Status and Evolution of BC's Aquaculture Debates

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Early Evolution - The "Wild West"

Industrial salmon aquaculture came to British Columbia in the 1970s. Though the first attempt to farm salmon in B.C. was by Crown Zellerbach in 1971, the company was unable to obtain a license. And as its salmonids had been imported from the United States, which was outlawed at the time, DFO ordered them to be returned. In 1972 B.C.'s first aquaculture license was granted to Moccasin Valley Marifarms, which obtained its salmon eggs from government hatcheries. Ten more licenses were granted that decade, with Coho and Chinook salmon being the most farmed species. Overall, salmon farming in the 1970s was unsuccessful because of a "failure to attract financial interest, lack of governmental support, isolation of sites and deficient technology."

In the 1980s, the early challenges faced by prospective salmon farmers on the BC coast began to resolve. Financial investment in BC increased in part due to a moratorium on new farms put in place by Norway, which pushed companies to look to BC for expansion opportunities. Several companies were financed by major Norwegian banks and began developing farms on the B.C. Coast around 1985. With increased investment and private sector interest, government involvement increased and the federal and provincial governments began to develop policies around licenses and permits. Crown governments were playing catch-up to put a framework in place to manage a relatively new and unknown industry.

In these early years, the majority of operations were sited off the Sunshine Coast, as it had optimal biophysical conditions and was close to the mainland markets. By 1985 seventeen salmon farms were operating off the Sunshine Coast, with 45 more farms expected to be established there in the following three years. The technology to support open net-pen aquaculture operations continually improved due to private and government investment in innovation and research.[1] Between 1985 and 1990, the industry grew quickly[2] (with 185 small salmon farms operated by over 100 companies by 1990)[3] and, with this growth, new concerns emerged. Concerns intensified after Atlantic salmon were introduced to the B.C. coast's salmon farming operations for the first time in 1984 .[4]

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[1] *Galland Thesis*, see note x, at 13-14.

[2] Dorothee Schreiber & Dianne Newell, "Negotiating TEK in BC Salmon Farming: Learning from Each Other or Managing Tradition and Eliminating Contention?" (BC Studies, no. 150, Summer 2006), at 80 ["*Schreiber & Newell*"].

[3] *Galland Thesis*, see note x, at 16.

[4] *Keller & Leslie*, see note x, at 38.

Environmental and Fisheries Concerns Emerge

As operations expanded and intensified through the 1980's, fishers and communities around the areas in which aquaculture operations were set-up began asking questions about the impacts of the farms. DFO had cut funding to study the effects of the industry, and little was known about the specific impacts along the BC coast. There was some research and data from Norway, Scotland and Washington State about disease and sea-lice in farmed fish populations but the state of knowledge about the environmental risks of the industry was murky at best.

At first, public concern centered on the expulsion of fish farm waste, which includes feces and extra feed. One main worry was that excess nutrients from waste leaving the farms would harm sea life by stimulating phytoplankton production and oxygen depletion in surrounding waters.[5] Fishers' early concerns included the potential transfer of bacterial kidney disease (BKD) from farmed salmon to wild salmon. In some areas, fishers objected to farms being located in areas that would impact traditional fishing grounds by restricting access and contaminating the benthic environment that supports key fisheries like prawn and shrimp.

The introduction of Atlantic salmon carried with it additional risks. Atlantic salmon were known to be susceptible to two specific diseases, furunculosis and viral hemorrhagic septicemia, which cause mortality in fish and are difficult to eradicate—so there was a fear of those diseases spreading to wild populations. Atlantic salmon are also particularly susceptible to sea lice, which are external parasites that feed on the skin and mucus of salmon and which also cause mortality in net-pen fish farms.[6]

Government regulation at this point was basic, and did not address the existing or emerging environmental concerns. Licensing was handled through the provincial Ministry of Lands, Parks and Housing and companies could secure a ten-year license after an initial license period.[7] With the province regulating aquaculture, DFO's jurisdiction was thought to extend only to the protection of wild resources through the *Fisheries Act*.[8] With limited attention and resources devoted to science around the industry and its impacts, DFO's position was that BC's salmon farms did not have "a deleterious impact on the environment".[9] As a result, the Department enacted no regulations under the Act to address salmon farming until 1995.

