rely heavily on wild-caught, Pacific salmon.

The fishermen\(^2\) living in Alert Bay and Ahousaht provided me with many details about how the distribution and abundance of various species had changed at and around salmon farming sites. I wanted to know how the Ahousaht and Namgis’ fishing activities had been altered in the presence of fish farms. However, people did not seem to encourage those lines of questioning as much as they did those having to do with fish as food. Perhaps it is through an emphasis on food that these fishers tried to convey how severely and immediately the salmon farming industry affects not just their individual lives, but those of all others in their communities. I became interested in the meaning of farmed salmon as food primarily because this link between sustenance and nature seemed to be “good to think with” – a way of understanding the importance of wild salmon runs for cultural continuity. Although salmon satisfies nutritional requirements, it’s meaning can be constructed in a number of different ways, and its use as a food item that can both resist assimilation and incorporate change merits further analysis.

Dan Cumming’s focus on the wealth derived from the production of local seafoods attests to the way in which fish, and salmon in particular, is central to the fabric of social life: “Wealth to us isn’t a dollar in our pocket, it’s defined I guess in other ways, you look at some families, he may not be a rich man, but he’s got a lot of … resources.” Wealth and fisheries resources have always been closely linked in Kwakwala and Nuu-chah-nulth speaking regions. In both areas, all resource sites were historically owned by house-groups, whose highest ranking members had control over both the labor of other members
and the distribution of the catch. Through the feasting system, sometimes called the
"potlatching" system, stewardship and management of resources was publicly assessed,
and chiefs gave away goods in order to assert their rights to the privileges and names that
gave them control over particular resources (see chapter 1 for a more detailed discussion).
The potlatch is the central governing institution of most Northwest Coast societies, and its
full meaning is far beyond the scope of this thesis. Outside observers, even those who did
not understand the potlatch system, were struck by the ways in which it seemed to flourish
after contact with Europeans. Particularly at Fort Rupert and other locations near Alert
Bay, the accumulation of wealth for potlatches reached epic proportions, and old
photographs from around 1910 show mountains of European goods about to be given
away. Among the furniture, sewing machines, wash basins, and other items were also
hundreds of sacks of flour and boxes of pilot biscuits. In the past, therefore, as today,
European foods were directly incorporated in long-standing cultural forms. However, there
remains much controversy within and between First Nations about whether salmon farming
can enrich modern aboriginal culture by providing another way of producing salmon.
Many in these communities are suspicious of the fish farming industry, and feel that the
growth of salmon farming represents yet one more attempt to assimilate and colonize First
Nations people and lands.

FARMED SALMON AS A CULTURAL ENCOUNTER

Dan Cumming’s talk about salmon farming, like that of others in Ahousaht and
Alert Bay, seemed to float between individual experience and shared understandings, the
material and the social. In fact, whenever people began talking of their activities with fish,
they were already on the other side, speaking about their bands, their communities, and
their families. I tried to make sense of this multi-layered way in which people spoke about eating farmed salmon by abandoning the distinction between individual diet and group traditions, and focusing instead on the ways in which particular ways of understanding food provides these First Nations' people with a number of different strategies for opposing what they understand to be threats to their land, their people, and their knowledge. However, people's accounts forced me to constantly consider the particular circumstances of people's individual lives, and the ways in which knowledge of salmon provides people with agency and purpose. Donald Foley of Ahousaht, for example, said that "people call it [wild fish] our way of life, but it isn't our way of life, it is our way, something that is more who we are. For instance, if my wife and I can't get 100 pieces of fish that'll sustain us through the winter, I'm not going to buy x amount of beef to substitute." Here, Foley used his own financial and nutritional situation to convey the immediacy of his relationship to salmon, despite the fact that this relationship relies on a system of shared knowledge that allowed him to acquire and process those fish in the first place.

Individual accounts of salmon can give great insight into the encounter between various aboriginal and non-aboriginal understandings of farmed and wild salmon. A forty-five minute ride on the Ahousaht Pride water taxi takes you from the reserve at Ahousaht, on Flores Island, to Tofino, on Vancouver Island. Tofino is a resort community at the edge of Clayoquot Sound where a number of the salmon farming companies operating in the area have their offices and headquarters. Carl Haines, the production manager at one of these companies said that, as far as he could see, First Nations people could easily embrace farmed salmon:

They [First Nations] started off just selling the salmon to the white people, and pretty soon, taking them into the canneries and they got them into boats. I mean, the meaning
of salmon to First Nations have evolved [over time] just like the meaning of salmon to me, from the time I was a kid [trout fishing on weekends], to the time I was a field biologist, to the time I was an aquaculturalist. It has changed as well.

As a child Haines was disappointed by failed fishing attempts, and as a field biologist he became frustrated with the unpredictability of wild salmon stocks. Only aquaculture, he told me, could guarantee a good, reliable source of fish. In his view, Native people had for some time been undergoing a natural evolution towards more effective ways of procuring fish. The emergence of the industrial fisheries, and the recent appearance of salmon farming in the area have very clearly changed the circumstances under which wild salmon is available. As described in chapter 1, change has always been part of Northwest Coast people's relationship to the fish. At the same time, these kinds of formulations of Native post-contact history were strongly rejected by Ahousaht and Namgis people who, as described in the pages that follow, offered me alternate ways of understanding the past through talk of food, salmon, and tradition. I found that non-Native claims about the dynamics of change and tradition, like those of Carl Haines, were considered to be direct assaults on the ability of aboriginal people to define themselves in relation to their past and future. By claiming that there is continuity in meaning about wild fish despite change, Native people are asserting ownership over knowledge of their cultural history – "what may be taken from the past and what may or must be left behind, and how one is to know – or made to know – the difference."4

Carl Haines informed me that he "understand[s] how important salmon has always been [to Ahousaht people], but that [he] also understand[s] that whaling was extremely significant to the culture, and that's pretty much gone, the way of the dodo." James Curtis, on the other hand, explained that fishing, preparing, distributing, and consuming wild
seaspo is not a fashion, but a way of being that recreates the past while envisioning the future:

Our people use fish a different way [from White people]. He [Carl Haines] may eat it, but it's like, it's kind of a trophy thing. I don't like to put it that way, but it's like this is one that I caught. Whereas Rod can go and say I'll get this fish or I got that, but we do more with it than just eat it, we prepare it for long term, down the road. Some people do it for sport, luxury, we do it as a way of life. It's something that my parents done, Rod’s parents done, and probably our kids will do. I think it's no comparison. There might be a little bit the same, yeah, we enjoy going to get the fish. Kind of our religion.

Although salmon is certainly a necessity of life, and is portrayed as such by James Curtis, it at the same time provides him with a way of explaining how the fates of people and the fates of salmon are completely intertwined. Gloria Cranmer Webster, who is Namgis and lives in Alert Bay, writes about her people as the “Salmon People,” whose unique world White people encountered when they first visited the territory in 1792. She describes, for example, the ways in which place names are still filled with references to salmon, and what a fisherman’s wife would say before cutting the first salmon:

Welcome, Supernatural One, you Swimmer, you have come to me, you who come every year of our world, that you come to set us right, that we may be well. Thank you, thank you sincerely, you Swimmer. I ask that you come again next year, that we may meet alive and that you protect me against all evil, Supernatural One, Swimmer. Now, I will do what you came here for me to do to you.5

This interdependence of people and salmon continues into the present day. As Gloria Frank, herself Ahousaht, points out in an article on museum culture, the display of traditional Nuu-chah-nulth food items in glass cases hides the cultural continuity ensured by the continued use of salmon: “First Nations people still fish … and they continue even now to process fish in ways similar to those displayed here.”6

Except for the exceedingly rare instances in which we are severely deprived of food to the point of starvation, the bodily “need” for nourishment is always culturally mediated.
As a result, the consumption of food is a type of participation in social life, rather than a way of satisfying bodily needs. The meaning of food therefore does not emanate from the food objects themselves, because people act towards food in ways that generations before them have acted. At the same time, however, our food consumption behaviors are intensely individual. Choosing and consuming food is a means of interpersonal communication because it has the ability to allow us to create a sense of cultural belonging to large or small social groups. In this way, salmon can become a living and dynamic part of the present, and can allow for knowledge to be reproduced by individuals who make conscious choices about what to harvest, how to preserve it, and generally, what to eat.

Food consumption preferences and behaviors are not governed by some pre-existing “tendency” of individuals to choose and prepare foods in ways that are rigidly constrained by either their social situation or their hunger. In fact, eating is a process through which the hungry person moulds his or her act: this actor “points out to himself various possibilities of action – the selection of different kinds of food, different sources of food, and different ways of getting to the food.” The meaning of food exists somewhere at the boundary between cultural meaning and personal understanding, and it is from this point of view that I investigate the social construction of salmon as food. As mentioned earlier, the use of salmon is not a case of culinary fashion consciousness, but goes to the very core of who people are. At the same time, this reliance on meanings held in common does not predetermine people’s individual choices. Indeed, aboriginal people have successfully incorporated a variety of new material and non-material entities into their ways of life. The tensions that arise from the desire to create a life that is at once modern
and continuous with the past are evident in the Namgis and Ahousaht people's encounter with farmed salmon.

**FOOD AS KNOWLEDGE**

For many of the people of Alert Bay and Ahousaht, farmed salmon has none of the characteristics of good food. Farmed salmon, they said, was soft, bland, and fell apart in cooking. When I asked Adam Morling (Namgis), who has been working at a fish farm on and off for several years, about whether farmed fish is different from wild fish, he replied: “Well, it’s just no good. The fish is … if you cook it, you get almost a liter of oil off it, or more. And that’s not how you’re supposed to get fish anyways.” Farmed salmon, he said, is unusual because of the unpredictable ways in which it responds to being processed for food:

It’s not natural. If it’s natural, why would your hands be so oily and all that other stuff. Your hands get stained brown when you touch that [the fish feed]. And you know, you cut the fish open, I washed my hands about seven times and I still had the fish oil on me.

Similarly, Michael James (Ahousaht) finds that “it doesn’t stay [whole] when you’re cooking it … and it doesn’t smell too good.” Food quickly became the focus of most discussions about the impact of salmon farming. Even when centered squarely on the details of food preparation and consumption, talk of salmon-as-food seemed to provide a secure vantage point from which the environmental and political impacts of this new industry could be discussed. In this way, the controversy over fish farming was framed as a conflict over the knowledge, and the ways in which people spoke about the relationship between food and community, tradition, and economy made it clear that salmon, like other aspects of material culture, originates in people’s thoughts and actions.
Even those consequences of fish farming that are often considered to be the domain of toxicologists, chemists, or professional health workers are well known and well understood in terms of food production. The emphasis on salmon production makes fish farming accessible to individuals, who are able to situate their personal experience within the context of what they already know. Albert Riley (Namgis), for example, apprehends the high growth rate of farmed fish directly, through its effect on people’s physical well-being, and not through the accounts of external researchers:

You feed it [farmed salmon] and all they eat is chemicals. You go to the supermarket, and all your meat is chemically grown, the vegetables are chemically grown. Where is all this cancer coming from? To me, it’s from the chemicals. The faster they grow the food, our bodies are slowly breaking down because of the chemicals.

Here, there is a clear link between how fish eat and grow in the marine environment, and the ways in which people become either weaker or stronger from the food they eat. If eating wild fish represents health, then eating farmed salmon represents sickness. Stanley Larson, a hereditary chief from Hesquiaht, just north of Ahousaht, relates Atlantic salmon, an exotic and possibly invasive species, to the exotic additives, chemicals, and drug residues in people’s bodies: “We know for a fact that we have encountered foreign substance to our body, which was very different from the eating habits that we had.” Stanley Larson and Albert Riley both present farmed salmon as just one of many European foods that have done damage to the health of Nuu-chah-nulth and Kwakwaka’wakw people. Stanley Larson, in particular, sees the problem with fish farming as inseparable from the problem of other highly processed foods like “baloney and wiener.” Indeed, the incidence of acquired “sugar diabetes” among aboriginal people throughout Canada has reached epidemic proportions, and on some reserves most adults
over the age of 50 have this disease. By locating the effects of farmed salmon within the domain of food and health, environmental damage can be made directly relevant to individual knowledge and experience.

Many Namgis and Ahousaht people are afraid for health reasons to eat clams from beaches anywhere near salmon farms: “We don’t dig there [around the fish farm] for home use, but commercial fishers don’t care” (Raymond Thurlow, Ahousaht). Non-aboriginal opponents of fish farming have also raised questions about the human health implications of eating farmed salmon possibly laced with medications, persistent organic pollutants, and other toxins. However, the concerns of First Nations people over health seem much broader in scope, and extend to shellfish, fish spawn, marine mammals, seabirds, and other foods more rarely consumed by non-Native people. Thurlow, for example, pointed out that to the farm production managers – people who don’t understand clam beds as food areas – the effects are just not there: “you’ll hear the big bosses at the fish farms saying what they’re doing has no effect,” he added. These kinds of understandings, in which individuals require an entire context of “ecological” well-being so that they might be healthy, has important consequences for how food is chosen. Fish that are raised on fish pellets are fed pigments, so that their flesh can acquire the same pink color as wild fish. This bothers Ron Charles (Namgis), who declared that “whatever it is [that they’re feeding the fish], it’s certainly something I wouldn’t eat.” He identifies directly with otters and seals because he can imagine that their relationship to their prey is similar to his own relationship with food. Marine mammals are attracted to the net pens, he says, because “animals, they get hungry, they go anywhere. I think if I was an otter or a seal, it’s the easiest place to go, you’ve got fish that can’t go anywhere.”
The broad range of knowledge that was made relevant to my questions about fish farming made it clear that salmon farming in these communities is more than an isolated “issue.” The high level of skill required to recognize environmental phenomena as potential contributors to food quality highlighted the ways in which the effects of salmon farming become real only once they are experienced and understood on individual terms. Ahousaht and Namgis people depend on particular food-gathering places for their physical and cultural survival, but salmon farming has forced its way into the landscape of knowledge in which they operate. Michael James, a fish farm worker from Ahousaht, is concerned about the fact that the fish farms in Clayoquot Sound are so close to “our rivers” and “our beaches.” Most of the aquaculture tenures, he said, are either themselves prime fishing locations, or are directly linked to fishing areas through fish migratory, spawning, or feeding areas. However, this fact was irrelevant to the very different productive systems of the fish farmers: “We’ve had a meeting [with the company] about it … I guess they’re like anybody else, they don’t want anything to do with it after the meeting.”

Wild salmon is part of an entire network of knowledge that makes it impossible to extract the nutritive, caloric value of fish from its social function. Salmon joins together people’s individual lives through common knowledge and experience. By making links between food and social life, a unique and inalienable context is attached to the “facts” presented by outsiders. Like museum collections of First Nations’ food, artifacts and social customs, “displayed in ways that had meaning in his [the curator’s] world,” resource managers tend to ignore that the people of Ahousaht and Alert Bay live through their fish – that the salmon links people to their past, present and future communities. As Adam Morling (Namgis) pointed out,
Nobody ever did manage the fish. The fish came, the Indians got what they wanted, and the rest went up. ... They [the managers] know they go into the ocean and go in a big circle and come back. That's all they know, they don't know anything about them. But it tastes good other than that” [emphasis added].

Adam Morling is like many First Nations' people in the region, who, Weinstein and Morrell say, despite clear evidence to the contrary, insist that Native fisheries were unmanaged prior to contact. Perhaps this insistence on the lack of management -- "nobody ever did manage the fish" -- is a result of the “legal capture” of aboriginal fisheries, which has allowed First Nations people access to salmon only in the context of concepts of property and ownership very different from the ones that structure their own patterns of resource exploitation. The so-called “food fishery” separates subsistence requirements from the rest of social life, and certainly helps to separate aboriginal knowledge about fish production from official rules about where, when, and how many fish may be caught. This narrow definition of the importance of the salmon fisheries to First Nations people in the region exerts strong control over local livelihoods. The people of Namgis and Ahousaht made it clear that attempts at “incorporating” their traditional knowledge into these alien systems of management did not fully recognize the central place of salmon in their societies.

A focus on the use of salmon in everyday, local contexts, like those surrounding food, makes it harder for outsiders to claim “traditional ecological knowledge” for themselves. Rodney Morris (Namgis) was hired by the Department of Fisheries and Oceans as part of the Aboriginal Fisheries Strategy, a program designed to “manage” aboriginal fisheries by “educating” First Nations’ people as fisheries managers. There, “it wasn’t part of the job description to look after them,” Morris said. “They [fisheries officials] are sitting in their office in Victoria, and they don’t know what’s going on up
here.” Morris’ context for truth is separate from legal consultation requirements, letters of notification and official sampling procedures:

People say they’ve tried to barbeque the Atlantic salmon over an open pit, but because it’s got no muscle fiber and it’s too fatty, it just fell off the stick. ... Because we use the sticks over an open pit for our sockeye. ... Sockeye is really firm because it’s a strong fish, it’s been swimming for four years so it’s got a lot of muscle. But these Atlantics they grow so fast, they don’t swim around, they got no exercise, they just eat eat eat, that’s all they do. No, you would never be able to smoke them the traditional way, barbeque them the traditional way at all.

Rather than collapsing salmon farming into “what’s on paper, and that’s the truth,” true knowledge for Morris is achieved locally, through continued harvesting and food production and preparation.

**FOOD AS SHARED UNDERSTANDING**

Knowledge surrounding wild fish and shellfish, particularly knowledge about how those foods sustain people in everyday life, seems to allow members of the Ahousaht and Namgis First Nations to position themselves at the very center of the debate over salmon farming. In this sense, knowledge about fish is a cultural resource that people can draw on and extend into present contexts. However, people were quick to point out that their knowledge, unlike “traditional ecological knowledge,” does not represent a nostalgia for pre-contact cultural life; in fact, they told me, knowledge of fish as food is actively recreated every time a net is pulled out of the water, a processing technique is taught to a youngster, or a feast is given. In this way, shared understandings can turn the outside world into a social world people can know about, plan for, and act on. Salmon is not considered an individual lifestyle option; instead, individual choices are layered on top of and conditioned by the underlying group life based on wild salmon. As a result, very few people from Namgis and Ahousaht actually eat farmed salmon, even if they are themselves
employed on a fish farm. Robert Foley (Ahoushat), a salmon farm worker, said that “I grow them, I rear them, but as a personal choice I won’t eat them. I think it’s something you have to acquire as a taste. Because living out here, we’re, I know what sockeye tastes like, I know what coho tastes like, I know what spring salmon tastes like.”

Albert Riley (Namgis) is committed to making sure his understandings get passed on to the next generation by continuing to fish and prepare fish for eating in the traditional ways, even if this requires a great deal of effort:

It’s easy for them [young people] to go to the supermarket. So we’ve lost that [fishing culture]. My family has been very fortunate, we’ve never lost it. … My two boys, I send them canned fish, smoked fish, and they know how to do it, they know every time they come home we go, we get enough fish to do something with it, so they won’t forget, and they haven’t.

Older people are carriers of knowledge that lives on in the younger people, but nowadays, even many elders are not eating the locally available seafoods. This causes Ron Charles (Namgis) a great deal of concern because “if we have nothing wild left, I mean, what the heck would we have left? We’d have absolutely nothing. … I mean, that’s part of our problem now. There’s not enough old people eating what they used to.” Techniques for catching salmon have changed greatly over the past 150 years, from the original salmon weirs and traps to rowboats, gillnets and seines, and finally to gas-powered boats equipped with mechanical cranes and winches. New methods for processing fish, like canning and freezing, have been added to the repertoire of techniques used to preserve salmon. Despite these changes, a certain continuity in knowledge about salmon remains, and this knowledge must continually be recreated, if it is not to be lost. Albert Riley (Namgis) laments what he sees as a great loss of knowledge: “You walk down the street, you see how many smokehouses there are on the reserve. That tells you what’s happened to us culturally.”
When asked how a switch to fish farming would change his band’s ability to fish, Riley replied that “it [fishing] will be lost, the same way our culture is being lost. Because food, salmon, is our life. That’s what we’ve lived on for years, and our kids I think are going to lose it because they don’t know what we used to know.”

Unlike salmon farming, fishing allows people to continue to understand who they are, despite great changes. For Francine Simms of Ahousaht, fishing and eating wild fish are absolutely essential to continued cultural reproduction. In fact, eating wild fish is the critical link between the reproduction of fish and the reproduction of meaning:

Natural fish, they feed, they recycle, and reproduce each other. The natural one just goes up the river until it does its job, its laid its eggs and the male swims over them and fertilizes them. Just like when you teach your kids about fishing, these fish are doing the same thing. They [the wild fish] are reproducing themselves. The wild fish has more natural taste and natural vitamins.

She knows this about taste because she herself was taught how to fish by her father: “he would tell me how to tell the difference between fish that you’d catch. ... You can tell what’s natural and what’s not. ... The taste of farmed salmon is different, it’s got a very flat taste. Plus, when you’re cutting it, with the natural fish, it goes straight down but with the farmed fish it starts breaking up as you slide the knife.”

Fish, as they are known and understood, reproduce themselves by being harvested, prepared, and eaten. Through this process, people come to understand their current situation and future prospects. Even though Adam Morling (Namgis) did a brief stint working on a salmon farm, he finds it impossible to go back to being a fish farmer. It simply is not compatible with his understanding of the fisherman he has been since he was a youngster. “It’s hard for me to … do anything else,” he says, “because even when I was the same age as my daughter, I was fishing, even smaller.” But much of this kind of
explanation becomes condensed into statements about food and taste. "The humpback is
the worst fish you can get in wild salmon, and it's a better fish than the Atlantic," he said,
but wild fish just "taste good." It seems as though through food, individual level ways of
experiencing salmon intersect with the learned, shared, and taken-for-granted meanings
that allow people to create themselves as individuals in the first place.

Salmon and other fish and shellfish appear to represent the very center of people's
world, and different types of food are different ways of bringing meaning to one's
existence in that world: "the very core of our life lies out there. ... Life for us is enormous.
So when you look at the ocean, there is nothing to ask for from the Creator because he's
put it all there for you, everything we eat" (Stanley Larson, Hesquiaht). "We are the great
people of the salmon in our land," said Daniel Morris (Namgis). "It is my life," was how
Donald Foley (Ahousaht) expressed it, "it is part of who I am." The chieftainship of
Stanley Larson, "represents a domain, that domain has existed for thousands of years, it's
easy to say thousands of years." One of the ways in which his family demonstrates that it
is "part of and linked to those things" in his domain is by holding feasts: "on March 23rd,
my son is having a feast for his daughter. ... When she goes out, the world is going to be
told what my granddaughter is leaving with, leaving our house with. She'll always have
the rights to use the halibut bank, the right to the salmon that enters our waters, cod ...."

Aquaculture, he believes, has come about because "one of the things that government
haven't been wanting to accept ... I represent a domain." This talk of food speaks against
the kind of "traditional ecological knowledge" that can be removed from local contexts:
"One of the movements that's happening is traditional ecological knowledge," Larson said,
"but there is also other values that have to be respected in terms of the hereditary chiefs,
and how they play a major role in terms of the family, the transfer of chieftainship to the son, and the kind of display of resources that is shown and eaten at those kinds of things.”

