



Industrial aquaculture and the politics of resignation

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ABSTRACT

While neoliberalism is often framed as a withdrawal of the state, many scholars have noted that what is occurring is not so much a withdrawal, as a repositioning. Although many social services and regulatory functions once provided by government agencies have indeed been eroded, there has been a simultaneous channeling of new resources into other arenas, in an effort to create conditions in which private corporations can operate more profitably. This, however, often places the state in a contradictory position, simultaneously serving as regulator, investor, and development advocate for the private sector. This can become especially problematic in moments of ecological crisis when decisive and unbiased responses are needed. This paper explores these dynamics through an examination of the cycles of growth and crisis that have characterized the aquaculture industry on the south coast of Newfoundland since the late 1970s as well as the ongoing attempts by aquaculture advocates to characterize industrial-scale fish farming as a sustainable industry, despite evidence to the contrary.

1. Introduction: corporations, environmental risks, and the politics of resignation

In recent years, a number of scholars have explored the ways in which corporations have sought to engage with the media and the general public in order to present themselves in a more favourable light. Many have examined the rise of the "corporate social responsibility" (CSR) movement, which has endeavoured to portray private corporations as an important part of the solution to social and environmental problems rather than as villains or pillagers [1–10]. Welker observes that CSR has become an industry unto itself, "complete with profit and non-profit organizations, journals, classes and workshops, guidelines, and prizes" [6]. Yet, despite the growing ubiquity of CSR rhetoric, many critics have noted that most companies have been reluctant to embrace fundamental changes to their operations that have the potential to lower profits [11–13].

In their article, "Capitalism and the Politics of Resignation" Peter Benson and Stuart Kirsch identify a set of generalized behaviour patterns they have found to be common to so-called "harm industries," such as tobacco and mining, which must, by necessity, produce negative impacts on ecological and/or human health in order to remain profitable [14]. They argue that such companies must continually employ a range of public relations strategies in an effort to counteract and neutralize critiques of their operations and "protect themselves from potential de-legitimization, so as to allow them to continue

operating in favourable regulatory environments." They identify three main phases that such corporations typically pass through when faced with growing public criticism. The first phase is denial, in which company representatives argue that their actions are in no way harmful and will sometimes employ corporate-sponsored counter-science in an effort to proliferate a sense of doubt, all the while refusing to engage directly with the claims of their critics. If the accusations become impossible to deny any longer, however, corporations may enter phase 2 in which they will acknowledge that a problem may exist and make token gestures to address it, but still continue to operate largely as they had previously. If problems reach a point of crisis, however, they will move to phase 3 and will be forced to engage directly with the arguments of their critics and devise new strategies in their efforts to steer political, regulatory, and management decisions in ways that will enable them to continue to operate profitably [14].

Rather than suggesting that corporate social responsibility discourse effectively manufactures consent, however, Benson and Kirsch suggest that these sorts of strategies are never complete, instead giving rise to what they call a "politics of resignation." Borrowing from Gramsci, Zizek and Williams, they argue that the era of corporate triumphalism is giving rise to new "structures of feeling," producing widespread sentiments of cynicism and futility, as many people have come to expect that corporations will be allowed to continue to manufacture harms with relative impunity. This feeling of impotence, in turn reinforces the status quo by leading to inaction [14].

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While Benson and Kirsch make a compelling argument, one significant shortcoming of their analysis is that it fails to fully explore the degree to which governments and some forms of university research have become active agents in the corporate legitimization processes they describe. While neoliberalism is often framed as a withdrawal of the state, many scholars have noted that what we are witnessing is not so much a withdrawal, as a repositioning, as government sponsored research and investment is increasingly committed to buffering and encouraging the private sector [15,16]. While many social services and regulatory functions once borne by the state have indeed been eroded, there has been a simultaneous channeling of new resources into other arenas, in an effort to create conditions in which private corporations can operate more profitably. This, however, often places the state in a contradictory position, simultaneously serving as regulator, investor, and development advocate for the private sector [17]. This situation can become especially problematic in moments of ecological crisis when decisive and unbiased responses are needed. The result can be a situation in which development is allowed to proceed, in spite of undeniable evidence of environmental or social harms.

This paper explores these dynamics through an examination of the cycles of growth and crisis that have characterized the aquaculture industry on the south coast of Newfoundland since it was established in the late 1970s, paying particular attention to a series of crises that have taken place over the course of the last five years. The aquaculture industry has been the recipient of ongoing injections of public money in recent decades from multiple departments in both the provincial and federal government, particularly after the collapse of the cod fishery in the early 1990s, when industrial aquaculture was framed as a more predictable and lucrative alternative to the inescapable flux and uncertainty of wild fisheries. Building upon the model developed by Benson and Kirsch, the paper draws upon archival research, media content analysis and ethnographic fieldwork data to show how corporations and government departments have continually worked together to promote an image of sustainable salmonid (salmon and trout) aquaculture, despite growing evidence of ecological crises, such as infectious salmon anemia outbreaks, and escapes leading to interbreeding between farmed and wild salmon.

2. The Blue Revolution

The transition from wild fisheries to aquaculture is often presented as an inevitable evolution, one which is destined to become the norm for seafood production internationally. An editorial from *The Economist* magazine in 2003 entitled “The Promise of a Blue Revolution” stated: “New technologies, new breeds and newly domesticated species of fish offer great hope for the future. They promise a blue revolution in this century to match the green revolution of the last...” [18]. This allusion to the Green Revolution is fitting, since modern industrial aquaculture is, in many respects, the heir to this modernizing tradition. Proponents of expanding industrial aquaculture around the world have long argued that the industry holds the key to preventing a looming global protein shortage caused by declining wild fish stocks in the world's oceans [19,20]. Organizations like the World Bank and the United Nations Food and Agriculture Organization (FAO) have been especially active in stressing the important role to be played by large-scale aquaculture in promoting economic growth and food security in developing countries, despite growing concerns about ecological destruction caused by fish and shellfish farming in many areas, particularly Southeast Asia [21–23]. Aquaculture advocates have also stressed the potential for the industry to make a major contribution to rural employment [24]. The industry often presents itself as being especially well positioned to deliver on these promises, since it claims to be able to offer a degree of rationalization and managerial control over both fish and fishery workers that would be unimaginable in wild fisheries [25].

Despite these promises, however, industrial salmonid aquaculture, which has been the primary focus in North America, Europe, and Australia, has faced severe criticism from environmental activists and local residents alike [26]. Some have argued that, in many areas, industrial aquaculture has expanded too quickly and on too large of a scale, and have argued that it poses serious risks to the environment and to human health [27]. Many have noted the toll that producing fish meal to feed farmed fish takes on certain species of wild fish, most of which are procured from the Global South. As of 2011, roughly 63% of world fishmeal production and 81% of fish oil was utilized for producing aquaculture feed [28]. Others have pointed out that open pen salmonid aquaculture requires the enclosure of large areas of ocean space and this often brings it into direct conflict with local fisheries and other uses of the coast, such as marine tourism [26,29]. Some have also questioned the argument that the industry has the potential to be an economic salvation for rural areas, noting the tendency for aquaculture operations to generate primarily low-wage and unstable seasonal employment, and to produce fewer secure jobs than anticipated once they become operational [30,31]. Further undermining the public image of the industry is the fact that, since its early days, diseases have led to the loss of entire harvests; fish escapes have occurred with as yet poorly understood effects on wild stocks; and diseases like Infectious Salmon Anemia (ISA) and parasites like sea lice have been shown to spread from farmed fish to wild salmon. These concerns have necessitated heavy investment in public relations in order to support the argument that the industry can be a sustainable anchor for local economies and justify calls for continued expansion.

3. The growth of salmonid aquaculture in Newfoundland and Labrador

While the practice of fish farming has a long history in parts of East Asia and Europe, the earliest industrial finfish aquaculture operations were not established until the 1960's, mainly in northern and western Europe. Most of these operations focused on the farming of Atlantic Salmon. First developed in Norway, salmonid aquaculture soon spread to Scotland, Ireland, the Faroe Islands, Chile, Australia, the United States and Canada [32].

By the mid-1980s, Norway had established itself as the undisputed global leader in the salmon aquaculture industry, producing around 100,000 metric tonnes of farmed salmon per year, roughly four times that of its nearest competitor, Scotland [33]. By contrast, in 1986, Canada produced a mere 3249 metric tonnes of salmon, mostly on the coast of British Columbia and in the Bay of Fundy in New Brunswick and Nova Scotia. That same year, Newfoundland fish farms, which had first developed in the late 1970s, produced just one metric tonne of Atlantic salmon and eighteen metric tonnes of trout [34]. While many aquaculture operations were established in this region by the early 1980s, they bore little resemblance to the large-scale farms that exist in the area today. They were reliant on locally sourced stocks of wild fish harvested from nearby rivers, which were then grown to larger sizes in captivity. While a few operations experienced some modest commercial success, high infrastructure and feed costs, sporadic disease outbreaks, and unpredictable weather conditions contributed to frequent setbacks [35]. The fledgling industry would grow steadily in the years to come, however. After several unsuccessful attempts at open net pen aquaculture in different parts of the island, the south coast ultimately emerged as the epicentre of finfish aquaculture in the province. While the area experienced severe winters, it had many geographical advantages over other regions [36]. The main attraction of the south coast was the fact that it contained many long narrow inlets and offered protection from sea ice year-round, thanks in part to the fact that it was sheltered from the cold Labrador Current. Another advantage to developing aquaculture along the south coast was the fact that the area is quite isolated geographically and offered a sizable reserve labor force that had long awaited the development of a stable industry in the

region [37].

Although initially consisting primarily of relatively small, family-owned operations, by the end of the 1980s, the area began to draw increasing interest from larger companies that had established major operations in other regions, especially in the Bay of Fundy [38]. During this period, the federal Department of Fisheries and Oceans also arranged with the Newfoundland Salmon Growers Association (NSGA) to import stock from the St. John River in New Brunswick. Since that time, Newfoundland producers have been importing eggs from a variety of sources in Canada and the United States [39,40]. There has also been expanded government support in the form of feed-lan insurance and other financial subsidies. With the continued support of the federal and provincial governments, the industry has invested in all phases of production “from egg to plate” [25,41–45]. This includes everything from feed facilities to hatcheries, grow-out sites, and processing companies, and distribution networks—resulting in greater vertical integration in the industry. As Hébert points out, the drive toward greater consolidation and vertical integration in the global salmon aquaculture industry was largely designed to conform to the demands of major retail and food-service companies (such as COSTCO and Walmart), making the industry more capable of supplying large quantities of fish at any time of year [46].