**FOOD AS RESISTANCE**

Knowledge surrounding the importance of traditional seafoods like salmon, halibut, or clams is by no means constraining. Existing meanings are applied to the new context of salmon farming, in ways that allow people to actively shape or reject the growth of this new industry. While farmed fish can signify oppression and continued attempts at assimilating First Nations people into White society, catching, preparing, and eating wild fish allows for resistance, change, and the ability of First Nations’ people to direct their own futures. For Robert Foley (Ahousaht), food is a way of understanding and coordinating resource use. Although he works on a fish farm, he has never eaten farmed fish because “they do quality testing at the plant, and it was such an unnatural smell for me to smell that fish because the diet is so different, and again it’s part of how do you process food, is it to grow fish fast, or is it to get good quality?” Understanding salmon in terms of its quality as food allowed Robert Foley to formulate his resistance to current fish farm production methods and suggest new ones:

> It’s like anything else, it’s trying to manage ourselves within the resource instead of trying to manage the resource. … We can start to pioneer these sorts of quality controls and enhance the fish, maybe we won’t have to grow so many, we’ll be able to sell better fish than what is grown now.

He knows, however, that this type of knowledge is often “considered only circumstantial” by outsiders interested in slotting that knowledge into “categories of clinical diagnosis. … You have to understand the people who live here. … They can understand when it happened, why it happened” (Robert Foley, Ahousaht).
Albert Riley (Namgis) is deeply ambivalent about the salmon farming industry. Over the years, he has watched his community of Alert Bay lose access to the adjacent fisheries, to the point where he discouraged his sons from trying to become fishermen: “I didn’t stress fishing as a job for the future, to look elsewhere.” But the move from wild fishing to fish farming is fundamentally one he rejects: “I tasted it once, I smelled it, and most of the commercial fishermen feel the same way I do, they’ll never touch it. … So I can’t see myself going out when there’s no commercial fish left and maybe go out and buy three, four hundred farm fish, that’ll never happen.” In other words, even though people may eventually be forced to work on fish farms and buy farmed fish, does not mean that they will like the taste or think of it as good food. Food is the last line of resistance First Nations’ people of Alert Bay have against fish farms. When Rodney Morris (Namgis) was asked how he thinks his community would change if fishing stopped altogether and everyone began salmon farming instead, he replied: “nobody would eat a farmed salmon. Not around here.” Similarly, Ron Charles (Namgis) said that even if wild stocks disappeared, farmed Atlantic salmon is “just something we don’t eat, we wouldn’t eat. A lot of guys here wouldn’t even eat it, even the guys who worked on the fish farms wouldn’t eat it.”

In commenting on the agreement in principle between Ahousaht and Pacific National Aquaculture, Dan Cummings (Ahousaht) said that “harsh negotiations” were needed to “get to where we are now,” but that they are only a stepping stone for “where we want to be.” One of the ways of getting salmon farmers to understand First Nations people, he said, is by demonstrating [their] wealth, and one of the ways of doing that is having a feast. I would love to see one day when we could have at least half of all the aquatic species on the list
that Rod and myself made spread on a table and done up in our traditional way so we can serve it to you, the people that need to be educated to say that this is just a portion of what we’re trying to protect.

Resistance through food is endangered when people no longer have access to the wild fisheries that have sustained their knowledge of who they are as people. Rodney Morris (Namgis) for example, pointed out that “our traditional sockeyes, chums and that, is what we need for our diet. It’s scary around here because we are limited to the amount of food fish we’re allowed to get now, and we see a lot of our elders dying of cancer and diabetes.” Nevertheless, fish continues to be harvested by Namgis and Ahousaht people, and not eating farmed salmon is an act of defiance in itself. Morris finds that if fish farming replaced fishing, his people would “probably have to learn to accept it, but [he doesn’t] know if they’d learn to like to eat it.”

Some can put up with salmon farming as long as they are able to balance the negative effects of farmed fish with the positive effects of wild fish. Daniel Morris (Namgis), for example, believes that in the age of salmon farming, ooligan is more important than ever, because it can counteract the impacts of farmed fish. “The ooligans, they go to one place, like Knights Inlet or Kingcome Inlet, and you can just imagine ... what do the ooligans get from them [fish farms].” He relies on ooligan, especially the grease, because “that’s what they use for all the things that’s wrong with our body, from all the things we eat from the White people, like hamburgers, steak, McDonald’s, things like that.” That’s why he is deeply worried about non-Natives taking over the ooligan fishery: “the ooligan, what my Native people thinks is they should just keep their own word to themselves instead of talking about it [how good it tastes]. ‘Cause some day the government is going to go into it, you know.”
CONCLUSION

Claims about what constitutes “traditional food” are political statements that allow people to renegotiate their relationship to the past in light of present circumstances. For millenia, wild salmon has been important to the physical survival of Northwest Coast peoples. However, it appears that at this particular moment in time, resistance against salmon farming has brought about a heightened awareness of the value of salmon as a traditional food. It may be that this awareness of traditional food has been a long-standing reaction to colonial intrusions into aboriginal fishing rights. But ancestral rights to territories take on new meaning and face new challenges in the context of an industry in which actual ocean spaces have been granted to multinational companies without the approval of the local First Nations people. People’s individual experiences with trying to prepare and eat farmed salmon symbolize the changes they are still undergoing as colonized people. It is therefore not surprising that people talk about health, sickness, and harvesting and preparing salmon in the same breath that they describe how a lack of access to wild fish endangers their ability to take charge of the changes they experience.

Simon Lucas, the co-chair of the British Columbia Aboriginal Fisheries Commission, a hereditary chief of Hesquiaht (near Ahousaht), and a well-known Native leader throughout British Columbia, told the audience at the September 2002 Fish Farming and Environment Summit that “we are wealthy from our chiefs because of their territory. … It is because of the food that we eat that we’re strong.” In this way, the Hesquiahts and other coastal First Nations can counteract and survive destructive change. But he also used ideas of food, health, and sickness to represent the damage his people have sustained. He reminded the audience that “we the First Nations people have been impacted by every
change that's happened in British Columbia, our part of the world, Vancouver Island and the coastal tribes. We are now leading in every sickness that's here in British Columbia and Canada."

However, statements about the importance of wild salmon as a "traditional food" are complicated by the attempts of government officials, company representatives and scientists to extract, appropriate and use these understandings of salmon as "traditional ecological knowledge", or "TEK." Although my informants did not always refer to "traditional ecological knowledge" by its name, they spoke to me about the ways in which their understandings were trivialized in settings that ranged from meetings with companies and scientists to jobs with government fisheries agencies. By constructing salmon farming as a matter of food, a life-or-death matter by any analysis, the people of Ahousaht and Alert Bay gained control over the context in which the things they were saying had meaning. When fisheries managers look to aboriginal knowledge they are looking to incorporate local knowledge into bureaucratic systems of science and management, and the language of TEK is dominated by verbs like "collect," "harvest," "extract," and "use." Some fisheries scientists even ask "skill-testing" questions to ascertain the "trustworthiness of the subjects' answers". When knowledge becomes recontextualized into systems of fisheries management, relations of power shift, and what may seem to be a harmless case of cultural appropriation can make local people experience a loss of control over decisions that affect their lives. The people I interviewed appeared to know all too well that all knowledge brings with it networks of context and power, and they spoke of the relations between foreign foods and the ways in which their communities have become politically disenfranchised. It is only through continued access to and use of the fisheries resources
that any hope for prosperity remains. Outsiders don’t understand, people tended to say, that salmon is a matter of survival and a resource that will always define them as the “salmon people.” Indeed, traditional ecological knowledge

... extend[s] the networks of scientific resource management into the ‘outside world’ of First Nation communities by rendering the life experiences of native elders and hunters (through processes of compartmentalization and distillation) into forms which can be used and interpreted far from these communities, in laboratories and centers of calculation.¹⁶

First Nations’ people in Alert Bay and Ahousaht were sensitized to “traditional ecological knowledge” as a technique of power, and their talk of salmon as food made it impossible for me to isolate food from the ways in which knowledge about food is locally produced, maintained and transformed through the passage of time. Because salmon, as they presented it to me, remained firmly anchored in contexts they themselves knew about, it was difficult for me to compartmentalize their understandings into categories of either traditionalism or individual experience. It may be for that reason that people focused on their band’s material culture as itself constituting a social world.

People saw their knowledge of traditional foods as their last line of resistance against intrusion into their territories, but they also perceived it to be their most powerful form of opposition. This finding is probably not unique to the First Nations of Vancouver Island. For the Stó:lō of British Columbia’s Fraser Canyon, wind-dried salmon, though no longer a dietary staple, imparts a kind of strength that comes from shared understandings about food.¹⁷ As for the Namgis and Ahousaht people, salmon among the Stó:lō has become a symbol of political resistance, and wind drying is consciously regarded as a traditional practice in need of protection. Similarly, among the eastern James Bay Cree, “whiteman’s food” is symbolically polluting, in that it is seen to be harmful to a generalized sense of
well-being. The Cree word “miyupimmatisiiu”, which roughly translates as “being alive well” is a declaration of social and political well-being, and the concept around “being alive well” allows Cree people to assert themselves in the face of threats to their land. Resistance to changes in the traditional relationship with the land is associated with individual well-being and notions of health and prosperity. Eating the right foods by following present-day traditional practices allows the past to directly shape how people constitute themselves both physically and culturally.

Traditions are, after all, encounters with other groups and cultures. Features of any society are important not because they stand on their own, but because they can be contrasted with something external. In a book by a group of Nuu-chah-nulth elders interested in combatting the suffering brought about by the Indian Act, the residential school experience and the loss of access to resources, through a revival of the old teachings, Moses Smith of Ehattesaht (Nuu-chah-nulth, north of Ahousaht) makes the following observation:

The big thing is the traditional use of our resources. Yes, that’s the thing that we have got to try. Yes, that’s the scary thing to see that some of our traditional food, in no time at all, it’ll be wiped out. That’s quite a treat when we get home after spending time in urbanized areas to go back and get a good feed of t’uc’up (t’uutsup – sea urchins), the mussels, other seafoods. That’s quite a concern to all the families.

This articulation of the importance of traditional foods makes it clear that though constructed, traditions are not in any way “fake”, and are instead always the very real product of social construction and negotiation within and between groups. For that reason, “the process of choosing emblematic activities, dispositions, or material artifacts,” in this case, the active choice of wild salmon over farmed salmon as food, is not “dissociable from a history of encounters and from what is at issue in those particular encounters.” The fact
that the First Nations people I interviewed selected wild salmon as part of both past heritage and present custom, and actively de-selected farmed salmon is therefore not altogether surprising. Once people have made something emblematic by objectifying and naming it, they can then take a stance towards it.\textsuperscript{21} I suggest that this also occurs when farmed salmon is named as part of a colonized way of life, and wild salmon is named as emblematic of a First Nations way of life. These understandings allow the named and meaning-filled farmed salmon to become a positive force in cultural affirmation, rather than an oppressive force of cultural assimilation. Understandings of the differences between wild salmon and farmed salmon as food suggest that Ahousaht and Namgis traditions, like all traditions, are not passively carried as cultural baggage, but actively constructed and deployed to diverse ends.

\begin{enumerate}
\item The word “food” here refers to the fishery allocated by the federal Department of Fisheries and Oceans to First Nations people to fish at certain times and places closed to non-aboriginal fisheries. This legal distinction between commercial and food fisheries creates an artificial “traditional” fishery that has no precedent in actual First Nations societies.
\item Because I was specifically targeting skippers and deckhands – those directly engaged in fish harvesting – I was only able to find one woman who had worked on a fishing boat on any regular basis. Women probably are more knowledgeable about fish preservation and preparation, the subject of much of this chapter. However, because I did not discover the ways in which people used food to talk about salmon farming until after I began looking over the interview transcripts in detail, my analysis is limited to the experience of men. The fishermen ranged broadly in age from 35 to 75. The fisherwoman I interviewed in Ahousaht was in her 40s.
\item The competitive and extravagant nature of the potlatch seems to have been a post-contact development. For further details on the Kwakwaka’wakw potlatch system, see the discussion in chapter 1, and as well: Douglas Cole, “The History of the Kwakiutl Potlatch,” in \textit{Chiefly Feasts: The Enduring Kwakiutl Potlatch}, ed. Aldona Jonaitis (Seattle: University of Washington Press, 1991, 135-176.
\end{enumerate}
5 Gloria Cranmer Webster, “The Salmon People of Alert Bay,” Reprint from the Proceedings of the 12th International Abashiri Symposium, (ISSN 0918-7715).


11 Frank, p. 169.

12 Martin S. Weinstein, and Mike Morrell, Need is Not a Number (Campbell River, British Columbia: Kwakiutl Territorial Fisheries Commission, 1994).

13 Douglas Harris, Fish, Law, and Colonialism (Toronto: University of Toronto Press, 2001).


21 See note 20 above.
CHAPTER 6. FROM FISH TO COMMODITY: SALMON FARMING AND THE PRODUCTION OF HERITAGE

INTRODUCTION

Despite the intense controversy surrounding salmon farming, salmon farmers try to sell their fish as a “made in British Columbia” product – one that is intimately tied in to the province’s cultural heritage. In recent years, researchers have written about the ways in which non-aboriginals have used salmon to take over supposedly “dying” aspects of First Nations’ culture in order to create a sense of safe and manageable heritage in a newly colonized land.\(^1\) Pacific salmon have been commodified as cultural items ever since an industrial fishery first appeared on the British Columbia coast in the late 19\(^{th}\) century. In those days, fish were delivered to large, busy canneries, where they were packed into identical tins for transport to distant places. Canned salmon was homogeneous, mass-produced and destined for mass consumption. Were it not for the colorful, illustrated labels affixed to the cans, the predictable, “objective” features of these canned salmon would have overshadowed their more exotic and “meaningful” attributes. These labels tended to depict scenes that were presumably unusual and exciting to the city dweller: small coastal fishing villages, the Queen, or an Indian with a feather headdress holding a salmon.\(^2\) This suggests that even for canned salmon, the fish’s unique “use-value” and its standardized “exchange-value” could never be fully separated from one another. In fact, “to become a commodity, a product must be transferred to another, whom it will serve as a use-value, by means of an exchange.”\(^3\) Even in the most materialist conception of “commodities” therefore, objects only acquire value through their social
use-values, or their value for others. In many ways, my analysis follows Marx’s view of the commodity as a social thing whose substance embodies relationships between people.

I examine the salmon-as-commodity as it is constructed by the British Columbia Salmon Farmers’ Association (BCSFA). The BCSFA promotes a farmed fish that is much like the salmon processed by canneries: it is readily marketable, exchangeable and consumable. As products, Atlantic salmon are consistent and mass-produced, and salmon farmers use this fact to advertise the quality of their fish. The BCSFA’s promotional brochures are filled with references to the immense volumes of fish grown on salmon farms; the association boasts, for example, that Brown’s Bay Packing Company of Campbell River “processes in excess of 10 million pounds (4500 tonnes) per year”.4 Salmon are constructed as homogeneous and interchangeable items that are valuable because they can be neatly packaged into anonymous boxes. As products, farmed fish are commonplace, routine, and ordinary. However, in this chapter, I show that like the canneries of the past, the salmon farmers’ association attempts to de-objectify farmed salmon by making these fish appear highly unique. I also show that this way of making farmed salmon appear as a diverse and heterogeneous item is an essential part of the process of commodification.

Farmed salmon holds out the promise, not just of the expected and commonplace, but of exotic experiences, such as those depicted on the labels of salmon cans. Constructions of fish as altogether new and different items creates distance between consumers and Atlantic salmon; the consumer who purchases farmed salmon is not only purchasing a product but also a cultural experience of the sort that
one might expect to get by traveling to remote parts of British Columbia’s coast, back to pre-contact times, or by accessing for a moment the technological sophistication of salmon farming science. In the pages that follow, I explain that by decommodifying farmed salmon, the salmon farming association lets consumers become tourists of both First Nations and scientific cultures.

I suggest that the value of farmed salmon is created by the interaction of salmon farmers, consumers of farmed fish, and First Nations people. However, these interactions are imbued with power relationships, through which Native people themselves become produced. In order for farmed salmon to be maintained as an exotic, indigenous, and “cultural” item, Native people must be carefully controlled and managed as “stakeholders.” By following guidelines for consultation with First Nations, and by emphasizing their technical mastery over nature, salmon farmers gain both legal and popular acceptance for their industry. In this way, salmon farmers are able to recreate the conditions under which the production of farmed salmon is possible in the first place. It therefore becomes difficult to separate the meaning-filled aspects of commodification from the brute physical production of farmed salmon.

This chapter deals with the ways in which the BCSFA assigns value to salmon and salmon farming. It is based on observations of the day-to-day activities of the staff, as well as on extensive conversations with them on long-term projects and issues. The material for this chapter was collected during a week spent in the office of the BCSFA in Campbell River, on northern Vancouver Island in British Columbia. I also base this analysis in part on internal, written documents, provided by the BCSFA, that
chronicle the evolution of their relations with local, environmental and aboriginal communities.

FARMED SALMON AS AN INDIAN “PRODUCT”

Salmon packaged as exotic culture

The BC Salmon Farmers’ Association’s relationship to First Nations culture begins with its walls, which are adorned with prints of Northwest Coast First Nations’ art. As part of its public relations role, the association regularly donates money, fish, and other items to community events, charity auctions, or promotional events. When the Quadra Island Recreation Society held a raffle to benefit the community centre’s Addiction Project, the BCSFA donated a cedar tray it had bought from a First Nations artist. In this way, salmon farmers were able to give away, as their own, a piece of the First Nations experience. Similarly, a book in the office called “Feast! Canadian Native Cuisine for All Seasons” seems to be the source of many of the recipe cards the association includes with donations of fish. An interest in “ethnic” food may be an instance of virtual tourism made possible by the consumption of goods. This type of tourism, John Urry says, compresses time and space into readily consumable objects, and allows people to easily evaluate and compare formerly inaccessible experiences.⁵

A salmon prepared “native style” allowed guests at the Coast Inn’s Quality Council Dinner in Prince George to experience a native meal in an otherwise familiar setting. The distance this created between the consumer and the salmon actually brought this fish closer to its intended audience. As the organizer of the event wrote in a thank-you letter to the BCSFA, the dish was exceedingly popular: “Chef Aikenhead prepared the salmon ‘cedar plank’ and served it as an appetizer prior to the chicken entrée. The
salmon starter was clearly the highlight of the meal and so many guests inquired about the product, we placed it on the menu ..."

Here, the BCSFA is engaged not only in physical forms of production, but also in the staging of salmon as a cultural experience. Just as farmed salmon are created as products, so the meanings that surround First Nations people are carefully selected, produced and packaged for mass consumption. This paradoxically allows salmon to become unpackaged – to lose their associations with shrink-wrapping, bar codes, and styrofoam boxes. In other words, the commodification of First Nations’ traditions appears to be a prerequisite for attaching new and enticing meanings to the fish.

Farmed salmon is valued as something distant from us, but also as something that we know about objectively and whose value we wish to bring closer to ourselves. By buying farmed salmon, the consumer-tourist can vicariously become a full member of an imaginary community in which these supposedly “Native” meanings have great social importance. Farmed salmon is a cultural production that tells people what to look for and experience. In fact, all touristic experiences are, according to MacCannell, cultural productions, because they represent and then consume particular, isolated aspects of social life.

This element of tourism is most evident in the fish farm tours the BCSFA leads for interested members of the public. As part of the planning for these tours, employees consulted a brochure for a local “Native Heritage and Wildlife Tour” that is advertised as “The Original”: “visit ancient traditional village sites – listen to the stories and legends of the people ... immerse yourself in the coastal native experience: jig for cod, dig for clams, enjoy an authentic native barbeque.” The BCSFA’s salmon
farm tours appear to be modeled on this coastal “heritage” tour. The association’s planned aquaculture tour – dubbed “The Original” just like the local Native heritage tour – promises much more than the opportunity to “see a salmon farm for yourself”: it allows tourists to travel back in time and enjoy an “evening barbeque on board, jigging for cod, and catching a crab.” Seafood harvesting is still an everyday part of life in First Nations communities; however, in this tour, it is a remnant of times past. The popular belief that Native culture needs to be salvaged is shared also by these salmon farming advocates, for whom First Nations’ understandings exist in past times and in distant places. Through farm tours, the BCSFA offers an “invitation to ‘experience’ the land … mind willing but body not able to make a canoe journey to remote places.”

Here, tourism supplies an environment in which salmon farming places can be consumed, not literally, but aesthetically, as often occurs in tourism situations. The salmon farm in this tour is a culturally and historically endowed experience, which though itself a product of sorts – the farm tour provides readily accessible “Indian” meanings – provides context for farmed salmon’s physical consumption. According to Appadurai, things need to be first brought into situations which enable them to become commodities in the first place. Salmon farm-culture tours provide that commodity context for farmed salmon. Appadurai notes that “the commodity situation in the social life of a ‘thing’” should be defined as “the situation in which it’s exchangeability (past, present, or future) for some other thing is its socially relevant feature.” In the case of these salmon farm tours, supposed First Nations meanings about environment and ways of life are exchanged for a consumer “experience,” an experience that can be recreated by physically consuming farmed fish.
Stakeholders as packaged Indians

The term “stakeholder”, when used to refer to First Nations people, is politically problematic in Canada, and particularly in British Columbia. In British Columbia, land and ocean territories were never formally ceded to settlers, and the treaty question is a frequent news item. The government of Canada recognizes, at least in theory, that First Nations’ people have justifiable claims to the land that predate contact with European settlers. A number of Supreme Court of Canada decisions over the past decade established that there is a “duty to consult” when any aboriginal or treaty right is infringed upon. Aboriginal people often resent being called “stakeholders,” particularly when they are forced to prove what they have always known through an alien court system. In the case of salmon farming, the industry’s association is able to successfully use the law on consultation to produce Native “stakeholders” that are manageable and predictable.

The provincial government’s consultation guidelines for third party dealings with First Nations are particularly telling of the degree to which industrial production requires the commodification of aboriginal people. In that document, the province reminds those whose activities might infringe on claims of aboriginal rights that the onus is on First Nations to prove these rights in court. Aboriginal people must therefore self-consciously consider and present their culture as a thing to be scrutinized and dissected. The guidelines, of which the BCSFA surely has a copy, state that “aspects of aboriginal society that are true of every society, such as eating to survive, do not qualify as aboriginal rights.” In other words, First Nations practices must be
considered distinctive and unique in European terms before they qualify for protection from logging, farming, aquaculture, or other interests.

In *Delgamuukw*, the Supreme Court of Canada determined that the depth of the consultation must relate to the severity of the infringement on aboriginal lands. Two recent British Columbia Court of Appeal cases – *Haida Nation v. B.C. and Weyerhauser* and *Taku River Tlingit First Nation v. Redfern Resources et al.* – both involved the provincial issuance of licenses for land and resource extraction activities on claimed, but not “proven” territories. These cases asserted aboriginal rights and title by highlighting the First Nations’ pre-existing legal interests. At the same time that the Supreme Court ruled in *Delgamuukw* that the Crown must demonstrate a substantive concern – it must consult in a way that takes aboriginal interests seriously – the law on consultation is primarily procedural.\(^{13}\) Because consultation is the burden of the industry or government, and the actual “proof” of the right is the burden of the Native people claiming that right, proper procedures can facilitate as well as prevent infringement. Consultation procedures do not require that governments or industries discuss with, much less agree with, Native people about how the particular aboriginal right is to be understood and what that right is.