Over the course of the next two decades, production continued to expand and the south coast of Newfoundland has remained one of the main areas of aquaculture growth in the country. By 1997, Newfoundland was producing 613 t of Atlantic salmon and 355 t of trout for a total of 982 t. Sixteen years later, in 2013, Newfoundland had more than doubled that number producing 22,196 metric tonnes of salmon and trout combined, second only to British Columbia, which produced 75,808 metric tonnes [34].

Bavington makes the point that the growing support for aquaculture in Newfoundland must be contextualized within the history of failures to manage the cod fishery sustainably. After the declaration of a moratorium on cod fishing in 1992 and 1993, aquaculture benefited strongly from increased attention from the provincial government, academic institutions, and private capital. Ultimately, he argues, “the demise of cod was presented as a profitable business opportunity” [25]. While cod aquaculture has since fallen by the wayside in terms of commercial viability due in part to the emergence of new sources of whitefish around the world [47,48], the optimism surrounding the continued growth of salmon, trout, and mussel farming in the province has only intensified.

Since the aquaculture industry in Newfoundland and Labrador has become a site of intensive capital investment, from government and industry alike, continual expansion of production has long been viewed as a necessity in order to recoup this investment and make the industry profitable. To justify continued expansion, however, the industry must continually manage the increased risk of environmental crises that accompany rapid growth, as well as public skepticism that emerges in response to the negative publicity such crises generate. There are a variety of social and environmental concerns that have arisen wherever industrial scale salmon aquaculture is practiced. Primary among these are concerns related to issues such as: environmental and fish health, worker health and safety, and the use of marine space [25,49,50]. In this context, the Canadian finfish aquaculture industry has employed a variety of strategies in their efforts to manage public perception. Focusing on several controversial episodes that have occurred during the last five years, subsequent sections draw attention to the different strategies that representatives of the Newfoundland and Labrador aquaculture industry have employed in an attempt to respond to their critics and present themselves in a more favourable light. In particular, this discussion focuses on responses to: (1) the threat of escapes and associated impacts on wild stocks and (2) the threat of disease outbreaks (particularly Infectious Salmon Anemia or ISA).

The conceptual toolkit provided by Benson and Kirsch is very useful in examining the ways in which the aquaculture industry has sought to

manage crises in the Newfoundland context. Whereas Benson and Kirsch focus their attention solely on private corporations, however, this paper shows that, in Newfoundland at least, the division between private and public bodies is not so clear, since multiple levels of government have historically played a critical role in developing, maintaining, and promoting industrial aquaculture. In this case, then, it may be prudent to expand the term ‘industry’ to include the complex assemblage of government agencies, applied researchers, corporate interests and industry associations that have been actively involved in the development and expansion of the sector. From the beginning, the aquaculture industry has received considerable subsidies and political support from different levels of government and has benefitted from applied work carried out by university scientists, but these actors are largely absent from the analysis provided by Benson and Kirsch. The activities of these supporting organizations need to be considered in order to meaningfully analyze the ways in which the Newfoundland finfish aquaculture sector has developed and the ways in which it has managed ecological crises. Each of these crises will be considered separately when assessing the use of strategies of denial and acknowledgement and token accommodation in order to highlight the specifics of how each issue has evolved over time.

4. Salmon escapes

Within the salmonid aquaculture industry in Newfoundland, reducing the number of fish that escape from captivity has become a significant area of concern. New studies highlighting the potential for farmed fish to interbreed with wild fish, to introduce new diseases or parasites, to compete for space and resources, and to bring about other ecological risks have been cited as major concerns, particularly by organizations like the Atlantic Salmon Federation, the Salmonid Council of Newfoundland, and the Eastern Newfoundland Salmonid Association, which have been highly critical of the continued expansion of aquaculture in the province [51–54].

The most frequent strategy that the industry has employed when talking about the threat of escapes has been denial. The summer months of 2010, when Ben Rigby conducted fieldwork along the south coast of Newfoundland, was a period of intense optimism about the prospect of future growth, both from an industry standpoint and from the standpoint of coastal communities who stood to gain considerable employment from this expansion. Rigby was repeatedly told by industry and government spokespeople that the south coast was unique, and did not present the same risks as places like the Bay of Fundy, British Columbia, or Chile, where aquaculture industries had undergone major upheavals as a result of growing environmental concerns that had made international headlines.