In 2001, the staff of the BC Salmon Farmers’ Association was proud to say that it consults with First Nations people. Although the association could not have anticipated that the duty to consult would be extended to resource industries and other “third parties,” their eagerness to “consult” was probably a response to long-standing criticisms that salmon farming leases alienate aboriginal territories and prevent those territories from becoming part of treaty settlements. The process through which
Indians become "stakeholders" is itself a form of production, and it allows salmon farmers to turn Native opponents into easily manageable entities. Just as fish farmers prefer to grow the Atlantic species because it is "a very passive fish" (Linda Stevens), the BCSFA prefers to consult only with "non-radical" Indians. As stakeholders, First Nations individuals are brought into the realm of "products," where they are processed into manageable and interchangeable units. Debbie Owens often talks about the trouble she has with "radical" Indians that show up to industry-First Nations Communication Meetings: "In any group you have radical elements. Sometimes I really get attacked." By naming certain First Nations people as "radicals," the BCSFA is able to define what it means to be a "normal" Indian. Only certain First Nations individuals get to be part of the process: "they [Ahousaht] are an extremely difficult community to negotiate with. There is a handful of real radical people, they're extremely aggressive. They seem more intent on beating up the person talking to them instead of saying 'let's move forward'" (Frank Lowry).

By "moving forward," a point to which I will return later on, First Nations people are required to adopt a particular definition of themselves that allows them entry into the consultative process in the first place. Even before negotiations actually begin, the "radical" Indians are excluded from the pool of raw materials destined to become "stakeholders." This is reminiscent of the exclusion of certain adult salmon from becoming broodstock; presumably, the offspring of those fish also would not be "productive" under the controlled conditions on salmon farms. Just as farmed salmon leave processing plants not as fish, but as carefully crafted products, aboriginal people leave the consultation process as generic and well managed "stakeholders." As
products, "Indians" are amenable, assimilated, and homogenous; as "First Nations," they are exotic, diverse, and unpredictable. As carriers of meaning about salmon, aboriginal people can, by themselves being transformed into products, be a tool in the construction of a novel and unique fish.

When consultation takes place in a predetermined way and follows a strict set of guidelines, the individual that emerges is predictable, presentable, and controllable. In fact, the Indian-stakeholder is the type of person envisioned by the salmon farmers before even the welcoming remarks were made. For example, in planning "communication meetings" with First Nations' people, the association's representatives appear to pay an inordinate amount of attention to the actual staging of the meeting. Meeting organizers are very concerned with having the right aboriginal leader present to formally open these consultation sessions. Joseph Sam, the president of the BCSFA, wrote in a letter to Chief John Henderson of the Campbell River Indian Band Council about the opening ceremony to such a meeting: "I want to ensure that we follow correct protocol for this meeting, and I would be honored if you would agree to welcome all the guests at this meeting to your traditional territory." The association is eager to produce meetings that pass guidelines for "consultation" and the "non-infringement" of aboriginal rights. An invitation to various First Nations leaders to participate in a BCSFA-First Nations Communication Meeting in December of 1999 made this clear: "the two meetings held to date ... many solid suggestions have been put forward by the First Nations in attendance that will assist us in achieving our goal of proper consultation." The salmon farming association understands its meetings with
First Nations' "stakeholders" as finished, legally acceptable products, rather than as ongoing processes through which new knowledge can be created.

"Respect," is a concept used by First Nations people throughout coastal British Columbia to denote a complex set of relationships among people for whom ownership, stewardship, physical use, and cultural continuity inhere in fishing places. According to Linda Stevens, First Nations' "respect" is something much simpler and easier to control: "They [the First Nations people] say you have to show respect but the way they're always ripping into each other is terrible. One guy accused another of basically prostituting himself to the industry." The man she described does not have the attributes of a good stakeholder; he is not an easily manageable person that fills a neatly circumscribed role. As in 19th century paintings of Indian warriors and chiefs, First Nations people are constructed as proud and stubborn advocates of a vanishing and primitive way of life. According to Norman Douglas of the BCSFA, "a lot of them [the First Nations people] don’t want to look stupid at these meetings... so we have to explain to them what’s going on." Frank Lowry sees the Ahousaht people, in particular, as prisoners of their own environmental noses: "they cut their noses off to spite their face ... they seem more intent on beating up the person talking to them instead of saying let’s move forward." This is why, as stakeholders, Indians get help from the industry in becoming more like themselves – more natural, and therefore more attuned to the naturalness of production and efficiency. When the Chief of the Tlowitsis Nation, John M. Smith, wrote to the BCSFA asking why the industry, despite having promised that they would use local vessels and labor power for harvesting, was importing a large, new, Norwegian boat, Linda Stevens explained to one of her colleagues why the foreign boat was the "natural"
choice: “By inviting the Campbell River Band they will then get to see that the reason you had to go to Norway was obvious – for the technology. There really is no arguing the need to go there once you have seen the vessel. So impressive.”

“Consultation” is therefore the process through which the Indian-as-stakeholder is manufactured as a publicly marketable product and the farmed salmon is produced as a culturally colorful commodity. The romanticized, commodified Indian, who is advanced in culture but primitive in economy, is constructed through a variety of interactions with the salmon farming association. Linda Stevens, for example, wrote to all general managers of salmon farms in BC, informing them that a “cultural awareness feast” would be held at the Big House in Campbell River, but that this event would be complemented by an “information session on economic development.” In her construction, culture, food, and resources have nothing to do with economy or community well-being. At the same time, the invitation encourages First Nations participants in the event to present their culture to the salmon farmers, who can make sense of it in an economic context.

The construction of the wild “Indian-as-nature” has been entrenched since the 19th century, and continues to be used in the present day. The BCSFA mines First Nations’ understandings of environment as a source of “otherness” only to make accessible those same meanings to its customers. By getting the First Nation in Kitasoo to open up its own salmon farm, Jennifer Bowen can claim that her industry displays an aboriginal-like responsibility for “nature”, as well as a Euro-Canadian handle on “economics”: “they [First Nations people] are starting to get fridges and stoves, they’re painting their houses ... they’ve got 40 people working in the processing plant. Now people are putting up houses and putting in grass,” she said. In the BCSFA 1998-1999 Communication Plan,
dealings with First Nations are considered a top priority specifically because the industry’s unresolved issues “potentially undermine public confidence in the operations of the industry if portrayed as a threat to the environment.” Nancy Young, in talking about possible advertisements, linked the idea of pristine environment with that of native heritage: “We could say, we are improving the way we are managing our fish farms... to ensure we protect our heritage ... or ... BC salmon farmers – on our way to becoming a model industry ... through sustaining our priceless heritage.”

Many First Nations’ people who find themselves sitting across the table from salmon farmers at stakeholder meetings reject the construction of Indians as walking packages of priceless heritage. They seem to object specifically to the idea that they can be *managed* as stakeholders and demand “participation on a specifically structured advisory committee which would respect the involvement of First Nations as not just another ‘stakeholder’” (Native Brotherhood, in a statement to the association). The Kwakwala, Likwala and Comox, for example, understand themselves as people who know as much about ways of making a living, community, and economy, as non-aboriginal people. They are a people who “have lived within and on their territories as provided by the Creator and as instructed by their Numayms care for the Aweeknak’ola in such a manner that the people, their different societies, their forms of governance and each community within the respective territories, continue to be sustained” (statement to the BCSFA). This articulation is in sharp contrast to the idea, expressed by Linda Stevens in a letter to Hereditary Chief Scow, that stakeholder meetings “can achieve the balance needed for respect of First Nations and
environmental values while ensuring that we can provide the jobs needed for our economic future.”

SALMON AND SCIENTIFIC HERITAGE

Aquaculture as “advanced culture.”

For the BCSFA and probably many consumers of farmed fish, Atlantic salmon embodies meanings associated with the imaginary First Nations person. However, salmon also gives the consumer-tourist access to another kind of imagined heritage: science. The methods and results of professional scientists become the raw material of a scientific cultural experience that is offered to the customer-tourist as an experience. Science, imagined or real, is presented by the salmon farmers’ association as emblematic of a way of life. Joan Alverson, for example, makes regular visits to elementary schools to talk about salmon farming and its relation to “coastal culture.” She takes along armloads of posters entitled “Coastal Culture – Farming Fish” which depict a cross-section of a fish farm, from the float house and net pens to an ocean floor cluttered with scientific instruments. In the scene, two divers, a current meter, an underwater camera, and a benthic grab sampler float amongst the salmon, sculpin, flatfish, and invertebrates while a helicopter hovers overhead. Here, science signifies not just fish farming, but “coastal culture” – a way of life in general.

The current state of aquaculture science is offered to the customer as a spectacle of progress to be consumed as entertainment or education. Much like the zoo visits Anderson describes, salmon farm tours get visitors to be visually tintillated by the triumph of reason and domestication over emotion and wildness. The “scientific” salmon of netpens are separated from the “spiritual” salmon of the First Nations
heritage tours through electronic instruments, numbers, and chemicals. The allure of science and progress is therefore intimately tied up with the distinction between wild, spiritual Indians and their domesticated, “rational” colonizers.

While not all consumers of farmed fish will have the scientific know-how that makes salmon-farming possible, anyone can get that experience by buying farmed fish. In the promotional video he was preparing for the BCSFA, for example, Tom Woods suggested that the following narration would promote confidence in farmed salmon:

“Harvesting and Processing. The harvest population is put on a short starvation regime. This reduces the activity of digestive enzymes and reduces the stress on fish.”

The BCSFA also has specially designed tours of sea farm pens to allow visitors to be scientific tourists in the literal sense: “make your next family vacation an enjoyable and educational experience,” Joan Alverson wrote for a brochure. One of the farm activities that is specifically meant to be seen by farm visitors is water quality testing: “we regularly check the temperature of the water, monitor the oxygen in the water using a dissolved oxygen meter, and check for harmful plankton by checking the turbidity of the water with a Secchi disk and viewing water samples under the microscope,” she continued. Here, farmed salmon are expressions of an elaborate set of scientific rituals that surround their own production.

The fascination with aquaculture science appears to relate directly to the desperate search by Euro-Americans for Native American roots described by Ward Churchill. Just as relating salmon to aboriginal culture distances farmed fish from the homogeneous product it might otherwise be, the emphasis on scientific “heritage” shifts the focus from automated, machine production to a scientific “tradition” of fish
rearing that is much like the “traditions” of First Nations’ people. This is not altogether surprising, because groups tend generally to fashion their understandings of what makes them distinct out of their prior understandings of what is emblematic of others.¹⁸

Aquaculture science as heritage

The stories told by members of the BC Salmon Farmers’ Association turn science into a heritage that can be consumed right along with the fish. Even though mechanistic metaphors of efficiency and functionality abound in the stories that ecosystem ecologists tell,¹⁹ these stories, like all stories, have a continued life. This life allows science to be subjectively experienced in the classroom, in the grocery store, at the dinner table, or on a fish farm tour. One of the advertising officers at the BCSFA involved in coming up with ideas for a childrens’ information expressed to his colleagues the “need to develop a single pamphlet of info highlighting the stages of a salmon’s life with corresponding pictures to color.” The activity book designed for children juxtaposes “the life cycle of salmon” with “the farming cycle”. According to the booklet, biologists have discovered that “the salmon life cycle begins when adults spawn, despositing fertilized eggs in the gravel bottoms of freshwater streams and rivers, usually the fall; juvenile salmon emerge from the gravel in the spring,” and so salmon farmers have managed to use these scientific facts to copy the scientific “laws” of nature: “salmon farming is based on the salmon life cycle. Fish are spawned, eggs incubated and juvenile fish reared at freshwater hatcheries, usually located on land.” In this case, the “cycle of life” is a naturalized construction of salmon biology that serves as a source of tradition and as a template for new stories.
Stories are continuously re-deployed in new settings and reinvested with new meaning, and are not so much finished products as social activities that connect people to lived experience. Once science is told in narrative format, it can access many of the meanings already existing in people’s taken-for-granted reality, and indeed, become part of a heritage that grounds people in a past while preparing them for the future. While the BCSFA does not hand out its coloring books on the “farm cycle” and the “salmon cycle” to adults, it does allow them to participate in fish farm tours. At the farm sites, the BCSFA wants them to see a number of activities and how those activities relate to the “farm cycle.” The following excerpt is taken from Jennifer Bowen’s script that is read to farm visitors:

Smolt deliveries. Smolts, small fish that are ready to begin their life in salt water are transported from the hatchery. They arrive at the farms by boat, either a special smolt delivery boat that has large tanks on the deck or well boat, that has water in the holds. Both systems circulate water to the fish and supplement it with oxygen. Smolt delivery time is an exciting time because a new life cycle on the farm is starting.

Similarly, “broodstock sorting” and “egg takes” take the place of spawning:

When the fish are ready, a crew is ready to take the eggs and milt. ... Samples are taken for disease and screening purposes. The eggs and milt are kept sterile and separate. ... Once the job is finished the eggs, milt ... are taken to the hatchery ... (fish farm tour script)

Here, a science that is practiced in laboratories, remote field sites, and described in scholarly publications is made accessible to the potential consumers of farmed salmon. By visiting a farm site, the fish farm tourist is provided with an out-of-the-ordinary opportunity to view science in a firsthand way. As areas that are typically inaccessible or closed to the gaze of consumers, fish farms enable tourists to get a glimpse of the normally hidden practice of “high-tech” scientific and
technological activity. It seems reasonable to think that these same tourists, as well as some others who have never been to see an actual salmon farm, may be recreating this touristic experience every time they eat a farmed salmon.

Scientific salmon farming is no longer a distant reality of numbers, figures, and tables, but something that is at the core of people's objective realities. In this understanding of scientific heritage, we are all scientists, and always have been participants in rational "progress." Paradoxically, members of the BCSFA deny that they do any more than present to the public untainted science: "what I like about Andy [Andy Thomson, Department of Fisheries and Oceans] is that he just gives you the information he's got, he doesn't try to embellish it or say geez that's awful" (Norman Douglas).

CONCLUSION

In this chapter, I have shown that the commodification of farmed fish as a mass-producible and exchangeable item relies on the incessant symbolic commodification, de-commodification, and re-commodification inherent in touristic experiences. This finding is consistent with Marx's view of the commodity as a thing that both represents and obscures relationships between people. Through "consultation," as "stakeholders," and as heritage items, Indians become contained as manageable and reproducible cultural units, much like the commodities they represent. This development is what subsequently enables salmon farmers to claim that their industry is aligned with the interests of First Nations' people. Native peoples' struggles for control over their waters are obscured when salmon farmers become endowed with the authority to represent, and make decisions about, aboriginal culture. In much the same way, farmed fish are used to
represent touristic, standardized and pre-packaged narratives of an otherwise inaccessible "aquaculture science." The packaging of salmon farming as "advanced" culture obscures the role of that "culture" in mass-producing salmon factory-style, in a way that diminishes possibilities for other experiences.

When salmon farmers use farmed fish to represent cultural experiences, both Native people and scientific practice are objectified, and at the same time transformed into subjectively desirable, touristic "backrooms." What I mean by "subjectivity" and "objectivity" in this case is not that "objectivity" is more true to reality than "subjectivity", but rather that neither the salmon-as-product nor the salmon-as-heritage can exist on its own. The harsh image of commodified salmon is deflected by visions of cultural heritage and exoticism, but First Nations' peoples and scientific cultures are objectified in the process. Farmed salmon is therefore at the same time both commodified and (symbolically) decommodified.

In many ways, this finding is not surprising. As Simmel (1978 [1900]) has pointed out, things can only be valued again as commodities once they are taken out of the context of the here-and-now and turned, conceptually, into objects that are reassessed. Simmel noted that in assigning value to objects, there is a constant tension between objects that seem to have autonomous significance, and the same objects, at other times, that seem subjectively desirable. The desiring of objects on the one hand, and the assigning of objective value to them on the other, are complementary notions that presuppose each other: "they are two sides of our relationship to objects, which we call subjectively our desire and objectively their value." This appears to be exactly what members of the BCSFA are doing in their construction of farmed salmon as an ordinary,
mass-produced item and as a source of desirable and new meanings. Appadurai, too, found that “at any given point in time what looks like a homogeneous, bulk item of extremely limited semantic range can become very different in the course of distribution and consumption.”24

However, in order to accomplish this leap in meaning from the ordinary to the extraordinary, the BCSFA must make extensive use of “objective” reality – those meanings of people and nature that are closer to the taken-for-granted realities in which people live. The idea that farmed salmon must be objectified if it is to be subjectified may be what Berger and Luckmann mean when they say that what is taken for granted provides a framework through which things that are not yet known can be known in the future.25 In other words, because we internalize the world of nature, First Nations, and science as objective realities, we become equipped with the tools that enable us to externalize our own subjective understandings of farmed salmon. Looking at it another way, this process is a certain technique of consumption that, as Sassetelli puts it, “brings the subject to continuously re-establish a distance and a space of difference for him or herself in the pursuit of such heightened individuality.”26

For Root, this internalization of other heritages as objective realities is a symptom of the fear of losing a sense of authenticity.27 Because farmed salmon raised in netpens might easily be considered “inauthentic”, their authenticity must be reaffirmed in the “backroom” regions sought out by cultural tourists. What is easily available for touristic consumption is never as desirable as that which is somewhat hidden or removed from the typical tourist experience, because it is those experiences that are more “authentic.” Except for the instances of science farm tours and First
Nations’ heritage farm tours, this search for backroom areas by consumers of salmon is not physical, but cognitive. In order for differences to be identified and appropriated in the first place, they have to be seen as real. Thus, heritage is appropriated, objectified, and turned into something people know about. This process is reminiscent of the art of British Columbia’s early colonial area, in which paintings implied “that Native culture is a quantifiable thing, which may be measured in degrees of ‘Indian-ness’ against defined forms of authenticity, only located in the past.”

Farmed salmon can be made more authentic, further from everyday experience, only because the cultures used to make sense out of salmon are increasingly made into objects. First Nations are turned into stakeholders reminiscent of the kinds of “products” made available through the mass production of Atlantic salmon: they are docile, “non-radical,” homogenous, and specialize on environmental aesthetics. Science too, is reduced to stories, almost Disney-fied representations of the “cycle of life” and the gadgetry of scientific equipment. The “real” First Nations person, or “real” science, remains as elusive as ever, much in the same way as tourists can see “real” places and experiences as always a step beyond what they can readily observe or experience.

Appropriation is a powerful device in the construction of new meanings, because it allows the salmon farmers’ association to distinguish what is authentic about both science and First Nations from what is inauthentic. Root observes that the appropriation of cultural difference involves the selection and abstraction of cultural traits, and it is this that allows them to be consumed in the first place. She points out that while tourists in British Columbia are invited to gawk at totem poles in the Royal
BC Museum followed by high tea at the adjacent Empress Hotel, they are not encouraged by tourist brochures to meet Gitksan land rights activists. In much the same way, the BCSFA uses farmed salmon and its associated scientific and aboriginal meanings to decide what constitutes both science and First Nations culture. The BC Salmon Farmers’ Association invites its customers to experience the “real” science of salmon farming, yet this science includes fancy water chemistry equipment and the technological promise of improving on nature’s “cycles.” This “authentic” science excludes, for example, all of the scientific debates about the disease or invasion potential of farmed Atlantic salmon.

Similarly, “authentic” Indians welcome salmon farming as a way of salvaging their supposedly extinct culture – through the preparation of farmed salmon in supposedly “traditional” ways – and as a way of bringing an environmental “aesthetic” to the industry. “Inauthentic” First Nations people include those that refuse to turn themselves into stakeholders. Much like the tourists who come to Tillicum Village, a replica of a native village near Seattle, consumers of farmed salmon are able to sample Indian culture from a safe distance. The same is true of the experience these consumers-turned-tourists have with science. Science and First Nations culture are carefully pre-constructed by promoters of the salmon farming industry, only so that consumers can experience those cultures every time they buy or eat Atlantic salmon.


4 BCSFA NetWork Information Sheet #3.


8 See note 5 above.


10 Appadurai, p. 13.


12 *Provincial Policy for Consultation with First Nations*, p. 6.


14 See note 7 above.


21 Marx, p. 320.


23 Simmel, p. 78.

24 Appadurai, p. 40.


28 Crosby, p.276.

29 See note 27 above.

30 See reference to Johnson and Underiner, in note 1 above.
INTRODUCTION

I came to the salmon farms off of Triangle Island, British Columbia, to study salmon farmers; I wanted to know how they thought about farmed salmon and the business of salmon farming. My week-long observation focused on the farm at Fernando Bay, and the nearby but larger “super-farm” at Desolation Rocks. By talking to the workers and site managers on the walkways that connect the floating net pens, I thought I could get them to speak in routine ways about how they raise their fish. However, farmed salmon are not simply passively contemplated, but are constantly being treated, fed, sampled, sorted by size, moved from pen to pen, and harvested. Like the activities of isolated, far-away peoples, the activities of salmon farmers make sense only from within a particular cultural context. I learned quickly, for example, why some fish, called “culls,” were sacrificed to the “mort bucket” even before they had finished their growth, and the importance of a mysterious force called the “food conversion ratio.”

By the time my stay on the floating net-pen structure was over, I knew I needed to make at least one more stop along the network of places, people, positions, events, and knowledges that make up the salmon farming industry. Pharamceuticals like anti-parasite drugs, anaesthetics, and nutritional feed additives are themselves active, working agents that aid in all sorts of tasks around the farm site. Whether these chemicals are antibiotics milled directly into the feed, anehesthetics used on fish being sorted, or carotenoids used to dye the flesh, each molecule is a little worker, making its
own contribution to the farm’s final output. In order to get to know more about where these chemicals come from and what they do on the farm site, I present my experience at an aquaculture trade show where these substances are advertised and discussed. This chapter, therefore, is based on my time at two nodes along the salmon farming network: West Coast Aquaculture’s floating net-pen sites and the Aquaculture Pacific Exchange trade show held in Campbell River, British Columbia. I focus on the process of salmon farming and how it shapes and is shaped by the “culture” of salmon farmers and their pharmaceutical suppliers. My analysis therefore embarks on the sort of “anthropology of the modern world” advocated by Bruno Latour.¹ My approach allows me to look at farmed salmon as natural-social collectives that come about through social interaction. I found that any attempt to extract meaning out of salmon farmers’ stocks of cultured fish repeatedly brought me back to their buckets of “morts,” their records of sampled and weighed fish, the noise of the generators and automatic feeders, and the arsenals of chemical products needed to properly immunize, medicate, mature, spawn, and color farmed fish. As a result, I focused on the farmed fish and the farming process, not just as things surrounded by meaning, but as carriers and creators of that meaning.

FARMED SALMON AS BIOMASS

One of the first things I noticed after setting foot on a fish farm is the way in which all fish farming activities are geared towards the production of biomass. Smolts are stocked and maintained at densities known to most effectively shunt feed inputs directly into biomass outputs. From the time they are first entered into the water, to
the time they are harvested and sold, fish are floating packages of biomass: “the
Atlantics we stock at 20 kilograms a cubic meter,” Ted, the regional production
manager told me. “We’re at 15 [kilograms per cubic meter] for chinook.” Workers at
the site too refer to harvest-ready fish as “peak biomass,” and fish that won’t produce
biomass are done away with to make space for those that do put on body mass:

Some fish just won’t eat. They sit in there and waste space for everyone else.
We call them ‘culls.’ See, here’s a cull [holds up a small fish]. ... When
they’ve been in there for this long and they’re only that big, then they’re a
waste of time (George, Desolation Rocks site).