Benson and Kirsch note that attempts at denial, often involve the “manufacture of uncertainty” or ignorance through the promotion of science that supports a particular point of view [14]. This is science that is often funded, either directly or indirectly, by the corporations themselves and which is meant to directly counteract any other scientific research that is viewed as a threat to the operations of the industry, thereby spreading doubt in the minds of the public. Promoting competing science has been a major way in which proponents of the Newfoundland aquaculture industry have endeavoured to create a sense of doubt about escapes. In an interview Rigby conducted with a Department of Fisheries and Oceans scientist who had worked closely with the aquaculture industry on the subject of escapes, he explained this dynamic as follows:

We have had some criticism from the wild salmon groups saying that a lot of fish are escaping, and there is quite a bit of bogus information coming out. They always say “...there’s tonnes of escapes coming out of our salmon pens.” If you look at the real information, it’s been really cut down a lot since we put in different protocols here in the province...So there is quite a bit of misinfor-

mation out there...Wild fishery interests have established their opinion and they filter all the data and only accept those data points and those observations that confirm or enforce their existing perceptions. The aquaculture industry does the exact opposite. They are saying “these problems don’t occur” and they filter the literature to show the exact opposite. They only consider information that supports their position.

The main organization that represents the aquaculture industry in Newfoundland is the Newfoundland Aquaculture Industry Association (NAIA), a non-governmental organization that works as a liaison between aquaculture companies and government and promotes the interests of aquaculture companies [55]. The organization's president at the time of this research was Cyr Couturier, who also works as a Research Scientist at the Marine Institute at Memorial University of Newfoundland. Couturier has been actively involved in the promotion of aquaculture development in Newfoundland and around the world since 1980, including two terms as NAIA president, and he has become the most publicly visible spokesperson for the industry in the province [56]. His Twitter account is a public forum through which he repeatedly posts articles on the health benefits of farmed fish. Little mention is made of major escapes, diseases, or sea lice. Instead, it serves as a platform from which he disseminates messages promoting the virtues of the industry and framing it as a sustainable contributor to the economy. For example, one tweet on April 1, 2014 argued that “#aquaculture will be critical for adapting to #climate change in the future for food security” while sourcing an article in Forbes magazine on climate change in which aquaculture is not mentioned once [57].

On December 12, 2011 Couturier published a tweet amid growing concerns about escapes, claiming that “[f]ish and shellfish farmers are environmentalists at heart: their production is inextricably linked to environmental and social sustainability” [58]. Couturier followed this up with an even stronger statement on the issue two years later in a letter to the editor of The Coaster newspaper. After several highly publicized escape incidents that occurred between 2011 and 2013, he stated:

Over 30 years of responsible salmon farm development also shows us that our industry does not have a negative or long-term impact to other coastal resources. Above average returns to the Conne River once again this year demonstrate that salmon farms and wild salmon can coexist. There are thriving recreational salmon fisheries in all other jurisdictions where salmon farming occurs, and these facts simply cannot be ignored [59].

The Atlantic Salmon Federation (ASF) an NGO concerned about the status of wild salmon stocks disagreed with this characterization, however, and quickly published a response to the letter by Couturier, stating:

Mr. Couturier's statement that there are “above average returns once again this year” on the Conne River, which “demonstrate that salmon farms and wild salmon can coexist” is simply not true. To the contrary: the South Newfoundland Atlantic salmon population, which includes the Conne River, is the only population of salmon in NL to be considered for federal listing under Canada's Species at Risk Act. Coincidentally, this is also the only population of salmon whose range falls within the heart of NL's open net pen salmon farming industry...Based on tips given to them from the general public, DFO has confirmed the presence of escaped farmed salmon in at least six other rivers adjacent to the aquaculture industry this year alone [2013]; so there's no reason to believe that they're not in the Conne River as well. In fact, the Conne River Band¹ sent 15

salmon caught in the Little River estuary adjacent to the Conne last winter to DFO for testing and they were all confirmed to be aquacultured fish! [60].

When Rigby was living in the Bay d'Espoir region in 2010, he spoke to several anglers who reported catching farmed salmon in local rivers and some even claimed that an active recreational fishery had sprung up in certain areas as a result. In spite of these observations, however, NAIA and other industry advocates consistently downplayed or outright rejected the idea that escapes were happening in significant numbers or that they represent a chronic problem that needs to be addressed. Over time, however, the prevalence of escapes from salmon farms reached such levels that they necessitated different strategies on the part of the industry.

In May 2013, farmed fish were identified in the Garnish River in Fortune Bay, a considerable distance away from the main growing sites in the Bay d'Espoir, Hermitage Bay, and upper Fortune Bay region [61]. This event lifted the veil of doubt that industry statements had cast over the issue of farmed salmon escapes and forced them to engage more directly with the problem and admit the existence of small numbers of escapes. A May 29th article in The Coaster newspaper reported on the fish found in the Garnish River and quoted industry representatives offering some conciliatory responses to the problem of escapes. Cyr Couturier, for example, while acknowledging the existence of the escaped fish claimed that “the number of fish seems to be very small” [61]. Others industry advocates have pointed out that the fish were very likely sterile and do not pose the threat of interbreeding with wild fish. A short time later, volunteer anglers were issued salmon licenses in an attempt to catch as many of the escaped fish as possible, provided they also agreed to collect and submit biological data about the fish they caught to DFO [62,63]. In a news report in June 2013, DFO's Geoff Perry noted that 25 farmed fish were caught in the Garnish river and stated that the fish had been tracked to one of three aquaculture facilities in Fortune Bay [64]. Interested anglers were offered special licenses to remove other possible fish from the river. Again, anglers were told to document the salmon's size, weight, location and take scale samples.

Critics argue that when the aquaculture industry says there have been no “significant escapes”, what they are really saying is that there have been “trickle escapes,” a term for which there is no accepted definition, according to Don Hutchens, president of the Salmonid Council of Newfoundland [61]. An individual commenter on the aforementioned article in The Coaster shed additional light on what he believed the industry and the government had been hiding over the years:

Mr. Perry with DFO states that fish have trickled out of the cages and the losses are small. This information is false and hundreds of thousands have escaped, but have not been reported. Perry it seems is the only person who is not in the know with regards to what is actually going on down here. Mr. Couturier says that the regulations are tighter since 1999 with reference to the netting and it is working. If this is the case how come dozens of tuna fish just swim through the net each year? In the beginning of the aquaculture industry, fishery workers here used to kill the tuna with 12 gauge shotguns and that proved to be not effective so now the workers are using harpoons like in the whaling days. Dozens of tuna are killed and discarded from the cages each year. Most are dumped other than what the workers eat and sell locally themselves. With each tuna that gets into the cages hundreds and sometimes thousands of salmon escape according to the workers [59].

In September of that same year, upwards of 20,000 market-ready fish escaped a pen near Hermitage Bay [65]. Representatives of Cooke Aquaculture, the owners of the pen, claimed that the fish would be eaten by seals and that they posed no risk to the surrounding environment [65,66]. While fishermen with special licenses were able

¹ The term “Conne River Band” refers to the Miawpukek First Nation, a Mi'kmaw Reserve on the Conne River which is the only recognized reserve on the island of Newfoundland.

to retrieve approximately 2000 escaped farmed salmon, this was only a small fraction of what was lost. This event led even more people to question the claims of the industry that escapees did not pose a serious threat to wild stocks.

In each case, DFO issued experimental licenses, allowing both the industry and local anglers to harvest and keep fish believed to have escaped from farm sites. The effort was an acknowledgement that a problem existed and an attempt to accommodate the concerns of critics of the industry. The goal was not, however, to bring about an extensive rethinking of operations of the industry, and thus did not in any significant way alter the manner in which aquaculture companies were required to conduct their business.

By the end of 2013, the presence of farmed fish has been confirmed in nine rivers along the South Coast. An article published by the Canadian Broadcasting Corporation confirmed that fishermen had found fish as far away as the Grandy River, near Burgeo on the Southwest Coast of the island, which is not close to any aquaculture sites. The article claims that approximately 750,000 farmed salmon have escaped farm sites since the industry started and very few have been retrieved [67]. Furthermore, in 2016, the Department of Fisheries and Oceans released the results of a major study which showed that in 17 of 18 rivers studied showed evidence of interbreeding between wild and escaped farmed salmon and that more than a third of the thousands of fish sampled showed evidence of hybrid ancestry [68].

This also raises additional concerns about the spread of diseases and parasites such as sea lice from farmed to wild populations, which has been documented in numerous other locations around the world and is widely believed to have occurred in Newfoundland as well [69,70]. For example, in 2013, the owner of a fishing lodge on the South Coast of Newfoundland claimed that sea lice had been negatively impacting many juvenile wild salmon in the area, noting: “[The] vicinity around the sea cages is heavily infested with sea lice ... and the sea lice gets on these smolts (juvenile salmon) and kills them” [67].

5. Infectious Salmon Anemia (ISA)

According to the Canadian Food Inspection Agency’s website, the disease Infectious Salmon Anemia (ISA) can cause death rates of up to ninety percent in affected populations. It has also been confirmed to spread easily from domesticated to wild populations [71]. ISA was first documented in Atlantic Canada in 1996 when it was detected in fish at sea cage sites in New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland, and the risk of a major outbreak has remained an ongoing concern ever since. While no major outbreaks of ISA occurred in Newfoundland historically, other disease outbreaks have seriously impacted the industry over the years. For example, Furunculosis outbreaks forced the destruction of thousands of fish, especially in the early years of the industry. Since that time, however, new techniques and biosecurity measures have been adopted in an effort to prevent disease epidemics from taking hold. Many of these approaches were borrowed from aquaculture operations in mainland Canada, which had more experience in dealing with outbreaks. The implementation of these new biosecurity protocols still did not lead to the industry openly admitting that ISA was a serious risk, however. For years, aquaculture advocates denied that ISA could pose a serious threat to Newfoundland farms. As one DFO scientist explained to Rigby in 2010:

The aquaculture industry will say: ‘...but we don’t see that problem...we don’t see that here,...that disease doesn’t exist here’, or ...’yes, we could get the disease on our farms but it happens at a different time than when the wild salmon are returning so it’s not a threat...’

Once again, according to Benson and Kirsch, the main tactic employed by industries in the denial phase is the proliferation of doubt. In this case, this has normally taken the form of outright

rejecting the notion that ISA represents a significant risk in Newfoundland. Representatives of the Atlantic Salmon Federation have also noted that the industry and government have a history of blaming wild fish for those disease episodes that have occurred, arguing that wild fish were more likely to introduce ISA to farmed fish rather than the other way around [60]. Over time, however, these claims have also proven impossible to sustain.