Here, farmed fish are swimming biomass accumulators, and fish farms are the sites at
which fish pellets, loaded by the ton into automatic feeding machines, are converted
into Atlantic salmon flesh. The internal digestive machinery of the fish mirrors the
biomass accumulation that takes place at the level of the entire fish farm. Sometimes,
as explained by Ted, the production manager, this machinery fails: “fish doesn’t digest
properly, doesn’t grow as fast as the other fish, it eventually becomes sort of what we
call a pinhead, it elongates, ... those are starveouts or pinheads or whatever.”

Knowledge of fish health is completely tied up with fish farmers’ interest in
extracting the largest possible harvestable surplus from the site. Lesions and other
signs of disease make site managers re-evaluate stocking densities, feed formulations,
or pen location, and what salmon farmers know about the flexibility and relative
importance of these factors in turn affects how seriously they take any particular
disease symptom. This kind of flexibility is possible because individual fish are
directly accessible to fish farm workers and site managers as the units out of which the
farming operation is constructed. Fish are combined with feed pellets at different
sizes, times, and densities in an effort to make the site a productive fishery at harvest
time. In this way, the particular configuration of fish age, size, density, drugs, feeding regimes, and other factors is a material manifestation of the fish farmers’ knowledge.

It becomes difficult to separate where the feeding machine ends and the fish begins. A jumble of vacuum-cleaner like tubing winds its way down the floating walkways and into pipes above each net pen. There, pellets are pumped out into pens stocked with fish of known size, weight, age, and potential for growth. The careful monitoring and tracking that takes place while fish are accumulating biomass spins together ecology, knowledge, nutrition, and investment. Bob, the manager of the Fernando Bay site, describing the high growth “potential” of smolts, put it this way:

Any growth they put on now they keep till they’re mature, any growth that we miss out on, they won’t put on later. ... Normally there’s just one [automatic feeding] machine on a site and if that broke down we’d be really scrambling. It’s also big dollars for me because the four tons they [the fish] should have eaten today is x number of tons of lost growth, you can calculate it.

The growth of the capital investment is growth in fish mass. Even the feed has embedded within it the potential for a carefully calculated maximal yield. As the regional production manager told me, workers use customized “standard feed guidelines:” “if I have a smolt, it’s between 40 and 100 grams, the type of order is called ‘Smolt HP,’ so that’s what I order. If ... my fish are between 100 and 400 grams, I’m going to order ‘the 100,’ that’s what it’s called.” The feed guidelines, and the uses to which particular feed formulations are put, are meaningless outside of this context of production.

“Productivity” is a term well engrained in the vocabulary of ecology, and its very definition centers around the idea that a population actually “produces” a continuous output. While early ecologists “considered productivity as the maximum growth and
development of organisms under optimal conditions,” those optimal conditions “for an organism, population, community, or ecosystem can, at best, only be approximated after extensive investigation.” On the fish farm, this optimality is carefully constructed as a fragile web of factors. If these background conditions hold together, farmed fish are seemingly able produce themselves, and production appears to merge with the world of nature. Ocean space, for example, is thought to have a particular productive capacity, and knowledge of this pre-existing capacity can be exploited by fish farmers to productive ends. “We try to get 10 kg of fish per meter of water,” said Patrick from the Desolation Rocks site. “It all depends, like, you can start out with fish this big and grow them out to harvest size if you only put in 4500.”

The food conversion ratio, or FCR, is the primary way in which workers are evaluated by their production managers. Fish farm managers worry a great deal about their farm’s food conversion ratio, about the dangers of “inheriting” a low FCR when fish are transferred to their site, and about the difficulties in lowering the FCR when instructed to do so by their “head office.” The food conversion ratio is also the ability of fish pellets to produce – to do work - in an ecological machine that outputs fish.

Good work becomes good science, and fish farmers’ labor becomes a crucial ecological force on the farm site. Mark, the manager of the Desolation Rocks site, says that

People like to see what an exact science it is now. [The fish farmer] has got a feed prognosis that tells him the average weight and how much feed that pen is supposed to take. A lot of [bad publicity] comes from bad data, like from 10 years ago. Back then we were getting an FCR [food conversion ratio] of 3 to 1. Odum, in his classic textbook on ecology, described ecological efficiency in much the same way that salmon farmers talk about the food conversion ratio.
Ratios between energy flow at different point along the food chain ... are often called ‘ecological efficiencies.’ ... For example, poultrymen may speak of a 40 per cent efficiency in the conversion of chicken feed to chickens ... but this turns out to be a ratio of ‘wet’ chicken (worth about 2 Kcal per gm) to dry feed (worth 4+ Kcal per gram). The true growth efficiency in terms of Kcal/Kcal in this case is more on the order of 20 per cent.³

The food conversion ratio follows a pen of fish even when it is transferred to another site. Mark, the manager of the Desolation Rocks site knew that a shipment of young fish he was getting from a smolt grow-out site would reduce his production record: “We’re inheriting a low FCR from that site. We’ll never catch up,” he said.

So-called “good science” finds ways to shunt “wasted” energy back into the pathway of production. In fact, the “trophic level,” originally articulated by Lindeman in 1942, is the site of productivity; productivity can only take place if the rate energy enters a trophic level from the next lower one is greater than the rate at which it is “wasted” through metabolism, excretion or death.⁴ As a trophic level, fish feed is one of the biggest costs associated with fish farming, and so it is important that the money invested in the care of fish works to produce fish that can be sold at a profit. Bob, the site manager of the Fernando Bay site, “always wanted to have [his] own operation,” but “the problem is the money”: “You have to go too long without money. Right now we’re aiming for 14 months to harvest. You’ve got to feed and care for those fish without any money coming in,” he said. Money, like the fish feed it buys, becomes part of a system of inputs and outputs.

Substances such as medications, nutrients, or pathogens are also managed from within this framework of inputs and outputs. Materials move between compartments, and in doing so they create work, energy, biomass, as well as “by-products” that can be
recycled back into the “system.” Kyle (Fernando Bay) explained the formation of excessive amounts of kelp in this way:

He [the worker doing the feeding] has been feeding four tons a day, but when the weather warms up, it’ll be up to 8 tons. Everything really picks up in the summer and we have a real problem with kelp on our nets. So we have to either change them or we have divers that pressure wash the nets underwater. ... It just floats away. It’s all organic.

Here, the diver, the pressure hose, and the kelp act as a collective of production.

Labor, equipment, and ecology together separate consumers from producers, and efficiencies from inefficiencies. Even the company’s Operations Manual suggests that siting data and knowledge of circulation dynamics socialize the so-called “organic wastes” into a civilized system of inputs, work, and outputs. The environmental management section of the manual advises its readers that

...The magnitude of environmental effects [is] influenced by depth, site circulation dynamics... and loading (quantity and rate of waste material losses from the overlying operation). ... Optimal siting of marine netcages ... has assisted in our understanding of the dispersion, accumulation, and subsequent assimilation of these organic wastes through direct measurement (West Coast Aquaculture, ISO 14001 Environmental Management System, Operations and Reference Manual).

This type of “management” of so-called “byproducts” is reminiscent of the waste management approach described in Valerie Kuletz’s study of nuclear testing and radioactive waste storage in the American Southwest. The by-products from nuclear reactors, Kuletz says, were reprocessed and “consumed” by ecological research, agricultural production, and nuclear weapons. This framework of production and consumption, which continues to be used in the present day, claimed that since nothing exists outside the ecological system of energy and material flows, radioactive materials would eventually find their way back to “nature.”
The idea that waste products can be efficiently managed through reprocessing, by a system that continually produces those same wastes, is also present in the case of salmon aquaculture. Medications, like nutrients, are made part of this "natural" cycle through continued production. The "operation controls" section of West Coast Aquaculture's manual, for example, discusses targets for the use of antibiotics, lice treatments, and other medications, with the hope that "by December 2002, [the company can] report a 5% reduction in the usage of therapeutants across all production sites (expressed as kg active ingredient per tonne fish production)." Here too, the language of production allows such byproducts to be understood in terms of their assimilation into a system that repackages energy and materials. Outbreaks of disease are interpreted not as problems intrinsic to salmon farming, but as the result of failures to maintain properly productive densities. Bacterial kidney disease is "directly related to density, and it's a management issue, the BKD" (Ted, production manager).

FARmed SALMON AS MANAGED POPulations AND INDIVIDUALs

One of the central problems in fisheries management is the relationship between the condition of the "unit stock" and the annual "production" of fish. On salmon farms, the "unit stock" is no longer a slippery conceptual entity, but an actual pen of Atlantic salmon that is fed, treated, and harvested. Signs inside the floathouse and on the door of the feed storage shed remind workers that "fish farming is feeding at R_{\text{max}}." R is used by population ecologists to mean the per capita rate of population increase, but the complex and largely unknown relationship between stock size, fishing effort, and production has led to great problems for fisheries managers in estimating...
this parameter. Unlike salmon farmers, fisheries managers can only gain information about the potential "maximal yield" of a population by experimenting with different types and rates of exploitation. Population growth rates, birth rates, and death rates are seldom known for unexploited populations. Despite the artificial conditions of the fish farm environment, salmon aquaculture appears to exercise control over yield precisely because of its degree of complete integration with the captive populations of farmed salmon. Recruitment to the breeding population, densities, and death rates are directly accessible to the fish farm manager. On a salmon farm, therefore, it is possible to monitor and predict the production of new biomass with relative ease.

The methods allowing salmon farmers to do so are carefully described in West Coast Aquaculture’s Operation Controls Manual: “Calibration checks [of feeding systems] will be conducted weekly as a minimum. The frequency of calibration will be determined through \( R_{\text{max}} \) analysis, which will confirm if feeding is optimal for fish species, age and water quality conditions.” Not only is the amount of feed consumed by the fish calculated and known, but the interaction between food and other factors is taken into account. Bob, from the Fernando Bay site, explained \( R_{\text{max}} \) this way:

It’s the optimum amount of feed. We feed the optimum amount of feed to get maximal growth. … We weight sample the fish – we have a camera that sizes them and then you can use a graph to figure out how much you need to feed them and how well you did.

In many ways, salmon farming solves the managerial problems presented by the wild salmon fisheries because it allows for substantial improvements to the “management” of salmon as biomass “producers”. Unlike the wild fishery, fish farming allows the optimal harvesting effort that will result in this maximal rate of exploitation to be easily determined. Fish farming therefore represents the latest stage in the
industrialization and capitalization of world fisheries; according to Bavington, “[factory freezer trawlers] are the precursor to the modern industrial fish farm, featuring efficient resource location and capture under human control.”

As a result, it is possible for fish farmers to factor out any fish behaviors or environmental constraints not directly related to the production of new biomass. For example, fish farmers regularly “grade” fish so that fish growth remains at all times unconstrained by fish density. Fish are seined and lifted by crane into a checker, where they are stunned and then passed underneath metal bars for sizing. Larger fish are stocked at lower densities than smaller fish, which are left to grow to harvest size. Louie (Fernando Bay) explained that grading is needed because “you don’t want to send them down [to the processing plant] from 3.5 kilograms all the way down to 1.5. ... Ideally all the fish in this pen would be exactly 3.5 kilos.” Fish farming perfects the “maximum” economic yield of stock assessment biologists, and so price fluctuations and sales opportunities actually become part of the ecology of fish farming. “Peak biomass” is the result of fish farming practices that have carefully anticipated and responded to sales conditions:

We’ll get an order from Safeway or Costco for 30,000 fish between 6 and 9 pounds and so we’ll sort those ones out. There’s a machine that does that, you have to be careful with them though. The small ones go back in [the original pen] and we can grow those ones some more. (Bob, Fernando Bay site)

Penned Atlantic salmon are managed not just as populations, but also as individuals. Each fish is itself a packaged expression of optimality. Care is taken to provide the fish with the feed type that will result in the largest weight gain per unit time. This is accomplished by referring to a “feed size chart” that details the pellet size a fish of a particular species and weight should receive. Farmed fish are optimal
foragers, that, according to optimal foraging theory, should include items in their diet only if the time required to consume them could not be more profitably spent searching for other items. Central to this idea of optimality is the "handling time": small fish have difficulty handling large pellets, and large fish expend much energy in searching for and consuming numerous small pellets. Mark, from the Desolation Rocks site, builds this optimality right into the feeding regime:

It's been thought in the past that you bring them up slowly [in pellet size]. But now, it's part of the science of it that you give them as big a pellet as they can eat. They grow better on a bigger pellet, 'cause they can use less energy to get the same amount of food.

The fish he described are ones that he physically constructs as efficient bits of foraging technology. Salmon feeding behaviors, as they are understood by fish farmers, become a crucial force in the ways fish feeds are produced, marketed, and sold. In fact, many salmon farming companies now manufacture their own fish feed, and so are able to specially formulate the pellets to meet their particular production needs. This is reminiscent of the ways in which hatchery-raised fish are not only figuratively technologized, but have literally become cogs in an industrial mechanism of fish production. As Rik Scarce pointed out, "we should not merely understand the tooling of salmon as altering their meaning, but as imposition of new meaning upon the fish by creating whole new salmon."8

SALMONID CELLS: A WORKPLACE FOR MOLECULES?

Roche Vitamins is a large manufacturer of astaxanthin, a carotenoid pigment responsible for the reds and pinks characteristic of wild salmon flesh. According to Lars, a marketing specialist with Roche Vitamins,
We just mimic nature, absolutely clean and pure. The fish absorbs carotenoids in much the same way as in nature. There is no difference between the way you produce pigments and carotenoids. You need to differentiate between what nature created and some industrial process with the idea that a tomato should be blue.

Here, consumer preference for red salmon, and consumer disapproval of blue tomatoes, is itself created through carotenoid chemistry. In fact, one brochure advertising the product summarizes the biochemical process by stating that “the attachment of protein molecules to the carotenoid structure can result in the visualization of a variety of colors” (emphasis added). Lars’ assistant, Arne, demonstrated this point by showing the SalmoFan™, a stack of color swatches that range from pale pink to deep red. Because each strip of paper is marked with a “SalmoFan score,” the SalmoFan gives the production manager a visual and practical link between consumer preference level and the concentration of astaxanthin required to reach that degree of consumer satisfaction. According to Roche Vitamins, “it is important that the different salmon growing countries are able to match the standard color requirements of the different markets worldwide. For different salmonid species to attain similar SalmoFan scores, then different levels of astaxanthin have to be deposited in the flesh” (Roche Vitamins brochure). The SalmoFan thereby turns pigment biology into feed management and creates possibilities for mass preferences, mass production, and mass consumption.

The endpoint of an astaxanthin molecule’s convoluted pathway is the image reflected in the eye of the consumer. Astaxanthin is introduced into the fish through its feed. From there, a brochure explains, it undergoes “absorption from the intestine, transport in the blood by lipoprotein, ... metabolism, and attachment to the muscle fiber. Each of these factors can significantly influence flesh carotenoid concentrations
and color visualization.” But the powers of that little molecule must be put to work in ways that ensure that pigment is fed in quantities and at times that ensure retention. The events that occur at the level of an individual muscle cell are as vital to the production process as picking the right mesh size or determining the “optimal” density of fish. Pigment molecules are being worked on by the microscopic, cellular machinery of that bioaccumulating machine, the farmed salmon. After all, “it is not possible to pigment dead fish! Therefore, understanding the processes that affect flesh quality and being able to predict the general quality of any one harvest of fish is vitally important to the salmonid farming industry” (Roche Vitamins brochure).

The more pharmaceuticals claim to streamline, objectify and “scientize” the business of salmon farming, the more enmeshed those molecules become within human purposes and desires. Fred, a representative from Marical, for example, came to the trade show to discuss his company’s discovery of the “supersmolt process,” which, he says, is a “breakthrough technology that avoids current production constraints” and “is the result of research on a calcium receptor protein. .:. They found that the calcium receptor protein is the master switch.” This protein, while appearing to disengage the salmon farmer from decisions, actually displaces questions of season, water temperature, timing, and inventory to the cellular level: “by dealing at a very small unit of information and by understanding how those bits are transmitted, translated and reassembled, we get results we never dreamt of before.” The tools and methods of salmon farming are becoming not more separate, objective, and controllable, but more intertwined with the tissues, organs, and cells of farmed salmon. Instead of moving nets, transferring fish, and adjusting feeding schedules, the work of
fish production actually becomes part of the "natural" world. Fred explains this shift in farming practices in the following way:

If you wanted to make this room warmer and there was a thermostat, and you didn't know what it was, you might get more bodies in here, build a fire, these are all things you could do to make it warmer. Or you could open the drapes to let the sun in. But if you knew about the thermostat you could make it warmer by flipping a switch.

The "switch" he is talking about here is the calcium receptor protein that allows salmon farmers to put smolts as small as 15 grams into seawater, but also makes them immune to accusations that what they are doing might be in any way "unnatural." In this construction, work is natural, and nature does work. Of all the products promoted at this trade show, I found that Syndel's Ovaplant was the most obvious example of the merging of nature and work. Ovaplant is a product that "induces spawning through a slow-release, natural formulation. ... Once implanted Ovaplant releases peptide gradually, to induce and enhance the normal maturation and spawning events in fish" (Syndel brochure). This drug allows farmed salmon to become more reliable and more synchronized than anything "nature" could have provided.

CONCLUSION

The materials and actions involved in salmon farming have allowed me to launch into an analysis of the understandings salmon farmers have of salmon and salmon farming. This approach allowed considerable insight into the ways in which salmon farmers fill their everyday, working, worlds with meaning. I found that these constructions are not the product of the individual minds of the salmon farmers I encountered during the course of our observations. Instead, those understandings are
relevant to an entire system of production in which the salmon farms near Triangle Island are involved. Therefore, I have focused on the things of salmon farming, rather than on the meanings around those things. Smolts, nets, feeding machines, and medications are not simply mirrors of our social world, but are actually tools in the production of an efficient, optimized system of inputs and outputs. This is also the position of Donna Haraway, who says that rather than rejecting nature as too socialized or society as too naturalized, we must look to the things themselves for their role in creating our hybrid worlds. In this chapter, I have shown how things like pigment molecules and feed conversion rates do not behave in law-like and absolute ways, but are extensions of salmon farmers’ working worlds, and actually work to create consumer preference, reliability, efficiency, and marketability.

Farmed salmon are used to facilitate the flow of value by converting energy, nutrients, pharmaceuticals and work into biomass, production and money. The hybrid business of natural-social production allows for fish pellets as well as by-products to be “efficiently” shuttled through the system. The outputs of this system of production are uniformly sized fish whose flesh color ranks high on the scale of customer preference. I have focused on the techniques and things of fish farming, which, in typical hybrid fashion, have the capacity to “naturalize” people’s goals and actions. Fish farmers are no longer using net pen structures to hold fish captive, but are simply managing their own “stock” of fish. Technology generally mediates our perceptions by extending and transforming our bodily capacities. The worker skimming dead fish off the surface is a net-person hybrid that adjusts densities, plans and contains new growth, minimizes disease, and generally maximizes biomass production. Similarly, a
calcium receptor protein, the “supersmolt” protein, naturalizes and renders invisible the hybrid nature of salmon farming work.

Once we realize that salmon is manipulated, fed, and planned, because it is consciously regarded as “biomass” or “yield,” the connections between practices and understandings become clear. As Roy Ellen puts it, “use values are created not only through the expenditure of effort, but through the cultural transformation of nature. Thus the attribution of meaning cannot easily be separated from the existence of production as a process which materially changes the environment.” This look at salmon farm production has shown that it is not only “other”, “indigenous” societies that translate objective entities into cultural forms. As Bruno Latour points out, ethnographers abroad have tended not to write separate books on knowledge, power, and material culture, and so neither should we. Instead of invoking malevolent spirits, salmon farmers can invoke the equally powerful and mysterious “FCR”, or “feed conversion rate,” to explain low yields, or they might invoke an ecosystem to explain the accumulation of chemicals that should have been “absorbed.”

The understandings of salmon and environment that salmon farmers use to produce a marketable “product” transcend the local contexts of the particular salmon farms I visited. Other resource use and extraction industries, like fishing and nuclear waste storage, to name just two, seem to rely on much the same type of ecological thought as salmon farming. This is not surprising, given that all these industries are part of the same collective, a collective in which money is a trophic level and non-human entities can do “work” to produce things. Salmon farmers talk about ocean currents in much the same way as they talk about the rise and fall of markets for their
fish; low fish prices can be just as much part of the eco-“system” as seal predation or episodes of toxic algal growth. Fish who choose a particular pellet size are thought to behave just as “optimally” as workers who cull small, slow-growing fish. Nature is therefore not an outside world, but an extension of salmon farmers and their social worlds.

Salmon farmers appear to fear that they might lose access to an objective “reality” made up of fish, marine food webs, and the cellular processes occurring inside the bodies of fish. Yet at the same time salmon farmers are horrified at the thought that those outside “things” might take over their valuable investments in the form of disease, predation, slow growth, or wrongly timed maturation. These sorts of fears are typical, Latour says, of people whose culture tries to radically separate nature and society. The more desperate fish farmers become in their attempts to disentangle the threads that weave together environment and people, the more complicated and convoluted those linkages become.


13 See note 1 above.
CHAPTER 8. SALMON FARMING AND THE PRODUCTION OF PLACE

INTRODUCTION

Salmon farming takes place at net pen sites and in individual bays, inlets, and regions of the BC coast that are deeply contested. When it became clear in the fall of 2002 that pink salmon were returning in record low numbers to streams in the Broughton Archipelago, it was the siting of farms on that particular part of the coast, and not farming practices per se, that raised the ire of environmentalists. Salmon farmers had long been pushing for access to additional ocean sites when the moratorium on the spatial expansion of the industry was lifted in 2001. In fact, salmon farmers see sites as *themselves* management tools: “that’s why there’s a push for more leases, ... it’s just to manage our sites better” (Derek Woods). All of these discussions over place “take place” within a context of territories historically owned by particular groups of First Nations people, but to which others are increasingly laying claim.

The idea that place is at the center of many contemporary social struggles has been around ever since Lefebvre, Soja, and others began to question the traditional division of labor between geographers and sociologists. Particularly in the urban landscape, place has been seen by these authors to be both produced and itself producing. The industrial parks, ghettos, suburbs, and neighborhoods of cities, while themselves subject to external constraints, never cease to invent new spaces of interaction and new modes of existence for capital. The restlessness seen in the rapid expansions, reorganizations, and eventual abandonment of urban areas is now also being observed in rural regions. Rudel, for example, found that forestry in remote
tropical areas creates an ever-changing patchwork of clear-cuts, regeneration, and worker settlements.  
Salmon farming too began in one area, the Sunshine Coast, moved to others on the central and west coasts of Vancouver Island, and additionally moves continually between individual sites. In its wake salmon farming leaves new biological and social arrangements.

This chapter focuses first on environmentalists and then goes on to discuss various First Nations’ and industrial understandings of place. Clashes over space represent boundaries between the various meanings of resources, whether those resources are local clam beds or the distant southern ocean habitat of “feeder fish”. Therefore, I treat the space of salmon farming not as a mere stage on which the controversy over the industry is played out. Instead, I take the stance of Ericksen, that people act toward places based on the meaning of those places. In this regard, space is an active player in social interaction, with people acting in and through their physical worlds. Environmentalists, First Nations, and salmon farmers in British Columbia are engaged in an ongoing conversation between themselves and the ocean environment.

ENVIRONMENTALISTS AND PLACE

Landscapes of change

For many environmentalists, the issue of salmon farming evokes a sense of all-encompassing dread. There are fears that escaped Atlantic salmon will act as many exotic, introduced species have in the past, by taking over habitat and finally displacing the Pacific species. As well, the medications and nutrients in feed are
thought to affect "huge marine environments. Because things are so transferable through the water. One mistake and that could kill off the ecosystem of an entire area" (Kate Shaw). For Ulrich Beck, who has written much about the "risk society," we live in a landscape of anxieties, in which dangers lurk around every corner and we can go nowhere without experiencing an omnipresent sense of risk and doom. This state of affairs, Beck says, has come about because we can no longer spatially escape modern-day risks like smog, climate change, ecosystem destruction, and the movement of contaminants through our food chains.

Indeed, despite the tons of farmed salmon harvested from fish farms every year, and the promise of even greater production in the years to come, this new industry causes many people of coastal Vancouver Island to experience great insecurity. The landscape of salmon farming is shifting and transitory, because the unstable relations between local people and outside investors become mapped directly onto the landscape:

They [corporations] are based elsewhere and the shareholders are elsewhere, so they're not accountable locally. They have confidence that they can relocate. Of course, it's more complicated than that, but the issue of not being accountable locally - a smaller company doesn't have that problem. (Melanie Nordstrom)

Large financial contexts, represented by oceanic levels of space, become concentrated in local areas. One of these areas is the Broughton Archipelago - the region with probably the highest density of salmon farms anywhere in British Columbia. This condensation of space is for Kate Shaw inherently unstable and unbalanced. She knows this because she can see what happens when investment touches down in an area like the Broughton Archipelago:
I think to me the environmental concerns are obvious in that wild salmon are in
the ocean, the huge vast ocean, and they have problems too, they get sick, but
its such a huge area that they have room to die off, whereas these fish are being
raised in a very concentrated area ... and it becomes more and more obvious
that that’s a real imbalance of nature.

Salmon farming therefore represents an economic transformation as much as it
represents the dislocation of place, people, and animals. “Often, [the fish farms] move
around,” which makes it hard for Cathy Blake to “keep track”: “I don’t have a mental
map of where the sites are.” The farming of Atlantic salmon in Pacific waters
rearranges places with profound consequences for people’s ability to act. Cathy Blake
said that people are “walking into grocery stores in Vancouver and saying I want wild
salmon, and they know when it says Atlantic salmon that it’s farmed, obviously it’s
farmed, because we live in the Pacific Ocean, we don’t live in the Atlantic Ocean,
right?” Because “95% of our farmed salmon from BC actually go to the States,” these
local actions can have limited meaning. Larger regional and even global economic
conflicts are dramas that are played out in local contexts: “instead of closing down the
aquaculture, they’ll just close us down. The fishery, the commercial fishery, is right in
that area.” These kinds of spatial invasions and rearrangements reduce, as Leslie Hill
said, “a great deal of [your] ability to maneuver politically.”

Effectively, other coasts and countries have invaded the experience of local
people in the form of new markets, exotic species and shifted boundaries. Even far
away oceans are intensely known and are considered to be active participants in social
life. This degree of felt proximity is not altogether surprising, given that places once
known to be elsewhere suddenly crop up in the most unlikely of spots. East becomes
west, north becomes south, and the result is destruction, fragmentation, and alienation
from places that people formerly knew as their own. Larry Ortiz, of the David Suzuki
Foundation, for example, said that the biggest problem with feeding fish pellets to
Atlantic salmon is that

you’re fishing off third world countries, where they could probably use the
protein and crop down those oceans, devastate those fisheries to create salmon
up here. ... it’s also a matter of concentrating tons of fish and then bringing the
contaminants into a small area.

The inversion of night and day, and food and predators, are just some of ways in which
netpens, floathouses, and marine tenures transform places. The problem begins when
“the lights attract the wild fry, and so they swim through the nets, and get chomped on
or infested by Atlantics.” Fish farms also confuse “clean” areas with “dirty” ones, and
internal and external places:

They [the fish farmers] are out there in clean bays rinsing their nets. ... We’ve
know about [the medications] for a long time. Ivormectin is a sheep lice and
tick dip, but they feed it to fish. It’s meant for external use, definitely not
meant to be for your use internally. (Ruth Phillips)

To these industry opponents, the coastal British Columbia landscape becomes
fragmented by the same forces of capital that have allowed the postmodern cityscape
of Los Angeles to be “limitless and constantly in motion, never still enough to
encompass, too filled with ‘other spaces’ to be informatively described.”6 Being
constantly in transition is an inescapable part of contemporary life in rural coastal areas
as in the city. New investment substantially reorders people’s landscapes of
experience. Zukin terms this kind of recurrent innovation “creative destruction,”
because it occurs through the constant reordering of consumption, production, and
investment; everywhere there is growth amid decay, and global places are found
everywhere and nowhere at the same time.7
Moreover, the energy of these places appears never to dissipate. Fish farms are not only the end product of destruction, but themselves unleash new forces of change. Melanie Nordstrom is concerned about “the impact of having a lot of fish in a small area, and then when there’s an outbreak, it’s on a scale so big that you can’t contain it.” Environmentalists like her often point out that fish farms transform space in fundamental ways by breaking old boundaries of place and creating new ones. Through the devices and techniques they employ, fish farmers rearrange places by placing animals, chemicals, and diseases into new associations. These new partitions themselves work to create new pathways for movement within landscapes.

One instance in which this might occur is when concentrations of fish in net pens infect wild fish passing down migratory routes. In that case, fish feed accumulates and magnifies the contaminants and nutrients from southern oceans in northern waters only to be dispersed again to local species. According to Cathy Blake, the routes taken by investment through the marine landscape are mirrored in the discontinuities in government responsibility for salmon farming: “As it is now, we don’t even have a Minister of Environment, we have a Minister of Land, Air, and Water. … The bottom of the ocean is provincial, the water is federal, and beaches and the land is provincial.” This understanding of space utterly fails to address her “worry about diseased fish escaping, and then the creatures that depend on those fish, and it just sort of, it affects the whole chain.” Fish farms are thought to contain within them the seeds for spatial changes of the sort initiated by the salmon farming industry. Fish farms, once a product, thereby become a stage on which other industries are acted out:

If you don’t have a wild fishery, you don’t have to worry about seismic testing. Stolts, in Norway, is an oil baron. Why does he want to go broke doing fish
farming here, losing fish to IHN? He wants those industrial permits. (Ruth Phillips)

Place and placelessness

The sorts of experiences detailed above appear to indicate that the consumption of place by fish farming has strong implications for the ways in which the industry is understood by environmentalists. The new landscape of coastal British Columbia, which includes fish farms, leaves many people with only shallow opportunities for experience. Ruth Philips lamented that “people don’t know the difference between the species – they don’t know where it comes from. Consumers need to know what they’re being fed, how they’re raised, and that other stocks are being used to feed those fish.” Those who promote salmon farming in the name of “jobs”, Melanie Nordstrom said, are thinking about the industry on what she calls a “superficial level. ... It also doesn’t account for the fact that this company is a multinational and that it will move. ... It’s not long term stability. The environment is being destroyed for some immediate financial gain.”

Salmon are important to British Columbians, Melanie Nordstrom said, only as icons – icons that could be from anywhere, and refer to almost anything. “I think salmon as an icon has grown in importance as tourism has grown. ... I can see the actual commodity [farmed salmon] being sold due to some association with wild salmon, but it would be the result of clever marketing. ... They think because it’s from BC it’s wild and natural BC salmon.” Icons pre-package fashionable, standardized experiences of British Columbia into icons: “the icon for the air is the eagle, the icon
for the land is the grizzly, and the icon for the water here in BC is the salmon” (Larry Ortiz).

Salmon farm siting criteria turn coastal areas into what Relph calls “places of technique”8 -- mere locations that may or may not be suitable for a particular purpose, in this case, salmon farming. Siting becomes a technical matter, and according to Ed Blumes, “[The Ministry of Sustainable Resource Management] is the provincial ministry that is the one that is setting the guidelines for siting although the actual guidelines are actually enforced and interpreted by Land and Water BC.” Kate Shaw also regularly sees fish farm applications that have been approved according to government siting criteria: “about 6 months ago a siting issue went through that has abalone in it ... and I said what about this piece, and he said, ‘they only found one abalone, and we [provincial government] just told them [the salmon farming company] that they’re not allowed to use the beach, that they need to stay out deep.’ Well, of course they’re going to use the beach, I mean, how do you not use the beach?”

Like the city planner, the salmon farmer can “using his battery of principles and techniques, proceed to create places in a way that is quite divorced from how he experiences them; their creation is achieved objectively and through mass-production, while his experiences are direct and individual.”9 Government planning turns coastal areas into places that are physically alienated from the experience of those who live there: “The provincial government is looking at taking parts of our foreshore waters, the south coast particularly, and moving them into the agricultural land reserve. Strengthening the Right to Farm Act, I assume to include aquaculture, would circumvent any local input” (Ed Blumes). For him, “this is a clear case of large
multinationals coming in, not even in the country, it doesn’t even matter what country it is, they’re not from the local area.”

Paradoxically then, we can therefore look for the source of placelessness in the actual managed and “sited” places of fish farming. However, many environmentalists look to those same places for a rejection of placeless and a reassertion of local places. By regaining more than just a casual, superficial involvement with places, people like Kate Shaw can reclaim their local places for themselves: “I believe that people are getting more and more back to eating, wanting to know where their food comes from, getting back into eating natural foods.” Ed Blumes does “grass-roots organizing among local people, informing people what’s going on” because “if there’s anything that I believe in in this flawed system [government oversight of fish farm siting] that we have, unless you change the whole thing, one of the things you can do with the system is to give more control to local people over their resources.” Beck may be right when he says that technocratic discussions hide the “relations of definition” and thereby constrain social negotiation. If this is the case, then a focus on particular place lets environmentalists confront the assumptions that have been smuggled in – questions about what constitutes “proof” and who bears its burden. Ed Blumes wants to ask the salmon farming company that intended to put 3 farms in Bute Inlet: “whose risk are you talking about when you’re messing with our coastal waters?”

FIRST NATIONS AND PLACE

Displaced places

The conflicts between First Nations’ people and the salmon farming industry are continuous with the spatial confrontations resulting from other settler industries, like
canneries, mines, ranches and farms. Reserves were originally designed to provide access to fish, but as already discussed in chapter 1, the allotment of reserves seems to have only further prevented aboriginal people from accessing their fishing places. As Douglas Harris has pointed out, the lack of recognition for the territorial nature of aboriginal fishing rights has led the courts to dismiss many First Nations’ claims to commercial fisheries.\textsuperscript{11} The idea that commercial aboriginal fishing is “without internal limitation”\textsuperscript{12} denies the territoriality of aboriginal people and thereby their own ways of understanding and directing the flow of material benefits from those fishing places.

In most cases, fish farm sites are allocated by the provincial government despite the express opposition of the local Native people. With the upswing in aquaculture activity in the Namgis and Ahousaht territories, the connection between the places in which people live and their resources is becoming increasingly eroded. For the aboriginal people living on the reserves in Alert Bay and Ahousaht, salmon farming takes place not in a peripheral wilderness somewhere, but at the very center of their worlds. Even when they are not in their boats, people from these communities viewed salmon farms from their their clam beds, fishing spots, rivers, and streams. Gerry Daniel of Ahousaht would rather have a fish farm closer to the reserve than anywhere near his clam beaches:

Well that Millar farm, I don’t really like that one there because there’s clam beach right beside it. Across it, there’s a wild salmon stream, and clam beaches and Rocks Pass has clam beaches all over it. ... If they move it down here [towards the village] a bit, it’ll be away from the clam beaches. There used to be mussels, I mean oysters, on that beach. You can see all the clam shells, they’re still there.

When Rodney Morris, Dorian Hanes, and Barry Whitlock from the Kwakiutl Territorial Fisheries Commission took me out on their boat, it was obvious that they
were at home on the water. As they drove the boat easily and confidently through the maze of little islands that make up the Broughton Archipelago, they pointed out the fishing areas important to their families. Even spots that were over an hour’s travel from the reserve were known with great detail. One such spot was near Humphrey’s Rock at Viscount Island. We stopped there to investigate the site of a proposed fish farm:

This is where they want to put a site, and another one right over there. There’s prawns here, and I’ve also fished for halibut here. Thompson Sound has major pink and chum runs, and they travel right through here to get there. That bay over there is where they [the pink salmon] all hole up before they go into Thompson Sound. (Rodney Morris)

This type of detailed knowledge of place seems to focus on the displacement of particular places that are well understood and well used. Just as in the experience of environmentalists, the places of the Ahousaht and Namgis people are in a constant state of change and rearrangement. The influx of investment, in the form of fish farms, has brought profound changes to the local places:

Well you look at the surf scoters, our people eat hundreds, if not thousands a year, eh? Why is it they used to all congregate in Cypre Bay? You used to go there and knock a few over. Now they’re outside on Morphy Island and Vargis Island to Monk’s Island when they used to all be in this bay. And why is there no herring spawn in the fish farm areas? We know they migrate through the areas, but why do they not spawn near a farm? (Dan Cummings, Ahousaht)

Fishing is an activity that happens in places very different from those of fish farming, and so the wild fishery is easily displaced. Although there are still lots of “beaches” in the Broughton Archipelago, used by the fish farmers primarily for storage and anchoring, the “clambeds” are disappearing. Rodney Morris from Alert Bay said that “some of the clam diggers [he has] talked to said that they go to these beaches that used to be prime commercial clam beds, so they can go and dig. They go there and
there’s nothing.” To him, fish farming has substantially rearranged his places and turned them into places he no longer understands: “The beaches stink and have a sewer-like smell, and they’re close to the fish farm. They say that when they fallow out that the water washes out all that stuff, but that’s stuff’s gotta go somewhere! It goes to the clambeds.” Similarly, fish are diverted to different places: “Our fish pass by those pens,” said Raymond Thurlow. “We used to get 5000 dog salmon and the next year it was 2000, and 1600 last year. They’re not making a comeback like they used to. There’s no more Japanese drift nets and they’re still not coming back.”

Braun\textsuperscript{13} found that First Nations people have become marginalized from their places specifically because of the ways in which colonial thought depends on two separate geographies: one for people, especially indigenous people, and one for wild and untouched “nature.” Whereas the places beyond the reserve boundaries are for Native people known and used cultural landscapes, those same spaces are for fish farmers an otherwise empty physical landscape filled with resources waiting to be used. The Ahousaht and Namgis I spoke with asserted not only their ongoing presence on north and west coast Vancouver Island waters, but also pointed out that technical landscapes privilege certain representations of space over others.

For some local, aboriginal fishers, for example, aquaculture contacts the wild fishery along the migration paths of wild salmon, and in the process forms new associations between fish, movement, diseases, and people. Rodney Morris has observed that “these fish farms are, they’re in direct paths and in bays where all the fry and smolts come out of the streams, where they pool up, school up, before they head out to the ocean, and they’re always in there in the pens.” In this way, fish farms act as
a continual reminder to Morris that aboriginal territories are being occupied by outsiders, and generally map out the relationships between fish farmers and fishers. The conflict between the two industries happens at the level of places: the bays and inlets of fish farm tenures, migration routes, clam beaches, and fishing grounds. Such disagreements over what kinds of places fish farming takes place in are just a small part of more general conflicts over rights and title. Daniel Morris' (Alert Bay) clam digging puts his beach into conflict with the nearby fish farm:

> What I'm wondering about, why did they move in, without permission from the big people, like a big chief or something like that. Why don't they talk about it first, before they move in. And that's how I feel. I get all wrapped up thinking about it, when I go clam digging for food of our own, and I see a fish farm there, and what kind of clams we got now, across from the fish farm. I know the poison come to our beach where we clam dig.

The problem for Morris, like many others, is that First Nations territories are continually being remade and reshaped through the invention of new industries:

> “We’ve been trying to fight them to get out of our land, our native land. All these years when they first started to move into our land, they were taking over. ... They move in too, for crab, seafood all that, and they’re trying to take over too…” (Daniel Morris, Alert Bay).

Taking control of ‘creative destruction’

As indicated by Daniel Morris, the arrival of the fish farming industry is only the most recent of a series of waves of changes that have swept across Ahousaht and Namgis territories. The “creative destruction” of capital continually revamps the landscape by making room for new investment. Oscar Simms (Ahousaht) chronicles some of the changes that have occurred in his lifetime:
I first went out [fishing] when I was 13. I was born in 1928. It was really a free country back then, you didn’t need a license or anything to get everything you needed for one dollar. ... Now it’s so much red tape, it’s the worst one too, people starving in their own territory. ... A Norwegian built my boat in 1978, and they like to talk about fish, same as us, they like to live on fish. He was saying how they invented the beam trawler over there. Those just cleaned the bottom of the ocean, they cleaned what the fish was feeding on, and the wild fish disappeared. In ’55 is when they invented the beam trawler. After that they started a fish farm ... My son was out on a beam trawler, and he said there’s all kinds of ling cods and little halibut in there, and the krill was just raked up by the beam trawlers. And there used to be a lot of fish called pilchards. But in the 1960s, the reduction fishery, they burnt it all up to fertilize, make fertilizer. Our history says it disappears every generation, and its back now.

Both the Ahousaht and the Namgis are determined to not become consumed by changes, but rather to take charge of the directions in which their communities are being pulled. This means that Native people will not be the ones to clean up the “messes” other industries have left, but rather, that they will themselves be in charge of changes to their territories. As Barry Whitlock (Alert Bay) put it: “They think they’re doing us a favor by relocating, but they just leave the damage behind. They want to give us basically six beaches to dig clams for food and ceremonial purposes.” For many Ahousaht people, taking charge of change means creatively using the constraints imposed by salmon farm investment to rebuild their own places:

Yeah, well you gotta look at yesterday’s meeting, and you start looking at tenures, and a tenure is up for a million dollars, and then I’m saying, okay, do you believe in balance? Yes I do, he said. Okay, if that’s the case, then Ahousaht has lost out for 11, 12 years where you tenure has been, where your farm has been, are you going to look at that? All of that displacement of food gathering areas, eh? (Dan Cummings, Ahousaht)

Places, even substantially changed places, provide opportunities for people to assert themselves. Even though fish farms dot their marine landscape, First Nations people continue to fish and clam to the best of their ability. However, the fish farming industry substantially limits their participation in the local resources and people like
Charles Foley are determined to take charge of the spatial reshaping of their territories. Fish farms, he believes, might provide some possibilities for the rebuilding of local salmon stocks. This is why he has “suggested to people to go in the hatchery business. If we can do [grow] our local chinooks, we can enhance our local rivers with that. If the fish farms can set up a hatchery for us, we can run it.” Charles Foley’s places are definitely not external conditions to which he adapts. On the contrary, he wants to recreate and reshape the streams, rivers, and bays that are the domain of salmon farmers.

Simon Lucas said at the signing of the protocol agreement between Ahousaht and Pacific National Aquaculture that his people are not afraid of change, and that, in fact, they participated in a lot of change in one lifetime: “we worked in canneries all up and down the coast, then we had fish camps, where we sold our fish, and then we started icing our own fish, going out, getting hired to find the fish.” But every time, his people were not directing or controlling that change. “We were strangers in our own land,” he says, “but maybe now that’s changing.”

The way of self-determination is filled with problems. Native fish farm workers want to take possession of “creative destruction”; they want to “make it to the top” but the problem is “you got to do this for years, like me handling the morts” (Michael James, Ahousaht). He suggests that by working from within, he and other workers can take control of the new places being created within his people’s territory: “Like if we work together, it would make the farm run a lot better. It just seems like they [white people] don’t want to get their hands dirty, and it seems like that’s all we’re good for.” Charles Foley, whose son is also a worker on a fish farm says that “if...
we make the environment safe for fish farming to be here, there’s nothing wrong with that because there’s always changes being made. We always adapt to changes in our lives.”

Rebuilding places around people

As we have seen, places are active agents, tools through which people can overcome rearrangements and dislocations to their local places. Places are not only oppressive forces of control, but agents of liberation and creative change. In this way, places have the capacity to supercede the individual powers of either people or the physical environment. This is because the places surrounding the reserves at Alert Bay and Ahousaht are joint homelands – the homelands of people and animals. For Gerry Daniel of Ahousaht, there is no difference between an impact on places and an impact on people. I asked him about whether he thought his band’s agreement with the fish farming company would lead to greater dependence on the company as an employer, thereby making it more difficult for the band administration to shut down the farms. “No,” he said, “They’d put their territory before that. Protect their territory, because that’s their full resource, their territory, the next generation is coming from that” [emphasis added]. For Francine Simms (Ahousaht) too, people emerge from places, and the kind of place something is – whether or not it is “home” or not – depends on its inhabitants. “They asked me to work on a salmon farm,” she said, “but I don’t want to provide something that isn’t real. The salmon from the fish farm, they have nowhere to go. It’s not the same as natural fish would do. They have a place to call home, to go feed in.”
For the Namgis people as well as for the Ahousaht people, people and places transform themselves into one another through knowledge and use. In one version of the creation story of the Namgis, told by Dan Cranmer in 1930, the Transformer asks Gwa’nalalis if he would like to become a river. He agrees, and the Transformer says: "There, friend, you will be a river and many kinds of salmon will come to you to provide food for your descendants for as long as the days shall down in the world. And so, the man Gwa’nalalis became the river, Gwa’ni." Changes in form between people, their knowledge, and the fish are also a present-day reality. Daniel Morris, an elder in Ahousaht, says that for the salmon to come to his land, he must teach the younger generation about the fish and how to harvest it.

We don’t have to go through high school and education and all that to get the fish going through our land. … I just sit here and talk to my younger boys and my younger grandkids, and all that, and I teach them about it, the fishing and the salmon, but don’t ever think about this fish farm. Yeah, you can get jobs for the fish farm work, but no, you don’t learn nothing out of that.

The land is the place where people’s future, present, and past come together. Fish, moving in and out of the watersheds, the estuaries and the open ocean bring with them waves of change. One of these changes, Daniel Morris said, will come when more escaped farmed fish begin spawning in nearby rivers and streams, gradually taking them over, and in the process, taking over his community’s ancestors and descendants:

And that’s going to be more farm fish coming through our land for our Native future. And we won’t be here when it’s going to happen, and it’s going to happen to our young people. And it will happen to our salmon, to our dead, and the fish farms taking over for the land, the fish they got.”

However, neither Daniel Morris nor the others I interviewed in Alert Bay and Ahousaht were entirely fatalistic in their view of the region. A great deal of knowledge inheres in the places that remain, and that knowledge can be put to use in
constructive, rather than destructive, ways. "We work together with it [the salmon]," said Daniel Morris. Even those who work on the salmon farms near Ahousaht work with places. Gerry Daniel knows there are big differences between the local workers and those who are brought in from the outside. "You notice the difference out there with the non-Ahousaht workers. The non-Ahousaht worker will wait until the fog lifts, whereas the Ahousaht worker will just take off and go to his site, he knows where it is. He knows the compass, he knows the territory." Both Clayoquot Sound and the Broughton Archipelago are filled with fish spawning, feeding and migratory areas; those spots are not mere locations, but are named and known participants in productive activity.