In July of 2012, an aquaculture site near Conne River that was operated by the company GrayAqua was forced to cull 450,000 fish after infectious salmon anemia was detected [72]. A year later, one of the company’s other sites near Hermitage Bay was placed under quarantine following another positive test for ISA [73]. Cooke Aquaculture underwent a similar procedure in December of 2012 after an outbreak at their site near Hermitage Bay resulting in the loss of another 450,000 fish [73,74]. This same scenario was repeated three more times in 2013 [75]. These outbreaks had serious consequences for both of these companies. Cooke was forced to close its processing plant in Harbour Breton and Gray Aqua filed for bankruptcy protection as a result of its lost revenues [76]. The affected companies were, however, compensated for their loss by a federal government insurance program, a program which also provides them with a lump sum payment for each fish that escapes to compensate them for their lost revenues.

After these outbreaks of ISA, spokespeople for the Barry Group, owners of the local Harbour Breton salmon processing plant, claimed the outbreak was merely a symptom of a “maturing industry” stating: “these ISA cases, although unfortunate, are not the end of the world. Rather they are the maturing of the industry as we learn how to handle different events so that we can have an aquaculture industry in Newfoundland well into the future” [76]. This echoed the stance taken by the provincial Minister of Fisheries and Aquaculture, Darin King in 2012 who argued:

It is important that all information be presented in a factual manner. ISA virus occurs naturally in the wild; it is not created through activities related to aquaculture and it cannot be linked to declining wild fish stocks. In addition, farmed salmon is completely safe for human consumption...NL farmed salmon is second to none in terms of quality, taste and food safety [77].

Despite the massive loss of fish that followed from the crisis, and the ramifications that were felt throughout the industry, Minister King still sought to portray ISA as being of limited concern and took steps to minimize the culpability of the aquaculture industry in its spread, noting that the disease “occurs naturally”, is “safe for human consumption”, and “cannot be linked to declining wild fish stocks.” In an apparent attempt to reassure both investors and consumers, Minister King’s successor in the Fisheries and Aquaculture portfolio, Derrick Dalley, insisted that the “situation would not make the province gunshy about future investment in aquaculture operations” [78]. Subsequent budgets unveiled by two different political parties have kept subsidies to the aquaculture industry intact through loans and investor stakes, in spite of the introduction of austerity measures across a host of other sectors. In another article, Dalley noted: “We also have significant protocols and standard operation practices in place, and we will continue to build this industry while being ever aware of the challenges it presents” [79]. As a gesture of token accommodation, the Minister stated that government and industry are working together to make some changes. These would come in the form of increased “vigilance” and taking steps to “be always cautious about this serious matter,” though substantive regulatory changes did not occur [79].

Benson and Kirsch argue that a major strategy for companies in the acknowledgement and token accommodation stage is the employment of “audit culture,” a term they borrow from anthropologist Marilyn Strathern to refer to mechanisms of self-monitoring which give the illusion of greater accountability. Audit culture, they argue, provides an opportunity to develop “regimes of monitoring and accountability that

fail to produce real change” [14,80]. A clear example of this in the Newfoundland context has been the adoption of industry-led certification programs. The most obvious example is the commitment of some companies to the Best Aquaculture Practices (BAP) industry certification program [81].

BAP certification is achieved through independent audits and has been widely used by companies to promote their commitment to sustainability. Early in 2014, it was reported that Cooke Aquaculture had received the BAP certification for their sites in New Brunswick, Nova Scotia, Newfoundland and Labrador, and Maine [82]. Cooke's press release upon receiving the award lauded the company's commitment to the environment stating: “A healthy marine environment is vital to our operations and certification through third parties ensures that we remain sustainable in our practices and helps us set goals for improvement” [82,83]. In recent years, many criticisms have emerged in response BAP standards and related certification programs. The U.K. based Salmon and Trout Association, for example, had this to say about the introduction of BAP standards: “We do not accept the claim that farms that meet these standards are environmentally and socially responsible” [81]. The organization has suggested that most of the companies that receive BAP certification still have a considerable distance to go before they can live up to their claims of being sustainable.

The second gesture of token accommodation has been the recent attempt by NAIA to work with the provincial government to develop a bay management plan for areas along the south coast in order to assess the biosecurity protocols and “look at issues facing the industry moving forward” [79]. Since the recent outbreaks of ISA, the perceived need for a new management plan has become more pressing and it has received strong public support from Cooke Aquaculture and other prominent companies, though once again, specific changes have been slow in coming [84].

A third initiative that has been developed by industry and government in response to the crises of 2012 and 2013 was the development of a new online public consultation process with the stated goal of establishing “what must be done to continue fostering the success of aquaculture in Newfoundland and Labrador” [84]. However, the discussion document does not mention ISA or any other disease even once, despite the claim that “this document is designed to stimulate public feedback by highlighting industry accomplishments and identifying strategic issues relevant to the continued sustainable development of aquaculture in Newfoundland and Labrador” [84]. Furthermore, the provincial government decided that the process would be undertaken under the leadership of the industry association NAIA, which some critics regarded as a case of allowing the fox to guard the henhouse. Many critics regarded the three week consultation and renewal process as being too short and too restrictive to be of any real use and, therefore, of questionable legitimacy [84].