Particular places are a source of strength that carries over from historic times. Dan Cummings put it this way: "I'd consider ourselves pretty wealthy when it comes to aquatic resources we utilize. ... I think we shouldn't forget that prior to contact of white people there was bloodshed over some of these territories. I think that's why we're so adamant about protecting them." This may be in part because the places his people know provide them with local units of production over which they can have control. Francine Simms from Ahousaht has throughout her life moved back and forth between the reserve at Ahousaht and the town of Port Alberni. Finally, she moved back to Ahousaht: "My grandmother and grandfather taught us what belonged to us Natives."
THE PLACES OF THE SALMON FARMING INDUSTRY

The construction of sites

The net pen sites of salmon farming are not so much there, waiting to be found, as they are constructed by the salmon farmers who put them to use. In fact, the production managers and company biologists I spoke to began putting together the farm sites long before the walkways and other floating structures were put into place. The fragments that company managers must mobilize in order to create a workable fish farm need to be gathered up from the environment and then assembled in ways that further the productive ends of the site. Currents, temperatures, dissolved oxygen concentrations, and salinities are all factors that need to be enclosed and put to work in a farm site, and this process is itself a form of production. According to Derek Woods,

Finding a site is hard, you have to spend a lot of time to research that site, because before you’re going to spend the capital, because it costs anywhere from two and a half to three and a half million dollars to put a site out there. ... we have contractors, we have people here [in the company], and that’s all they do is trying to find areas that meet all the criteria. And there’s huge lists.

At first, a proposed fish farm is a blank slate, an empty net pen into which the necessary environmental factors gradually get dumped. It takes a great deal of time to “investigate all the criteria that you need, because if you don’t ... know a lot of the environmental conditions that are going on, then you have some troubles trying to grow salmon there” (Derek Woods). An application for a new ocean net pen site is gradually “put together; ... an application is about two volumes, it’s about two inches thick, .. and then depending on the site, there’s a number of things you have to look at” (Michael Ayres). In the process, these “things” are sometimes marked not for inclusion into a site, but for exclusion from a site: “One [thing] is obviously the
foreshore and what types of environments ... you're looking at sensitive fish habitat, and you're looking at species at risk to make sure they're not there or they're an appropriate distance away” (Michael Ayres). Carl Haines’ ability to include useful environmental entities is coupled with an ability to exclude those he deems destructive to his productive project: “Yes, mother nature will throw plankton at us, low DOs, but there are ways to mitigate.” As Ted Boyd put it, “today a lot more technology goes into it, ... we look for the things we want, which is good flushing, we want good a temperature regime.”

At one company, records of monthly, weekly, or even daily and hourly readings of various biophysical indicators are accumulated and then entered into a model. Although Roger Mackinson can “just look at a place that I think would have good flow of water, good flushing,” he can’t be sure until he calls an engineering firm and “give[s] them the current data, the wind data, those things, biophysical data, and they take it back and turn it into their equations.” The results, he says, tells him whether a site can go into the proposed location, and if so, how it should be anchored. At this point, however, the environmental “factors” have already been technologized. Currents, for example, are not water-masses pure and simple, but chartable and predictable movements of energy through the salmon farming landscape. They are described in ways that correspond closely with the choices salmon farming companies make in choosing what sites and regions to invest in. Some currents will rip holes in nets or wash away feed pellets too quickly, while others ensure that wastes are dispersed. The organization of salmon farming – with its many engineers, oceanographers, veterinarians, and biologists – socializes the physical environment
into manageable and spatially combinable factors. Planning in the form of calculations can counter the force of these “natural” factors that threaten the success of a salmon farm. As a consequence, salmon farming sites become part of an integrated, “organic machine” in much the same way as the salmon hatcheries Richard White describes on the Columbia River.15

Now safely enclosed, those captured factors can be put to work. For Carl Haines, harnessing the creative potential of these factors is one of the most appealing parts of salmon farming. “The fact that I can use currents and the moon to generate tides to create an environment in which I can grow salmon, I don’t have to pump all that water, to me, is sustainable green technology.” And although First Nations are generally a factor to be excluded – “we have to take First Nations into consideration, both Indian reserves or traditional clam digging beds or sacred trees” (Derek Woods) – the places they know about are also put to work in the service of salmon farming: “we’ve been working with a First Nations group on the North Coast, and looking at sites and putting application together, and our understanding of salmon migration areas and salmon holding areas ... come almost exclusively from the community whose territory we work on” (Michael Ayres).

At the end of a growing cycle, many millions of fish can be harvested from a single net pen site. This observation seems to suggest great success in enclosing all the relevant factors needed to raise salmon in captivity. Carl Haines comments on this directly when contrasts salmon farming with the wild fishery:

The whole life cycle of the salmon, we have more control over it in the sense that if I make a wrong calculation, and I don’t keep enough brood fish, it’s not like a salmon river where somebody says, oops, oh, the escapement is way too low, I guess I shouldn’t have let you fish so much. ... As long as I’m doing my
math correctly, I can see all those fish, I can count them all, I know how many brood I’ve sorted, I have a pretty good idea of how many will mature each year.

In the past, salmon farmers were at the mercy of places; they were constrained by the characteristics of particular sites. But increasingly, the temperatures, winds, salinities, benthic and other characteristics can be extracted from their locations and moved elsewhere. Using a system of tarps and diffusers, Carl Haines can keep deoxygenated water out of his pen system and pull oxygenated water into the pens from below. This and other advances in fish farming techniques have made fish farming places ever more fixed in space: “Fifteen years ago ... we would have been trying to tow cage systems. The crazy things we used to do to try and save fish.”

Indeed, salmon farms have managed to round up, within just a few industrial facilities, all the life stages of the Atlantic salmon. In this sense, aquaculture has only extended the spatial enclosure of salmon rearing, migration, and spawning made possible through the salmonid “enhancement” programs throughout the Pacific Northwest. Taylor described how hatcheries in Oregon gradually collapsed the spatial requirements of salmon by locating hatcheries further downstream, creating holding areas in which migrating fish would remain until maturity, and acquiring eggs from a few remaining large rivers.16 Salmon farms have expanded the geographical reach of hatcheries to enclose not just spawning streams, but also migration routes, ocean rearing areas, and fishing spots. Nevertheless, these newly constructed salmon farms appear to hang in a fragile balance of construction and deconstruction. When leaks in the boundaries of the fish farm arise, it is only further fragmentation that can come to terms with the rupture in the integrity of the site. Periodically, diseases break out at farm sites, and production managers deal with those situations by monitoring – taking
“data” – at an increasingly detailed level. Michael Ayres said that if his company’s sites were faced with infestations of sea lice, he would be forced to increase his monitoring activities: “I’m talking about monitoring our fish, so that if there was, you know, a limit set, like number of lice per fish, or number of lice per gram of fish, you could then monitor and then have a look to see at how those levels are building or declining.” Along the same lines, Julie Henning spends “ten thousand [dollars] a site getting them analyzed every year for integrity of the system and whatnot, whereas that wasn’t done ten years ago.” By integrity, she means “the actual floating structure that holds the nets in place. This is what causes the most escapes in the past, is you would get a storm and it would break up, or you’d get a really strong tide and it wouldn’t be able to handle the tide and the actual system would fall apart.”

This kind of “analysis for integrity” is in fact happening on the farm site all the time. The boundaries of fish farms have come to enclose so many factors that those boundaries must constantly be renegotiated. Many of these factors, as well as their byproducts, must be brought back in, others temporarily or permanently excluded. This involves, paradoxically, a continual dissection of the integrity of the farm site in the shape of measurements and numerical analysis on the one hand, and physical compartmentalization on the other. Waste, for example, is released from net pens both in the form of fish feces and feed pellets. The disjuncture between claims of total ecological enclosure, and the obvious interest on the part of fish farmers to seek out sites with currents that can “flush” or “disperse” wastes away from the site, is spatially apparent. Farm boundaries must enclose waste, disease, and oxygen, while allowing those some factors, at other times, to travel readily across net pen or farm site
boundaries. In the case of wastes, Ted Boyd said, there is a “zone of impact” around a fish farm where monitoring takes place on an ongoing basis: “They say you need to measure your impact out x amount of meters from your site. What they’re looking for is how far the impact reaches away from the site — … the government says … if your inputs are this, your flow is this and your temperature is this, you will have an impact of x here an impact of y and z there.” These detailed measurements of hydrogen sulfide levels are what Julie Henning called “maintaining all the legalities of each lease.”

Place as equivalent to farming space

When fish farmers say, as they often do, that they “can’t grow fish in a place that’s not a good place for fish, … so it would be futile for [them] to destruct [their] own farming area” (Roger Mackinson), they are simply stating that the places they know about are farming places. Given the right combination of physical and biological factors, every place is a potential site of salmon farming. Details of location, prior use, or surrounding biological or human communities fade into the background as standardized regulations and procedures take over. Sites come with “user manuals” where “everything is outlined, so there’s no questions. So that the guy or people that are actually managing that site, it’s like a manual, it’s basically a user manual for that site” (Derek Woods). Similarly, the choice of hydrogen sulfide concentration as an indicator of waste impacts underneath the fish farms was made specifically to address the “wide range of different current speed type sites, like low speed, medium, high speed currents, different types of substrate on the bottom” (Carl
Haines). Once places have been made homogeneous in this way, they can be acted on and mobilized as forces in the production of farmed fish.

It comes as no surprise then, that the management plan is the operational plan; farm “best management practices,” while claiming to have general applicability in maintaining the integrity of coastal places, are actually designed around the particular kind of place found at fish farm sites. Sediment sampling, for example, takes place right at the time at which farmed fish are most valuable:

with our environmental monitoring, with our sediment monitoring, I think government right now is asking to do it once, definitely 30 days before peak production. ... Peak production would be when the fish are at their largest that we want them to be, and when we’re going to harvest. (Roger Mackinson)

For Ted Boyd too, a “high impacted site” is one that could potentially destroy his crop of fish through disease. He is not sure why hydrogen sulfide is used as a proxy for damage to the benthos – “the sulfide is what turns anaerobic, that’s all I know ... to me it’s extremely scientific” – but he does know that anaerobic conditions can negatively affect his fish: “if you have a high impacted site with lots of anaerobic bacteria, you will get a higher disease loading in that particular place.”

Environmental monitoring, Julie Henning said, is her company’s biggest cost, after feed. And there is good reason for this. One of her company’s sites seemed to have “really good currents,” but “until the current meters went in and we did an analysis of it, it’s a circular current, ... not really flushing out ... which lowers our productivity” (Julie Henning). Monitoring, done in the name of environmental responsibility and all places, actually equates place with fish farming place. This was articulated most clearly by Ted Boyd, who said that he considers himself a “practical,
working environmentalist. I care about what happens on salmon farms because I am a salmon farmer.”

As far as salmon farmers are concerned, fish farming places are knowable in empirical and concrete ways, whereas non-farming places are theoretical, abstract, and only vaguely knowable. It is the boundaries of the ocean tenures that circumscribe knowledge of coastal places and divide what is known from what may never be surely known. Derek Woods, a production manager, claimed that because disease transfer is not in the best interest of the company, it is impossible for fish farms to be located on the migration routes of wild salmon: “how are you going to make money off a diseased fish, because they either die or you have to spend money medicating them. ... You don’t want them right on a migratory route.” At the farm site, salmon farmers frequently remove slow swimming or dead fish using a dip net. This is how Derek Woods knows that “if it’s a slow swimmer, it’s a lice collector ... you can go out and catch that particular fish with a dip net, it’s going to be laced with lice.” From his experience on the fish farm, he extrapolates to the wild, where he believes wild fish kill only already sick, slow-moving fish.”

The environment, in all its generality and placelessness, is therefore known only through the activities that take place on salmon farms. Roger Mackinson criticized the biologist John Volpe for getting “into stuff that he didn’t know anything about. ... He got into sediments... We’re doing a lot, we’re relocating farms to better sites, ... now you can put the systems cross current.” Having a fish farm imparts knowledge not just of the farm itself, but the environment that has been partially or wholly enclosed by that farm site. While Julie Henning knows that the First Nations in
the area "see it as their territory," she is disappointed that "they don't want any information" from the salmon farmers. She complains that when she does try to send them "information", they send it right back to her in protest. Like her understanding of the indigenous people in the area, the exterior of the farm is generally an untamed and unknown set of foreign forces that can be known by way of contrast with the technology of fish farms: "because we test our fish prior to going into the ocean, they don't have it [IHN disease]. And they get in there and it's an indigenous disease that's carried by herring ... and they're all around our system" (Julie Henning, my emphasis).

CONCLUSION

The salmon farming industry not only produces space in the form of net pens, ocean tenures, quarantine areas, and coastal farming regions, but it is also itself produced by those very places it claims to have created. My analysis has shown that it is the interactive, social context of salmon farming that allows places to become active agents in salmon farming. Indeed, change, destruction and reconstruction are persistent themes in the narratives of both salmon farmers and those First Nations and non-First Nations people who act against the industry.

As indicated by the production managers and the head biologists I interviewed, salmon farming places are put together out of meticulously arranged sets of environmental factors. Factors like light, species, currents, bottom type and tides are carefully marked for inclusion or exclusion. Furthermore, net pen structures or farming practices integrate with the chosen features to further compartmentalize the farming environment. This process coincides perfectly with the severe spatial
inversions and dislocations known by First Nations and environmentalists alike. Whereas for the purposes of salmon farmers, the ocean environment comes pre-fragmented in the form of production factors, others recognize the continual extraction of these factors from those places they fish and live in. It is precisely the places as they are known by fishers, and not as they exist “out there” that provide salmon farmers the raw materials for the construction of fish farming places. Not only do production managers openly admit that salmon farms are perfected outputters of fishermen’s “maximum economic yield”, but First Nations fishers notice that the industry uses up and displaces their fishing spots. In fact, First Nations people specifically point to the salmon canneries, the herring reduction fishery, and industrial fishing gear for providing the momentum for this most recent wave of change to their lives.

Fish farming ultimately relies on the raw materials present at fish spawning, hatching, migration and fishing grounds, and those places must be mitigated so that the productive factors present in those places remain intact. When salmon farmers monitor the “zone of impact” around their fish farms, they are not monitoring a blank, unknown environment. Instead they are focused on factors like nutrient and toxin levels already known to encourage disease and algal blooms. Salmon farmers are right to be concerned about their impacts, mostly because the construction of new spaces may set in motion forces destructive to their farming efforts. Factors that were formerly dispersed throughout the fishing landscape and are now agglomerated in net pens, and once released, those nutrients, pathogens, or chemicals could lead to unpredictable spatial rearrangements. This type of perpetual change was noted in
particular by environmental opponents of the salmon farming industry. The productivity of fish farming does not end with the output of salmon; in fact, they said, the farm is a source population for the colonization of regional streams, a reservoir of disease, and an attractant of fish populations formerly part of other biological communities.

So the boundaries of the fish farm must encompass all that is known about the environment, by marking all factors either for inclusion, exclusion, or manipulation. This coincides with the First Nation people's ways of talking about fishing places as part of a landscape of knowledge. In fact, clashes between First Nations people and fish farmers seem to often occur at the level of places known, for example, by fish farmers to be channels with low windspeeds unlikely to damage nets, and by others, as sheltered areas with abundant clam beds. The placelessness described by environmentalists in transformed landscapes therefore related directly to the ways in which salmon farmers seek to create standardized sites whose characteristics are the technical stuff of salmon farming. Industry opponents feel ousted from the places they formerly knew and used as the range of meanings used to understand the environment becomes restricted to the productive machinery of fish farms. As we saw in the preceding section, fish farmers readily impose their knowledge of salmon farms onto the surrounding environment. Detailed productive knowledge about the dynamics of production at fish farm sites is used to argue against the presence of impacts at other sites.

It is important to note, however, that although environmentalists and local First Nations people are left with what they understand to be mere fragments of their local
places, they are actively engaged in rebuilding their landscapes. This occurs in large part by understanding the transformations and inversions that have occurred in local places, and by being able to trace investment through time and space. For the Namgis and Ahousaht people in particular, places, even substantially changed places, allow them to assert their continued presence in a cultural landscape of knowledge and use. By understanding how capital has rearranged their landscapes since the time of contact, Native people can take hold of their landscapes and rid themselves of those colonial representations of space that marginalize or exclude them. Similarly, environmentalists are able to expose the large-scale implications of local net pen sites, thereby re-introducing questions about the relations of definition into environmental discourses. In these and other ways, salmon farming continues to re-invent space and provide new theatres for social interaction.


6 Soja, p. 222.


9 Relph., p. 88.

10 See note 5 above.

11 Douglas Harris, “Indigenous Territoriality in Canadian Courts, in Empty Box or Box of Treasures: Two Decades of Section 35 (Penticton, BC: Theytus Books, 2003), 175-194.


13 Bruce Braun, The Intemperate Rainforest: Nature, Culture and Power on Canada’s West Coast (Minneapolis: University of Minnesota, 2002).


CHAPTER 9. SALMON FARMING AND THE PRODUCTION OF NUMBERS: FIGURING, CALCULATING, AND RECORD-KEEPING AS TECHNIQUES OF POWER

Scene 1. An overheated room in the basement of the downtown Vancouver Public Library. The public forum on salmon farming is well into its third hour, and the presenters are seated facing the audience. Linda Sams, from Marine Harvest Canada and representing the BC Salmon Farmers’ Association, is seated between Bill Cranmer, elected chief of the Namgis First Nation, and John Volpe, an ecologist who works closely with the David Suzuki Foundation. In response to a question from the audience about escapes of farmed Atlantic salmon into the wild, a shouting match erupts between members of the panel. John Volpe reiterates his earlier statement, that he “takes issue” with the claim that farmed fish escape from their net pens in numbers too low to have an impact on wild stocks of Pacific salmon. For one thing, he says, the government’s Atlantic Salmon Watch program, on which the fish farmers base their claims of decreased numbers of escapes, is a passive reporting system that stands in contrast to the active survey methods employed by his colleague Alexandra Morton. Linda Sams retorts that escapes have gone down in numbers in recent years, and challenges him to find his higher numbers in journal articles. The administrator in charge of the Atlantic Salmon Watch program interjects, explaining that in 2001, First Nations workers were “trained” to survey rivers for Atlantic salmon, and that “over 389,000 salmonids were counted during the surveys, only two of which were Atlantic salmon.”
Scene 2. Kingcome Inlet, deep in the traditional territory of the Tsawataineuk people, now living on the Namgis First Nation reserve at Alert Bay. Two guardians from the Kwak'waka'wakw Territorial Fisheries Commission and I are on our way back from our circuit of the local fish farms, and we’ve noticed a Department of Fisheries and Oceans (DFO) research vessel, the Walker Rock, up ahead. We steer the boat towards the big seiner, then stop to watch it. Rodney explains that, in response to the collapse of pink salmon runs in the Broughton Archipelago, DFO is conducting a set of surveys to monitor the abundance of juvenile salmon and the degree to which they are infected with sea lice. Sea lice epidemics are generally associated with the presence of salmon farms, and in past years the area was hard hit with a population explosion of these fish parasites; this was thought to have infected the pink salmon traveling along their migratory routes. We wait for the seiner’s crew to pull up its net, but as predicted by Rodney and Daniel, it comes up empty except for a few stickelbacks. Rodney tells me that his people never get invited to participate in any meaningful way in these marine surveys, and that, in fact, outmigrating salmon congregate in surface waters close to shore. Here, where a cliff creates a steep drop-off, the fry are located two to three feet from shore, not in the deeper waters targeted by the seiner: “They’re just not getting the right numbers,” he says.

INTRODUCTION

Although numbers are supposed to be objective and stand apart from social practice, it appears that counts, calculations, standards, and measurements are not sterile, socially uninteresting entities that circulate innocently among proponents and
opponents of salmon farming. Questions about quantitative survey methods can divert attention from constant low-level escapes, and collapsed pink salmon numbers can instigate months of intensive numerical monitoring. In fact, numbers have become part of social practice to such a degree that it is no longer adequate to speak of the corruption or mis-use of numbers. Instead, numbers seem to have become social actors in their own right. At the same time, questions about the origin and meaning of survey numbers seem eclipsed by the power of those numbers to allow or disallow salmon farming.

For example, numbers, when they are collected, graphed, and tabulated, can create ostentatious displays of objectivity. Salmon farmers fill volumes of logbooks every year with numbers gathered during regular, required, and routine monitoring. Numbers are supposed to democratize decisions about what kind of “thing” salmon farming is, by holding out the promise of a common denominator for all to see and use. Rose, who examined the early social history of numbers, found that since the late 18th century, numbers have allowed for a kind of “social mathematics” against which the general public could evaluate political decision-making.\(^1\) Despite the promise of their democratizing power, numbers, Rose found, also severely constrain people’s possibilities for action. In the case of salmon farming too, the outcomes of calculation, figuring, and numerical analysis on waste, pollutant, disease, and escape numbers take on an authority that can no longer be achieved by individuals, or even groups of individuals, acting alone. As a result, people must team up with numbers, because it is the only way of accessing a reality that has already been displaced to an outside, distant realm.
In recent years, much has been written about the connection between numbers, expertise, and public disputes over environmental damage. Ulrich Beck, in particular, has suggested that disputes over how to judge the toxicity of the environment, and who bears the burden of proof -- what he calls the “relations of definition” -- are becoming more and more intertwined with the organization of modern industrial production. This production benefits from the kinds of numbers generated through attempts at environmental protection because those numbers reinforce and hide the logic of capital that has made them necessary. Because old norms and institutions are no longer able to cope with the onslaught of new kinds of environmental destruction, numbers become increasingly necessary, but also increasingly incapable of calming people’s fears.

Numbers have become the gatekeepers of a reality pushed increasingly to the limits of calculation. The flurry of measurement activity around salmon farming in recent years seems to have only intensified the call for further numbers, more “studies” and more record-keeping. Such developments are confusing, because as we try to use numbers to grow closer to the “reality” of fish farming’s effects, we use those same numbers to purge from our understandings anything that might indicate subjectivity, or the presence of real, experiencing individuals. Perhaps this state of affairs is a consequence of our involvement with a world that Bruno Latour says we construct as being always outside us, separate from us, and accessible only through the gaze of a mind otherwise disconnected from a body. It is no wonder, according to Latour, that we live in constant fear of losing access to such an alienated, foreign reality. In this chapter, I am interested in the ways in which numbers mediate between the human and
non-human entities on either side of the divide described by Latour. As we have already rejected the contemplative model of knowledge, in which people see reality shrouded in varying degrees of cultural bias, in favor of a model in which knowledge is always oriented towards activity, it is clear that if we are to understand numbers, we must look to people's purposes and interests. In this view, numbers can no longer hide behind the supposed bias of those who interpret them, and instead become exposed as the very agents of interest.

To use the words of Foucault, numbers are used "for convenient ends." Numbers act not directly on people; therein lies their supposed "objectivity" and claim to "reality." Instead calculations, equations, and figures can channel, constrain or expand the realities people are able to talk about. I am interested in numbers as they are tactics created and employed by people to diverse ends. While issues of governmental regulation may come up from time to time in the following sections, this chapter is not about regulation and what politicians often term "risk management." I have tried to get away from the idea, often presented in the "risk" literature, that numbers are the domain of governing institutions, who hand calculations over to a skeptical and frightened public. The people I interviewed and heard speak at public forums around Vancouver and Vancouver Island were actively involved in negotiations over what constitutes knowledge over salmon farming.