On November 19, 2013, the CBC radio program *The Fisheries* Broadcast aired interviews with NAIA president Cyr Couturier and then opposition Liberal Party Fisheries and Aquaculture critic, Jim Bennett, to discuss different perspectives on the government's consultation process. During the interviews, it became clear that the responses adopted by the industry and the government amounted to few fundamental changes to the existing production process. Couturier argued that adopting the more extended and inclusive consultation program put in place in Nova Scotia would be a “waste of a tax payer's money,” claiming that a year-long review process which would hold public meetings in communities around the province simply wasn't necessary or feasible, adding:

What they end up with these public consultations is they end up with four or five people from the community (they've had over 40 of these), really the only people that show up at these consultations are people that for one reason or another are just anti-aquaculture...so it doesn't seem to work that well [85].

Couturier's dismissal of the Nova Scotian critics as “for one reason or another just anti-aquaculture” served to dismiss the legitimacy of the arguments put forward by critics of the industry.

Jim Bennett on the other hand, was highly critical of the consultation process undertaken by the industry, stating:

They say they want to receive feedback, but then they get to pick and choose it and do whatever they want with it...Nova Scotia is having public meetings, but this process is really meant to be a whitewash to make it look like they're doing something. The government says: ‘Well we have all these biosecurity measures in place...’ Well that doesn't do anything for you if the fish get sick from ISA while they're in the water! It doesn't do anything for you in combatting sea lice! ... There are some really important public concerns on this issue and it seems the government just wants to hear from people by e-mail, maybe fax; a one-way type of communication from a limited number of people...only the types of people who have a vested interest in the outcome. Various types of people in the province should be entitled to input on aquaculture [86].

The interviewer then asked Bennett whether he thought that this process might have come about as a reaction to the recent ISA issue and other controversies that have emerged in recent years, to which Bennett replied:

I think you'd have to take it as a reaction to the really bad outcomes they've had in the past year. The very first ISA outbreak that we had, that was documented in this province was last year in June and July and it ran over a period of two weeks...Now we've had five of them in all and tens of millions of dollars have gone into compensation. Gray Aquaculture's gone bankrupt; Cooke has shut down for six or seven months on the south coast, so clearly there's a big problem here. A simple whitewash, which is the way the Minister is designing these consultations, just won't do! [86]

Ultimately, the government report issued at the end of the consultations suggested expanding the industry with government support at an even faster rate than asked for by NAIA.

6. Discussion: crisis management and the compromises of neoliberalism

The third phase identified by Benson and Kirsch is “crisis management,” which occurs when evidence of negative impacts caused by an industry become so prevalent that they become impossible to deny or accommodate and must be confronted more directly. In the crisis management phase companies are often compelled to engage more actively with regulatory processes and make additional compromises. Benson and Kirsch argue that even when industries are forced to go into full crisis management mode, however, few fundamental changes to their operations can be expected. What they seek is a renewed legitimacy in the public eye by engaging strategically with the regulatory process. There is always a stopping point, however: a point at which the corporation will cut off all discussion of change. The limits, they suggest, are typically “defined by economic interests of industry and are safely governed by the rituals of audit culture, the regulations of certification programs, the values of harmonious compromise, and the appearance of benevolence when a corporation acknowledges some degree of risk or harm” [14].

While this certainly resonates with the Newfoundland finfish aquaculture experience, what is so striking about this case is that, in spite of repeated and increasingly conclusive evidence of ecological crises in the form of chronic fish escapes, interbreeding between farmed and wild fish, sea lice being spread between farmed and wild fish, and major infectious salmon anemia outbreaks, the industry has not been subjected to significant new restrictions from regulators. To the contrary, both levels of government have retained a clear commitment to the continual expansion of the sector, now at an even faster

rate than ever before. This has meant going beyond the rhetorical strategies identified by Benson and Kirsch and actively transforming the regulatory landscape to suit the needs of the industry. This was demonstrated, in no uncertain terms, recently when Norwegian aquaculture companies Grieg NL Nurseries Ltd. and Grieg NL Seafarms Ltd., both subsidiaries of Grieg Seafoods, were authorized to establish what is by far the largest aquaculture operation in the history of the province in Placentia Bay in 2016. Once operational, the \$251 million hatchery and grow out complex promises to produce seven million smolts annually and an annual harvest of 33,000 t of Atlantic salmon [87]. Placentia Bay is known for its high biodiversity and has some of the best wild salmon rivers in the province, and it had not been previously targeted for large-scale aquaculture development. Nonetheless, the provincial government decided that the potential revenues and employment to be generated by the proposed project justified the decision to waive the requirement that it pass an environmental assessment. The company was also pledged \$45 million in investment dollars from the provincial government.