NUMBERS AND VISIBILITY

Most of salmon farming takes place below the water's surface, and is therefore not readily visible to the casual observer. The numbers attached to ocean bottom, net
pens, water masses, and marine life, however, make this underwater world accessible. According to Derek Woods, “they’ve done a lot of research on these sites and if you pull a site out and give it a six-month fallow time, you can’t really tell in six to eight months that a site’s ever been there.” A calculation of biodiversity seems to be the primary way in which salmon farmers “see” change underneath their net pens. Biodiversity indicators calculate the relative abundance and variety of organisms in a particular area. In salmon farming, Derek Woods says, “you change biodiversity under your pens, but you don’t wipe out or basically clear-cut under your pens.” Clearcut hillsides are a common sight in BC, a visual manifestation of the dramatic consequences of large-scale forestry. In the case of salmon farming, numbers act as gatekeepers, deciding when and to what degree people “see” damage. While a clearcut is equated with an ocean bottom in which the diversity indicator has dipped down to zero, simply “changed,” non-zero biodiversity, as indicated by Derek Woods (above), is more or less invisible. Numbers generally seem to determine what entities are present and therefore need to be taken into account. By mastering certain sets of calculations, salmon farmers can therefore enroll numbers to open and close windows onto their industry.

This strategy is mirrored in the site approval process. Fish farmers are required to complete a lengthy application, part of which requires companies to quantify the presence or absence of various organisms. “You’re looking at sensitive fish habitat and you’re looking at species at risk to make sure they’re not there or they’re an appropriate distance away” [Michael Ayres, emphasis added]. In this same framework, the conflict between First Nations and salmon farming activities can be
swiftly and technically evaluated. First Nations' people are measurable in this way because they are understood, in typical colonial fashion as existing as sparsely distributed pockets of "culture" in an otherwise empty and purely physical landscape. For Derek Woods too, First Nations presence is indicated by "reserves" and "sacred trees," both discrete entities whose presence is detectable only within a certain number of meters. By designating marine landscapes as natural, rather than cultural areas, historical use and occupation and present-day claims to title and rights are rendered invisible by the technicalities of measurement and calculation.

Instead of displacing "social," "environmental," or "cultural" questions to the realm of technicality, as is sometimes claimed in the sociology of science literature, numbers already are socialized entities. Single variables like contaminant, waste, or diversity indicators can concentrate power in just a few decimal places. Measurements come to constitute reality not in any abstract way, but in the sense that salmon farmers and their opponents act directly on those numbers, and not on "the things themselves" (which seem to be of only secondary importance). In the David Suzuki Foundation's press release of January 8, 2001, Jim Fulton calls publicly for "safe-level standards" for contaminants similar to those in Great Britain. There, he says, "a contaminants expert in Britain's Food Standards Agency advised that adults should eat a maximum of one portion of farmed salmon a week because it may contain contaminants like Polychlorinated Biphenyls (PCBs)." To make matters even more difficult for the salmon farming industry, about a year later, the Suzuki Foundation widely publicized a study which showed that farmed salmon contained ten times more PCBs than wild fish. Against this the salmon farming industry could do nothing but offer their own
numbers. When I spoke to Valerie Kimmins from Pacific Mariculture Products, she offered the following explanation:

They’ll tell you that farmed salmon contains ten times more PCBs than wild salmon. They found ... 0.056 parts per million in 4 farmed fish ... but what they don’t tell you is what you would need to be unsafe, and that’s 2.0 ppm. What matters is the concentration ... we now apply a factor to each, a conjoiner, and that determines how much is in foods.

In this case, a simple numerical factor, a “conjoiner,” as Valerie Kimmins calls it, has re-captured the experience of those who oppose salmon farming. In this sense, numbers are always susceptible to hostile take-overs by other, newer, numbers that can transform reality through simple multiplication, addition, or subtraction.

The idea that numbers should be used extensively, to monitor all aspects of not only production but also environmental damage, was one that was welcomed by all the production managers I met. By and large, environmental standards are numerical tools that salmon farmers need for growing fish. Records of lice loads on fish make parasite outbreaks accessible to the drug known as Slice, and hydrogen sulfide concentrations under net pens warns salmon farmers of impending fish die-offs. Salmon farmers can often get a handle on complexity by filtering it through single variables; they can then tend to simplified, numericized things. John Volpe, an ecologist who works closely with the David Suzuki Foundation, and who spoke at a public forum on salmon farming, talked explicitly about the ways in which salmon farmers numerically simplify their environment. His account dispersed much of the authority formerly concentrated in hydrogen sulfide measurements:

The assumption is that there is a homogeneous background level of sulfide against which we can set standards. ... At what point does waste reach a threshold level? The BC government has implemented something called “performance based standards.” What those levels are is 1300 micromoles [of
hydrogen sulfide] is the trigger level, and then we’ve moved to 4500 to 6000 microcmoles as a standard level for penalties. But the marine environment is variable! Background levels vary from 1 to 1000 micromoles in the presence of salmon farms.

Here, numbers offer substantial opportunities to salmon farming opponents. Simple numbers can be crowded out by more complex ones, and it becomes more difficult for salmon farmers to act on entities that are now constituted quite differently. The current way of measuring hydrogen sulfide levels works, in the sense that it allows salmon farmers to protect their investment of fish. It is easy to see how the new scheme for measuring relative sulfide proposed by John Volpe might not be relevant to the goals and activities of salmon farming. Derek Woods, for example, told me that the failure to monitor and anticipate dissolved oxygen values in a particular way can have drastic consequences: “sites that have never missed a day of feeding weren’t fed for 8 to 12 weeks because of low D.O.’s [dissolved oxygen levels].” By enrolling the right numbers, salmon farmers get a handle on an otherwise overwhelming external environment.

EXTERNALIZING CONTROVERSY AND INTERNALIZING EXPERTISE

If salmon farmers want to act on the environment in ways that allow them to grow fish, numbers must always construct that environment as an external object, as something that can be worked on in a predictable and controllable fashion. It therefore comes as no surprise that numbers are considered by salmon farmers to be the domain of technical expertise, sheltered from the vicissitudes of social practice. Valerie Kimmins, an employee at the headquarters of Pacific Mariculture Products, told me that
most people have no idea we have laboratories. Every farm has a microscope, for water and plankton analysis. They have no idea how sophisticated we are. They think we’re just out there with snowshovels shoveling out feed. Every farm has a site log, everything gets noted down.

In other environmental controversies, such as those over plant biotechnology, expert authority is also established by creating binary oppositions between “expert” and “lay” authority. This opposition conveniently establishes “ignorance” as a background condition on top of which technical knowledge is constructed, and allows numbers to be always one step beyond any practical application. When I questioned production managers about the details of hydrogen sulfide measurements, how samples are taken, what the numbers mean, and how the numbers are used, I was referred in every case to outside authorities. Roger Mackinson suggested I talk to “a guy named Barry Hargraves, who is a scientist that’s been studying that stuff,” just as Ted Boyd told me that he could “send [me] to a guy that knows the ins and outs of that. To me, it’s extremely scientific.”

In response to the externalizing tendencies of the salmon farmers, groups like the Georgia Strait Alliance can position themselves to be part of that external expertise. In a letter hand-delivered to the public hearing over the proposed fish farm site in Bute Inlet, Laurie McBride points out that Marine Harvest Canada used incorrect calculations in quantifying wind and current conditions at the proposed site: “calculations in Marine Harvest’s application are based on formulas for offshore waters; this includes calculation of wave period (the elapsed time between wave peaks) and the wave height. However, inshore waters typically produce waves with a shorter wave period, which would not be reflected in the calculations used.” Furthermore, the letter raises questions about whether measurements presented in the application are
truly external to the salmon farming industry. One study, conducted by the Department of Fisheries and Oceans, and widely cited by the industry, found that outmigrating pink salmon were not infested with sea lice in June of 2001. The Georgia Strait Alliance criticized this study by saying that “it’s hard to avoid wondering if their sampling methodology, location and timing were designed to ensure ‘no problem.’”

Numbers allow salmon farmers to externalize responsibility to either the numbers themselves, or the “experts” who collect and manage those numbers. At the same time, the use of numbers, regulations, and standards generally seems to enable salmon farmers to “manage” controversy on their own terms. In other words, salmon farmers appear to be externalizing knowledge about their fish and their sites, at the same time that they are spinning ever denser networks of numbers around their day-to-day activities. Numbers are at once internalized and externalized to create extremely effective ways of exerting control over the things of salmon farming. Derek Woods is typical among production managers, who say that “once everyone gets regulations in place and knows what the government needs us to do then [salmon farmers] will be in better shape.” Staying below “critical loads” of sea lice on wild salmon allows Michael Ayres to “move forward without all the answers.” Numerical regulation therefore becomes part of the production process. For example, when anaerobic conditions appear at a farm site, and a large die-off is imminent, fish densities are either reduced, or a site is fallowed. The same thing happens when an indicator of bottom conditions, sulfide conditions, reach a threshold level:

... they do a grab sample... and what they’re looking for is if there is too much buildup ... the government says that if you guys have a certain amount of fish on a farm and your inputs are this, your flow is this, and your temperature is this, you will have an impact of x, here, and impact of y there, and z there.
Okay, if you exceed any of those impacts, you will have to either fallow the site or reduce density on the site, and that’s how it’s currently done.

Regulations work well for salmon farmers, because the business of farming salmon is so thoroughly embedded in numbers. Numbers enable salmon farmers, not just in the sense that they give them the “green light” to go ahead with their activities, but also because salmon farmers now act more directly on the numbers themselves than they ever could on the “actual” currents, nutrients, fish, or disease organisms. Roger Mackinson told me that in order to know how many fish to put into a particular site, his company must rely on calculations that ensure that other calculated numbers, like hydrogen sulfide concentration, are not exceeded. As we have already learned, hydrogen sulfide acts as an indicator of de-oxygenation, which in turn implies that salmon farmers are likely to lose fish as well as valuable time and money in site rehabilitation. “They take our current data, our water data, and they put it into a model that spits out a certain number of tonnage that we can stock at the site. ... how much a site can handle basically, carrying capacity,” Mackinson explained. When “an area can’t handle it [that many fish],” he added, “you get production of hydrogen sulfide gas.” Numbers entangle salmon farmers in networks of calculation that touch all aspects of the production process. For example, as Derek Woods explained, there are direct links between salinity, mature rates, grossing rates, and price: “If your fish are being grown in a low salinity site, then you get a higher maturing rate in your fish than you would like. ... It [a mature fish] doesn’t demand as high a price as a nice beautiful silver salmon. So then if you have a high grossing site, well then, you’re not putting in as many premiums.”
SALMON FARMERS AND CENTERS OF CALCULATION

In recent years, the provincial government has moved away from prescribing how salmon farmers should grow fish, towards issuing "performance-based" standards. The new requirements, released by the Ministry of Agriculture, Food, and Fisheries in 2002, force finfish farm operators to keep concentrations of various chemicals below specified levels, but allow otherwise free reign over farming practices. Companies are to keep detailed records of particular chemical parameters below and around their net pens, including sulfide concentration, sediment grain size, sediment organic carbon and metal concentration, as well as counts of benthic animals. Every detail of sampling frequency, sample size, and the rate and quantity of various allowable discharges is carefully enumerated. Sulfide concentrations on soft bottoms during the production cycle "at a facility sampling station on a soft bottom at or beyond 30 metres from the zero metre station must not be statistically significantly greater than 6 000 micromolar" (BC Finfish Aquaculture Waste Control Regulation 2002). If this level is indeed exceeded, further chemical and biological sampling is required. These sorts of regulations are indeed comprehensive, in that every conceivable thing associated with fish farming has been in some way enumerated. For example, fish farm operators must report the amount of dry feed used yearly, so that nutrient discharges can be quantified: "each dry weight metric tonne of feed used at the facility, ... is equated to an annual discharge at the facility of (i) 186 kg of suspended solids, (ii) 36 kg of ammonia, and (iii) 8 kg of nitrogen and nitrates."
The salmon farming industry in British Columbia appears to have fully embraced record-keeping, calculation, and standardization not just as a means of satisfying its opponents, but as an everyday mode of doing business. The BC Salmon Farmers Association has worked to ensure that this emphasis on numbers become completely integrated into the mechanics of pen stocking, feeding, medicating, and harvesting. In fact, the association has developed a Code of Practice that emphasizes the value of careful monitoring and record-keeping, on everything from water temperature to the quantity, timing, and type of medications used. The production managers and site operators I met were enthusiastic about their new record-keeping activities, and eagerly showed me how the monitoring program was actually a part of their farming operation. Ted Boyd, for example, told me that in his company, they use a “fish growing program” called “Superior,” which uses environmental variables to come up with a feeding rate customized for each day’s conditions:

How much am I going to feed today? I can take this farm right here, I can go like this, cause our feed, we spend a lot of time on feed monitoring and feed practices, because it’s the number one cost in our business. ... Okay, so this is a pretty standard feed plan, so they print this off, and here’s your environmental registration, so they give you the temperature here, salinity, oxygen, we don’t worry about current, salinity, we don’t worry about too much anymore. Wind, we might do a little bit of that, wave size and air temperature. And then there’s another one we use when it gets to be plankton season, and then it’ll have another one down here and it’ll say “harmful algaes” and you’ll fill that out. ... So a fellow goes in in the morning, and in cage 105, he’s got an average weight, he’s got 3,963 fish in a cage, ... so here’s the growth, ... so we know if the growth rate is this ... you should be feeding about a 0.5 SFR, or specific feed rate. And we know that means 60 kilograms of feed.

This vocabulary of numeracy permeates the practice of salmon farming by establishing a relationship between the fish undergoing “production” and the external environment of currents, algal blooms, diseases, and sediment chemistry. Salmon farmers build
networks of numbers that bring environmental "factors" back to the net pen, where they can be controlled and used. Bruno Latour would probably call the salmon farm a "center of calculation," from which netpen site operators can mobilize entities and translate them into something that can be acted on. The numbers accumulated by salmon farmers allow the fish growers to become familiar with things otherwise distant, unpredictable, or even hostile. By putting environmental variables in the service of growth rates and feeding rates, fish farmers can make comparable fish farms sited in different bays, regions, or even oceans.

Salmon farming, specifically production and biomass accumulation, is at the center of the environment disputed by salmon farmers and environmentalists alike. As a result, salmon farmers can speak in the name of "nature," because their industry has already transformed that "nature" into a factory of carefully harnessed natural forces. What counts as center and what counts as periphery has already been established by an industry for whom sea lice are evaluated in terms of fish biomass, fallow time, veterinary and drug costs, and feed and stock investment. At the Sea Lice Action Plan Meeting of February 13th, 2003, John Volpe, a vocal critic of BC's fish farming industry, suggested that threshold levels for lice on pink salmon be established. But salmon farmers themselves use these threshold levels, as indicated by Vivian Krause, of Marine Harvest, at the same meeting. She pointed out that outside of the Broughton Archipelago, her company monitors monthly for sea lice and treats pens with medication when lice loads reach one gravid female per fish, while at the same time modifying this threshold level when temperature, salinity, and time of year warrant it. In this way, she said, farms can "manage" sea lice populations. Meanwhile, the David
Suzuki Foundation had been doing some monitoring of its own. Just a few days in advance of the Sea Lice summit, and a week after the technical meeting I just described, Otto Langer of the David Suzuki Foundation revealed at the UBC Science Forum on Sea Lice that on the north coast, where there are no salmon farms, salmon are infected with an average of only about 0.01 lice per fish. This, he said, stands in contrast to the kinds of numbers of lice found recently on pink salmon in the Broughton Archipelago.

So environmentalists too are monitoring sea lice, but these parasites have already been numerically captured by salmon farmers and are fully integrated into networks of use and capitalization. When salmon farmers come to meetings armed with recorded numbers, opponents can respond only by following the tracks on which salmon farming moves, in other words, by offering numbers of like kind. Sea lice outbreaks must always be made relevant to the experience of salmon farmers wanting to know when to medicate, harvest, or move pens out of affected areas. Diane Morrison, a veterinarian with Marine Harvest Canada, claims her technicians monitor the same external environment as that of environmentalists: “Everyone in this room has concerns regarding fish diseases, and we all share a common concern for the health of our fish, ... we all want our stocks to be healthy and productive. One of our differences though is the opportunities we have to address those concerns” (emphasis added, Fish Farming Summit, September 24, 2002). She argued that her industry is well placed, both materially and technically, to monitor sea lice and the conditions surrounding sea lice outbreaks. In fact, that information can be used “to identify pulses or waves of infestation, predict peak times for future years, and determine the
efficacy of our therapeutic treatments.” Records of sea lice numbers, past and present, can serve fish farmers well in designing recipes for salmon production. Lice numbers become fully integrated into decisions about when to divide the contents of a pen into two, when to harvest fish, how much to feed, when to administer a particular medication, and what kinds of disease loadings can be tolerated. However, Diane Morrison remained silent on how useful louse numbers are to the salmon farming operation, choosing instead to focus on the fact that “on one of [Marine Harvest’s] farms, our highest count [of sea lice] ever reported was 0.015 lice per gram of fish, and 0.02 lice per gram is considered to be low by Finn Stad and Scott McKinley [two scientists].”

It is unclear what measurements like “0.015 lice per gram” mean outside of the nitty-gritty of Atlantic salmon production. Nevertheless, environmentalist opponents of salmon farming are compelled to engage with these sorts of numbers. Bruno Latour might say that this is evidence that the environmental standards used by fish farmers have been “black-boxed”; those numbers have become indispensable even to fish farming opponents, who must move through them en route to their desired goals.8 Theresa Rothenbush, from the Raincoast Conservation Society said at the Fish Farming and Environment Summit that because she had “heard a lot about accountability,” she too wanted to “share some numbers.” Citing numbers from Heritage Aquaculture’s Cliff Bay site, she pointed out that “they had three times the number of allowable net cages. They destroyed more smolts than were allowed in biomass, ... and they were within meters of salmon-bearing stream.” Biomass calculations are used here to estimate damage to wild fish stocks, but they are also
used to calculate the maximal *yield* from fish farm sites. Similarly, when Otto Langer wanted to make his audience aware of the rampant use of pigment additives in fish feed, he stated that “about 15% of the cost of salmon food is in pigments.”

Mary-Ellen Walling, the new executive director of the BC Salmon Farmers Association, stated publicly in a February 24, 2003 press release, that “we must fully understand the relationship between wild and farmed salmon,” and the “the BCSFA is willing to make all relevant data available to scientists involved in these research projects.” She appeared pleased that the previous weekend’s forum on sea lice had “identified research gaps and opportunities” and that the discussion had been so “productive.” This reaction is unsurprising. The culture of numeracy propagated by the salmon farming industry, particularly the use of single-figure indicators, thresholds, and standards, through which entire realms of political debate are effectively depoliticized and shunted over to the technical realm, has already thoroughly subdued the outside world.

**ACCOUNT-ABILITY**

Salmon farmers know that they are judged numerically, and as a result, they tend to speak enthusiastically and often of the “accountability” they bring to the industry. “Accountability” represents a kind of willingness on the part of fish farmers to make their actions visible to others through logbooks or sampling records. Recently, many companies have become certified as followers of the BC Salmon Farmers Association Code of Practice, and some are in the process of obtaining certification as “sustainable businesses” through ISO 14001. Both organizations
require that businesses extensively standardize their practices, so that environmental impacts can be compared, judged, and ultimately accepted. In this way, debate about the consequences of fish farming can be closed even before the numbers themselves are inspected. As Linda Sams pointed out at the Fish Farming Summit, her company now has “such a good grading and sizing and inventory methods ... that we are getting uniform sized fish coming out to the farms and we know they are being put in appropriate sized mesh.” In this way, numbers represent a consensus of a wide range of types of individuals who all agree that fish will not, or should not, be able to escape from a particular net. In numbers, the engineers, who calculate the net strength needed at a particular location, meet the veterinarians who calculate fish density, the investors who calculate the growth potential of fish, and the workers who feed, separate, and harvest the fish. “There’s a number of individuals involved that look at siting: ... production staff, biologists, GIS technicians, business people, engineers, vets and surveyors” (Mark Ayranto, Omega Salmon, Fish Farming and Environment Summit). These useful allies are accumulated in numbers, and each one of those allies must be dismissed separately if a number is to be rejected. Scientific and technological claims are so embedded in dense networks of knowledge that it is nearly impossible to reject them without in turn rejecting a myriad of studies, publications, institutions and “facts.” When opponents of fish farming want to ask questions about the legitimacy of particular indicators, they are faced with dozens of professionals, each armed with their own colleagues, literatures, and bodies of knowledge.

Numbers therefore represent large networks of people, and can become powerful ambassadors in the case of environmental disputes. The force of truth
becomes hidden within the digits of salmon farmers’ numbers, and fish farming opponents may have only relatively more diffuse forms of opposition. Ed Blumes, for example, told me that he has a number of different lines of evidence to suggest that placing a fish farm in Bute Inlet is a bad idea. He knows about the currents and weather patterns, the potential for bottom fouling due to fish farm wastes, and contamination from anti-fouling paints, medications, and other chemicals. Whenever he presents his concerns, he says, the fish farmers and their promotors in the federal government ask for “data beyond the shadow of a doubt that there’s damage ... that’s the way they think.” Here, the burden of proof is placed not on actual people or industries, but on the numbers salmon farmers and their hired technicians can generate and distribute. It is therefore no longer “actual” environments that are evaluated, but the numbers that act as signs for a reality that is now useful only as an external reference point. As the agents of fish farming companies, numbers can take over and direct the reality they are supposed to represent. According to Tracy Redd of the Salmon Conservation Society, it is when numbers take over their context in this way that disputes come about: “The simplifications are where the problems arise, because it’s not necessarily a simple issue, that need a lot of background and knowledge to understand wholly why.”

One salmon farming company located on the north coast claims it is always vulnerable to a break-down in diplomatic relations between its company and the local First Nation: “they [the First Nation] approached us ... [but] we are the tenants ... they can cut the rug out from us and send us away.” Luckily, numbers can be trusted to act as skilled ambassadors, telling Native people what, in fact, it is that they are
experiencing with regard to environmental impacts. In fact, these numbers have been carefully selected, trained, and hired by salmon farming company to act in the best interest of the aboriginal population. Pacific Mariculture Products has taught First Nations people how to evaluate damage to the bottoms around fish farms. Now, “they have their own monitoring program, where they record the number of phyla, families, and species.” “After salmon farming,” Valerie Kimmins proudly informed me, “they end up with more [species], not less!”

THE NUMERICAL LANDSCAPE

In some ways, the presence of these new numerical representatives is necessary. Numbers increasingly structure aquaculture production activities. Art Dick from the Namgis First Nation addressed the aquaculture companies at the Fish Farming Summit, and explained how it was that everywhere he looked, he saw the numbers of the fish farming industry. He described the Broughton Archipelago as a landscape that has become thoroughly embedded with numbers:

Doctor Island, the newest site in our territory is a super-site. One of my colleagues and I boarded that site. ... Industry is patterned for expansion. Two people running that site, a big machine 15 by 15 by 15 [feet?] throwing out 5 tons of feed a day. The four pens of fish, 120,000 [fish] per pen, 35 tons of feed a week, 140 tons a month. Environmental impact according to you, zero. Fecal content on the bottom studies, zero.

In this new reality, numbers can no longer be dismissed as mere industry propaganda – they are too much in the forefront of reality. As Art Dick pointed out, numbers now populate his marine territories to such a degree that it is impossible for those numbers to not “do” anything. How can 140 tons of feed a month not have an impact, he wonders? And how else to describe that reality than to refer to the figures salmon
farmers themselves use when executing their production plans? When negotiations over the Doctor Island site first began, Art Dick warned of the presence of an important salmon holding area at that spot. “I told you … my grandfather used to wait two days, go in and make a set for 20,000, 30,000 pieces of pinks, more than enough for our people to smoke.” The only way those kinds of salmon counts could have been made relevant to the fish farming industry is if they had represented the numbers of fish in a net pen, or the number of escaped salmon, or some other measurement of fish farm production or loss of production. The number of fish caught by an old man as part of his band’s winter food supply were no longer part of this new landscape, and so, Art Dick said, “that was totally ignored.”

Robert Joseph, also of Alert Bay and a member of the Gwawaenuk tribe at the northern edge of the Broughton Archipelago, finds that his people “have been removed further from the seats of authority and decision making … governments in far away places decide. Industry decides. People who have no relationship to the land.” Speaking as a member of the human health panel at the Fish Farming Summit, he was followed by a representative of the federal food inspection agency, a chemist, and a scientist collaborating with salmon farming companies on a water quality monitoring program. It was clear that Robert Joseph wanted access to a territory to which he had become a stranger, but that this renewed access would not necessarily come in terms of this new, reconstituted landscape of figures and calculations. Instead, he spoke at great length of the ways in which damage to the fishing and claming areas was “tantamount to industrial genocide,” and about the ways in which the “old ones” talk about how
things were when the world was very young. "I want all of you to think of those things very carefully as you debate all of the science, as you debate all of the technicalities."

The Ahousaht First Nation has decided that it wants to exercise some control over local salmon farming areas by engaging more directly in monitoring and research activities. According to Shawn Atleo, a hereditary chief from Ahousaht, the community has now "secured some power, some say in an industry operating in our territories where we did not have a say before." These kinds of arrangements between First Nations groups, eager for some degree of influence, and salmon farming companies are becoming more common. Linda Sams announced at the Fish Farming Summit that her company's arrangement with the Kitasoo First Nation is "probably of interest to this group because a lot of our environmental management system incorporates First Nations protocols, which actually will exceed government regulations or code of practice."

When aboriginal people participate by keeping records and using standards, salmon farmers may gain great credibility. Numbers can therefore act as vehicles through which the interests of salmon farmers are directly transferred to First Nations participants. Steve Cross, who works for a number of different salmon farming companies doing "environmental assessment work" was at the Fish Farming Summit "looking for some First Nations participants." "I would like participants in the field to acquire the animals [shellfish], to process the animals, to help me cook them and label them and acquire the data so everything is a shared type of an evaluation approach." "So please sign up after this talk, if you will," he said enthusiastically. Cross made the claim that his research objectives are aligned with the worries of First Nations people
over damaged clam beds: “Many of the concerns of First Nations have been that our
beaches are being contaminated. ... [In suspended culture of mussels and clams]
you’re looking at a line that can be be attached directly to the farm, and you’re looking
at placing animals right against the cages so you’re getting absolutely worst-case
scenario.” These records of contaminant concentrations lock salmon farming interests
into new packages of objectivity, and do away with any need to explicate the role of
these numbers in the purposes and activities of salmon farmers.

Participation in number-taking activities is becoming increasingly common
even among those groups, like the Namgis First Nation, who continue to have a “zero-
tolerance” policy towards fish farming. In April of 2003, several of the guardians at
the Kwakiutl Territorial Fisheries Commission were invited to work as technicians
alongside an environmental consulting company on the sampling of outmigrating pink
salmon fry at Kakweikan and Glendale Rivers. Although they were not completely
satisfied with either the limited number of rivers sampled, or the small number of
parameters recorded in the study, the guardians were able to use the opportunity to
keep additional records of pink salmon size, numbers, and condition. At certain times,
then, numbers can appear to be free agents that can be put in the service of non-fish
farming interests. Art Dick from Namgis told the Fish Farming Summit that he can no
longer get clams from the beach in front of the old reserve at Village Island, because
the substrate has turned to “60% mud.” In this way, he made his experience directly
available to salmon farmers, who can recognize this formulation as originally their
own. In fact, salmon farmers routinely use ocean bottom composition to assess current
speeds and anchoring requirements. Nevertheless, Art Dick took samples of clams and
"sent them off to private biologists and we know now that they are being contaminated as well." He hopes his efforts will force industries to engage in "meaningful dialogue:" "The Taku and Haida [court cases] now say you have to accommodate. And along with that is meaningful dialogue, not just informing us and getting our comments."

CONCLUSION

We are now in a much better position to understand the two scenes presented at the beginning of this chapter in terms of how numbers are used by and circulated among the various actors in the controversy over salmon farming. Sea lice and escaped Atlantics are only visible through numbers, and yet, their counts seem to take over the context in which they have meaning. The very fact that these numbers are now available seems to completely overshadow questions about when, where, and how those numbers were collected. The sort of environment described in terms of lice-per-gram, for example, is relevant only in terms of a particular network of relations that include anti-parasite drugs, pharmaceutical producers, knowledge of stocking densities, veterinarians, food inspection officials, and so on.

The aboriginal fisheries guardians watching the Walker Rock from afar were excluded from these centers of calculation that exist at the nexus of such networks. Where numbers meet the things, people, and institutions of salmon farming, great power to define what constitutes "the environment" exists. Even when Native people are "trained" in the language of salmon farming numbers, as they were in the case of the Atlantic Salmon Watch surveys, the use of numbers seems to only facilitate the further movement of fish farm investment into First Nations’ territories. At the same
time, the new landscape of fish farming is so thoroughly “numericized” that it becomes difficult to object to aquaculture production without referring to things like feed conversion rates, antibiotic concentrations, and escape numbers. Perhaps this state of affairs has come about because salmon farmers act on modeled, calculated, and otherwise transformed environments.

The Atlantic Salmon Watch program quickly becomes the focus of many debates over escaped fish. Although the program is technically a joint venture between the federal and provincial governments, it is enthusiastically supported by fish farming companies, who point to it as a showpiece of environmental responsibility. This degree of industry support may be due in part to the overwhelming quantity of numbers generated by this program. Edifices of numbers are often built up by salmon farmers when other lines of defense become difficult. In response to concerns over the invasion of streams, to which Native people hold aboriginal title, Atlantic Salmon Watch instigated a First Nations “monitoring program.” The sheer volume of numbers produced by this program is staggering. The report of a snorkeling survey, for example, displays counts of salmon fry, almost all of which are zero, in a 50 column by 12 row matrix. These numbers are supposed to be representative of the supposedly untouched, pristine environment maintained by salmon farming, but at the same time, these numbers are representatives that can move easily across the spaces and times in which salmon farming take place. Indeed, these kinds of numbers provide easy justifications for the spatial expansion of the industry.

Through these numerical ambassadors, fish farmers maintain control over environmental controversy, by transforming environmental impacts into numbers, and
re-transforming them again once those numbers become localized and visible in time and space. Alex Morton, the scientist and activist cited by John Volpe, likes to point out the overlap between a large escape of Atlantic salmon, and a coho migration past the same area. Her counts of recaptured Atlantics are conducted based on the confluence of particular local ecological events, and she often uses fishermen and their gear to generate her samples and counts. The Atlantic Salmon Watch program, on the other hand, keeps the issue of escapes locked up in numbers. The September 1997 report of the Atlantic Salmon Watch, for example, reports that although “the greatest number of Atlantic salmon counted in one river on one day was 40 in the Zeballos River on October 1, 1996,” this accounts for only “5.06% of all salmonids counted on the river that day.” Similarly, the fact that over 2500 Atlantic salmon were recovered from coastal waters through the Atlantic Salmon Watch Program in 1997 was quickly eclipsed by the additional observation that “the median fat content for the fish caught in BC coastal waters was lower than that which is typical in farm-reared fish at the time of harvest. ... The reduced level of fat is correlated with a low incidence of feeding by the escapees. Of 133 fish analyzed for stomach contents, only two (1.5%) contained prey items.”

In this way, environmental crises can be transformed into research projects -- opportunities for the production of new numbers. The “Pacific Region Pink Salmon Action Plan” was put into place in spring of 2003, after the Namgis First Nation and local fishers and environmentalists expressed outrage over the record low returns of spawning pink salmon to rivers in the Broughton Archipelago. The presence of sea lice at a variety of locations and salmonid species is being carefully recorded through
freshwater and marine monitoring programs sponsored directly by the Department of Fisheries and Oceans. This extensive research project, which involves dozens of staff members, thousands of hours of field work, and generally a great deal of effort, is designed to re-create the migration of pink salmon from the rivers, through the Archipelago, and out into Hecate Strait and the open ocean. The project's webpage, updated weekly, offers concerned citizens the opportunity to inspect tables, graphs, and charts filled with the numerical results of the sampling program. The April 22-25, 2003 report alone presents eight graphs displaying the numbers of fish of various species caught, examined, and infected with sea lice found in beach seines that week. First Nations people, in particular the Namgis First Nation, have long fought for, and have finally won, the right to participate in these kinds of sampling projects. At the same time, however, the voices of local First Nations people seem to be drowned out by numbers -- numbers whose meanings appear to emanate from the figures themselves.


8 See note 6 above.


CHAPTER 10. CONCLUSIONS

THE MATERIAL BASIS OF KNOWLEDGE ABOUT SALMON FARMING

In this thesis, I have presented many diverse, and occasionally conflicting accounts of what kind of “thing” salmon farming is. Critics often dismiss these sorts of social constructionist analyses as mere curiosities, and look elsewhere for guidance on how to act in controversial situations. Although some of the criticisms levelled at social constructionists result from a fundamental misunderstanding of the ways in which knowledge is created intersubjectively, others point out the very real gap between what this methodology promises and what it delivers. Jones, for example, knows that constructionists want to direct attention towards an understanding of the plurality of constructions, but she is left wondering “how ... convincing cases [can be] made for remedial action to prevent environmental problems, and how ‘real’ are environmental problems when a plurality of perspectives exists?” I suggest that courses of action are indeed obvious from constructionist analyses, but only if those analyses are sensitive to the ways in which particular contexts inform experience and structure relations of power.

In my case study of salmon farming in British Columbia, I have consciously decided against allowing the obvious question -- “what should we do about salmon farming in British Columbia?” – to invade my developing understanding of what kind of “thing” farmed salmon is. Indeed, yielding to the pressure of that question would cave in to the idea that objective knowledge of salmon farming is out there, waiting to be discovered through “unbiased” analysis. In a post-positivist world, marked by the failure of positivism to deal with social complexities, and a growth in researchers’ critical awareness of questions of exploitation and power, we can no longer wait for the arrival of
true knowledge. As Lather puts it, researchers’ “focus has shifted from ‘are the data biased?’ to ‘whose interests are served by the bias?’” It therefore comes as no coincidence that I have centred my interpretations around the role of knowledge in activities and the interests that guide those activities. While resource managers typically attempt to concentrate authority by authorizing a particular narrative of what something is and what should be done about it, I have, in typical post-modern fashion, attempted to disperse authority as widely as possible, by giving voice to a variety of experiences with salmon farming.

Over the course of my study, I have learned a great deal about what kind of industry salmon farming is, particularly about how it is constructed through the life-worlds of individuals acting in social contexts. I have discovered that in the case of salmon farming, like in other productive endeavors, it is activity that mediates between things and people’s knowledge of those things. The social world is an active world infused with techniques and movement, and not a world in which knowledge sits placidly in the back of people’s minds. Social actors are perpetually producing and reproducing their biological and social worlds, and in doing so, they create continual movement between things on the one hand, and knowledge on the other. It is the location of these processes in particular contexts that turns these continual movements into dynamics of power. Because of the ways in which reality presents itself to people as a world shared by others, all individual experiences are ultimately political; conversely, all expressions of power can be located in the lives of individual human beings.

This synthesis of social constructionism and material analysis goes against the constructionist approach favored by many environmental sociologists. For Rik Scarce,
for example, constructivism deals with knowledge claims and not necessarily, or even properly, with reality itself. He sees the “strong program” -- which is his expression for what he sees as a more extreme version of constructivism -- as being “guided by an idealist philosophical belief that ‘reality’ is a mental construct.”

This lack of confidence in the ability to deal with reality is not one expressed by the founder of interpretive sociology, Max Weber. For Weber, subjective meanings are our reality because they shape our courses of action by allowing us to act on things that are real for us. Weber points out that sociology does not in any way distinguish between ‘physical’ and ‘psychical’ phenomena.

The so-called “strong constructivists,” of which Trevor Pinch and Harry Collins are often cited as prime examples, maintain that our understanding of objects are real because we are oriented towards them during real courses of action that have real consequences. This stance is consistent with that of the fathers of social constructionism, Berger and Luckmann, who insist that in order to exist in everyday life, we must suspend doubt about the existence of reality and act upon that which we know.

Salmon production does not act on raw resources or simple environments, but on known material entities. The materialist and constructivist approaches to knowledge are therefore not as distant from one another as they may sometimes appear. Even Karl Marx told us that in all labor, “we get a result that already existed in the imagination of the laborer at its commencement.”

Humans, Marx said, participate in Nature’s production, and as a result, products are not merely results, but also essential conditions of labor.” Knowledge is necessarily part of production, in that it prepares nature to be worked on in a certain way. When production managers say (as they have) that we must look to the ocean because we have run out of land, or that aquaculture represents sophisticated
control of the "whole system," they are drawing on bodies of socially distributed knowledge. By making use of what they know in the context of particular situations, salmon farmers can construct farms, get licenses, and know what type of feed to order, among other things. This sort of knowledge, often described by the salmon farmers themselves as "progress," opens up new Indian territories for development, while marginalizing aboriginal users and practices. The colonial context that permeates modern resource production seems continuous through time and space. In British-ruled Burma and India and in Dutch-ruled Java, for example, Europeans practiced a type of "scientific forestry" that they deemed "ecologically good" and sought to simultaneously eliminate both competitor tree species and local, alternative forest practices that might "interfere" with official timber extraction methods.7

The connections between materialism and constructionism, which take seriously the constructed reality of nature, have allowed me to gain new insights into farmed salmon. Specifically, it has become clear that the production of farmed salmon is the production of value, real and known. This production takes place in an environment already produced by a knowledge that shapes possibilities for further action. The context of fish farming therefore invades its content, and I have traced the ways in which the farmed salmon, the net pen, and all the other physicalities of salmon farming reappear in unforeseen locations through the social network of salmon farming. Bruno Latour follows the convoluted paths facts and technologies take through the interests, activities and goals of various groups, and in doing so, he discovers how those facts and technologies actually depend on those interactions for very existence.8 In much the same way, I devote the rest of this final chapter to a look at how salmon farmers mobilize other
individuals and groups in an attempt to create certain, objective knowledge about farmed salmon. In doing so, I show that salmon farmers are not mere exercisers of power, but that they depend on the things and techniques of others to aid them in their efforts.

**SALMON FARM PRODUCTION AS A SERIES OF TRANSFORMATIONS**

I have shown in this thesis that the salmon farming industry, as it is known and acted on by salmon farmers and salmon farming opponents alike, is one that has not only been *socially* constructed, but also *physically* constructed. Negotiations between salmon farmers and various First Nations and environmentalist groups over how farmed salmon is to be understood leave their mark on the material characteristics of the industry. In order for farmed salmon to be produced in the first place, various human and non-human entities must undergo considerable transformation, in order that they can be acted on, used, and finally *produced*. Through these transformations, knowledge is continually recreated and used.

The production of fish farm boundaries

In order for salmon farming to take place at all, the places of salmon farming must first be delineated from the surrounding environment. As I explained in chapter 8, fish farming places are not so much found as they are made. In fact, it appears that natural factors, like oxygen, temperature, and of course, stocks of fish and the prey of those fish, are carefully combined and then enclosed in ocean net pens. When desirable entities leak out into the surrounding environment, and undesirable entities leak into the net pen, it is only by "refragmenting" the site through monitoring and the production of numbers (see chapter 9), that those boundaries can be maintained in the long term. In other words, the very existence of ocean fish farm sites depends on the continued relationship between
those sites and the “outside” world. In this way, farm sites can be constructed as homogeneous and manageable entities that stand in opposition to their surroundings.

As I pointed out in chapter 3, fish farming is, in a sense, agriculture in a wilderness setting, and fish farm sites are actively constructed by fish farmers as accessible entities that sit on a background of an otherwise inhospitable nature. However, the claim that fish farms are “unnatural” has not served environmentalists well, and in fact, seems to reinforce the power fish farmers exert over the environment. This is because the fish farming industry, in the course of its activities, actually produces nature. Farmed fish have been framed as the embodiment of efficiency, and thereby as more perfectly natural than nature itself. The rearing and biomass-accumulation machinery of fish farms have perfected the replication of nature in ways that the “salmonid enhancement,” or hatchery programs, could have only dreamed of. Fish farm opponents are further prevented from equating fish farms with the “unnatural” because of the standardized techniques and numerical standards that are directly transferred from their industrial origins to an assessment of “nature” (see chapter 9). What is considered natural is therefore already produced. In addition, as described in chapter 7, only further production can ever hope to come to terms with, or “re-naturalize,” wastes and other by-products by re-absorption into the “system”.

Out of all the fish farming skeptics I spoke to, it was the Ahousaht and Namgis people who most vehemently rejected the modernist assumption that industrial activity represents a kind of control over, and separation from, the workings of nature. As many Native people pointed out at the Leggatt Inquiry (see chapter 4), fish farming is a particular type of activity in which particular sorts of people are engaged. Fish farming is
analogous to other productive activities like fishing because it is only once non-human entities are acted on and consciously regarded as objects of production, that "nature" comes into being in the first place. Instead of understanding Native reactions to fish farming as an expression of the idea that social and natural worlds are integrated, the constant intrusion of the social into talk about fish farming can also be seen as evidence of the human and produced qualities of what is usually termed "nature." One Native speaker, described in chapter 4, discussed the ways in which salmon disease outbreaks quarantine not fish, but people onto their reserves. But environmentalist opponents of the fish farming also look to the physical inversions and dislocations of otherwise "natural" places for the source of their disempowerment (chapter 8). The ability to bring nature to life through activity therefore highlights the ways in which knowledge of nature, and the power to define what constitutes nature and non-nature, lies with those people or groups of people who have control over production.

In this study, I have shown that salmon farmers not only can define where the boundaries around nature lie, but that they are also in a position to continually reproduce the conditions under which those boundaries appear fully natural. Salmon farmers are able to enroll the consumers of farmed salmon as allies in this boundary-making activity. As explained in chapter 6, the consumption of farmed salmon allows for the simultaneous manufacture of an Indian "experience" that can be consumed right along with the fish. This construction of farmed salmon as a heritage item allows the triumph of "reason" and "science" over "Indian-ness" and "wildness" to aid in solidifying the boundaries between the fish farm and surrounding areas. In this way, other natures, like those known and understood by First Nations and other local fishers, become invisible, because all useful
elements of those untamed natures have already been enclosed within the boundaries of the fish farm. The colonially imposed division between the physical landscape of production and the cultural landscape of First Nations, which I alluded to in chapters 4 and 9, denies the existence of other, non-aquacultural landscapes, and hides the social nature of fish farm production. The transformation from fish pellet to farmed fish product therefore takes place within a context that is itself produced, and must be continually reproduced, in order for fish production to be sustained.

The production of farmed fish from fish pellets

The transformation of fish meal into Atlantic salmon biomass that takes place at the farm sites highlights the importance of context for the production process. In the discussion in chapter 3 on efficiency, it became clear that fish farming is simply a more extreme expression of the same rationality envisioned by industrial fishing and salmon hatcheries. With the availability of new types of broodstock, fishmeal, anchoring devices and other materials, the dream of complete control over fish yields could be realized. While salmon hatcheries were able to temporally condense and spatially enclose the migration, spawning and rearing phases of an otherwise wild salmon’s life, fish farms have been able, by claiming to “mimic” nature, to completely enclose the salmon life cycle. In this way, the fish’s captured state becomes naturalized, and the farmed salmon appears to be an inevitable consequence of nature. However, it is only by looking at the things of salmon farming that we can reveal the constructed nature of farmed fish and the “system” of which this industry is supposed to be a part. In chapter 7, for example, the discussion about fish pharmaceuticals as workers highlights the ways in which the very things that become part of farmed salmon – like pigments or maturation-enhancing
compounds – are already social products. It therefore becomes difficult to separate the
social background of fish farming from the nitty-gritty of fish farm production.
Knowledge about farmed fish, therefore, cannot be separated from its context, and it is
only with reference to particular material details that we can appreciate the full range of
power exercised by knowledge.

As technologies, farmed fish seem to carry their own context within them. By
knowing the target size of a particular type of broodstock, for example, or by using a
calcium receptor protein to speed up maturation rates, the outside world becomes
enclosed within the technologized fish. The death of the referent, so commonly described
with reference to our post-modern, simulated world, and a technique used heavily in the
“framing” of salmon farming (chapter 3), is also described in chapter 7. The
pharmaceutical tool Ovaplant, for example, mimics hormone levels so well that it creates
a maturation schedule that is even more natural than nature itself. Another technology,
the SalmoFan, gives farm managers the ability to choose between a range of fish pigment
levels. In the course of coloring their salmon, salmon farmers enroll objective entities
like molecules and molecular pathways in the service of subjective preference, while at
the same time claiming that such preferences are entirely objective and natural. The
commodification of farmed salmon through the continual de-commodification and re-
commodation of scientific expertise, described in chapter 6, is therefore continuous
with the technologies used to produce farmed fish.

As a form of production, aquaculture is becoming increasingly insulated from the
unpredictability of “outside” conditions. But contexts of meaning can both shrink and
expand. If formerly “natural” productive forces can be enclosed within individual
salmon, then farmed salmon can also be understood as models of productivity, efficiency, and progress (chapter 3). Salmon farmers not only feed their fish, but also advertise their industry by claiming to feed “the economy,” thereby turning farmed salmon into a food that can ease economic hunger. This context allows salmon farming to appear as a natural consequence of “the way things are.” By contrasting aquaculture with traditional food production, as described in chapter 5, First Nations opponents of salmon farming can regain control over the political and social context of dispossession that accompanies and enables the salmon farming industry. However, some Native proponents of fish farming find that the context in which fish farming takes place can be manipulated to offer possibilities for self-determination and compensation. In chapter 8, I describe how knowledge about the links between people and places in particular can buffer the impact of creative destruction sweeping across aboriginal landscapes. This mode of resistance is possible because the material form salmon farming takes is itself an expression of a knowledge that consciously regards certain aspects of the environment as the building blocks of industry.

I have shown that knowledge can take a number of different forms as it moves through the productive process. Chapter 9 in particular describes how knowledge-through-numbers allows for the transferability of feeding and medication regimes across farm sites. Because numbers both embody reality and make that reality accessible to manipulation, they are both context and content.

The controversy over fish farming — the social negotiation fish farmers must engage with in order to gain access to materials, labor, and sites — is therefore as much part of the farmed fish as the physical product sold in stores or restaurants. Whenever we
try to immobilize farmed salmon for the purposes of unmasking its socially constructed character, we are forced to consider the human strategies and interests that constantly change what kind of “thing” we are dealing with. Both salmon farmers and their opponents are constrained by taken-for-granted knowledge about how things “are.” But the ability of salmon farmers to successfully navigate through the knowledge of environmentalists and many First Nations people, and succeed in producing farmed salmon, suggests that (1) knowledge is a social and collective, rather than individual phenomenon, and (2) that “knowledge is power” because it acts directly on the actions of other, less powerful groups.


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Figure 1. Vancouver Island and the adjacent mainland, divided roughly into aboriginal language groups. The two study locations, Ahousaht and Alert Bay, as well as the locations of the Leggatt Inquiry, are indicated.