That such a major intensification of production could be authorized without environmental assessment or extensive public engagement at exactly the moment when so many new revelations about harms to wild salmon that can be directly linked to industrial aquaculture had been made raises questions about the inevitability that harm industries will eventually be forced to enter the crisis management phase identified by Benson and Kirsch. To the contrary, at this point it appears that the Newfoundland aquaculture industry has been spared by the provincial government from entering into full crisis management and has been allowed to continue to expand with only a token accommodation of critical voices in the form of an industry-managed public engagement process. It appears that the degree of economic and political entanglement between developers and regulators has reached a point where the imposition of new regulations that might limit the capacity of the industry to maximize its profitability is simply not viewed as a viable option, regardless of the potential impacts on wild fish. In effect, industrial finfish aquaculture in the province has been deemed “too big to fail,” whereas the health of wild fish and the interests of those who depend on them for food or recreation have been deemed expendable. This situation has much to say about the state of environmental regulation under neoliberalism, where governments are increasingly prioritizing their roles as development advocates and investors over their responsibilities to protect the health of the environment and non-human animals, as well as the interests of many citizens.

While a significant public backlash against these decisions has occurred, including a recent law suit filed against the government over its decision to bypass the environmental assessment process [88], thus far it seems unlikely that these pressures will be sufficient to derail plans to significantly expand the industry. This was made clear by the recent decision of the Newfoundland Minister of the Environment to reject an appeal of the decision to authorize the development [89]. While the relative geographic remoteness of the areas in question has clearly been a factor in limiting public mobilization in response to these problems, this is only part of the story. Following Benson and Kirsch, it appears likely that we are also witnessing a manifestation of the “politics of resignation,” since the ongoing subjugation of environmental protection to resource development has been a recurring theme in the history of the province and one that does not appear likely to change any time soon. This may be leading to growing complacency on the part of the citizenry and growing cynicism about their capacity to meaningfully impact resource development and conservation policies.

7. Conclusion

The rapid expansion of salmonid aquaculture around the world has been plagued by a series of problems that have resulted in the destruction of large populations of farmed fish and raised concerns about the potential impact of farmed fish on wild stocks. This suggests

that, in its present form, industrial salmonid aquaculture can be classified as what Benson and Kirsch refer to as a harm industry, since the production of environmental harms seems to be endemic to the production of domesticated fish in open pens on an industrial scale.

This paper has focused particular attention on the ways in which representatives of the Newfoundland aquaculture industry have endeavoured to manage public perception in the presence of recurring ecological crises, particularly escapes of farmed fish and subsequent intermingling with their wild cousins, and outbreaks of the disease infectious salmon anemia (ISA). Drawing upon transnational discourses like corporate social responsibility and sustainable development, industry spokespeople initially denied that these issues represented serious concerns. Instead, they continually worked alongside advocates within government to promote an image of sustainable aquaculture feeding the world and providing economic salvation for beleaguered rural fishing communities. Since its inception, the Newfoundland finfish aquaculture industry has been the recipient of ongoing injections of public money, particularly after the collapse of the cod fishery in the early 1990s, when it was framed as a more predictable, sustainable, and lucrative alternative to the inescapable flux and uncertainty of wild fisheries. Using extensive government subsidies, including feed loan guarantees and insurance against disease losses along with capital stakes in the farming operations themselves, the Newfoundland government has sought to lure aquaculture investments away from other areas and spur continual growth. In this sense, Newfoundland's permissive climate can be seen as a spatial fix for crises in other areas of Canada, Norway, Chile, and elsewhere, where environmental problems stemming from salmonid aquaculture operations have generated controversy, resulting in a loss of legitimacy, a tightening of regulations and/or the oversaturation of farming areas.

As evidence of environmental problems caused by industrial aquaculture in Newfoundland became undeniable as well, however, there was a gradual shift toward acknowledging that these problems exist and making some token accommodations to the arguments of critics in an attempt to counteract negative publicity. This has included such things as obtaining certification from industry groups, showing greater openness toward the establishment of bay management plans, and allowing for carefully managed opportunities for public input. These gestures amount to little, other than an embracing of corporate audit culture, however, and have not brought about significant changes to the operations of the industry.

What is particularly noteworthy about this case is that, despite the fact that environmental crises have continued to plague the industry in recent years and public concern is growing, aquaculture companies have, thus far, been prevented from entering into a state of full crisis management, which might result in an increasingly restrictive regulatory environment. To the contrary, the industry has continued to expand at a torrid pace, even as new revelations are emerging about the full extent to which commercial farming operations are impacting wild stocks, encouraged by an increasingly permissive regulatory climate. This paper has argued that the Newfoundland experience with finfish aquaculture is emblematic of the state of environmental regulation within a neoliberal policy environment, where the state and state-funded institutions such as universities have become such pivotal players in financing and promoting the growth of private industry and are often reluctant to do anything that could potentially curtail that growth. Whether or not public concern about the environmental effects of large-scale fish farming will eventually generate enough public pressure on governments to bring about a policy reversal or whether the politics of resignation described by Benson and Kirsch has become too strong to be overcome remains to be seen. Regardless, however, as Benson and Kirsch note, the politics of resignation is never complete and always subject to change. Closer attention to the linkages between academia, government and the corporate sector along with analysis of the spatial and temporal interconnections between different aquaculture locations has the potential to generate additional insights about

the possibilities and perils of resisting the continued growth of industrial aquaculture and could point the way toward more genuinely sustainable alternatives for rural coastal communities in Newfoundland and around the world.

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