In 1986 there was a large phytoplankton bloom that killed 100,000 fish at one farm on the Sunshine Coast. This incident resulted in recommendations to move fish farms to less exposed locations.[10] Further pressure from fishers about impacts to wild fisheries resulted in a

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[5] *Keller & Leslie*, see note x, at 31-35.

[6] *Keller & Leslie*, see note x, at 35-40.

[7] *Keller & Leslie*, see note x, at 48-49.

[8] RSC 1985, c F-14 ["*Fisheries Act*"].

[9] *Keller & Leslie*, see note x, at 49.

[10] *Galland Thesis*, see note x, at 15.

temporary moratorium on fish farm licenses starting in November 1986. During the moratorium, David Gillespie conducted an inquiry and in December 1986, produced a report (the "Gillespie Report"). The 1996 book "Sea-Silver: Inside British Columbia's Salmon-Farming Industry" describes the Gillespie Report:

> *In it, he criticized all levels of government for the lack of a clear, comprehensive and integrated policy on aquaculture and asked for a federal-provincial agreement on the provision of services, setting of regulations and approval of licences. He recommended the simplification of provincial government license application requirements…*[11]

The Gillespie Report also made a number of recommendations regarding environmental monitoring, researching environmental impacts, cooperation among levels of government, simplifying the application process, requiring security from applicants, halting the importation of Atlantic salmon eggs, and lifting the moratorium.[12] The government implemented all of the recommendations other than halting the importation of Atlantic salmon eggs. Instead, it established an importation policy, and the whole industry began to switch to Atlantic salmon.[13]

1990's - 2000's : Restructuring and Consolidating the Industry

The 1990s saw a restructuring of the industry: operations moved north to the Broughton Archipelago and Discovery Islands regions. Operations became larger and ownership became more concentrated as larger multinational companies brought increased automation and economies of scale to the growing, feeding, processing and distributing of farmed fish. As these companies added tenures and built out operations in new locations, controversy over the industry's impacts increased again. The Provincial government responded with another temporary moratorium on new farms awhile it conducted a review. The results of the provincial Salmon Aquaculture Review were released in 1997 - the Province had concluded that, while further research was needed, the industry generally posed little threat to BC's coastal environment. Despite these conclusions, however, the then-NDP government kept the moratorium on new operations in place.

It was not until the BC Liberals came to power in 2001 that the moratorium on new tenures was lifted. Production levels started to increase again and, by 2003, farmed salmon became British

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[11] *Keller & Leslie*, see note x, at 56.

[12] *Keller & Leslie*, see note x, at 56-57.

[13] By 1993, Atlantic salmon was the dominant species: *Galland Thesis*, see note x, at 16.

Columbia's largest agricultural export.[14] Unsurprisingly, with this renewed expansion, opposition to the industry and concerns about its impacts again ratcheted up .

Regulatory Uncertainty - the First *Morton* Case and a Transfer of Jurisdiction.

Canada's Constitution outlines the "heads of power" of the federal and provincial governments, setting out a broad division of what areas each level of government is responsible for. There was some uncertainty, however, over which level of government should have primary responsibility for regulating fish farms. The Federal government has clear responsibility for "fisheries" while the province is clearly the lead on agriculture. The Province had assumed that aquaculture was not technically a 'fishery' and therefore was appropriately regulated under the provincial jurisdiction over agriculture and the seafloor over which tenures would be granted.[15]

This assumption was overturned in 2009, when the BC Supreme Court clarified jurisdictional roles in *Morton v. British Columbia (Minister of Agriculture & Lands)*. The Court found that finfish aquaculture operations were "fisheries" for the purposes of the Constitution's division of powers and so their regulation should fall to the federal government.

> *… fish reared in finfish farms on the coast of British Columbia are either a part of the overall British Columbia fishery or are a fishery unto themselves [and] in either case they fall under the jurisdiction of Parliament under s 91(12) of the Constitution Act, 1867.*[16]

The Province maintained its jurisdiction in relation to the management and sale of public lands belonging to the province,[17] as well as ownership of the seabed and waters between Vancouver Island and the mainland (the northern Salish Sea or Strait of Georgia).[18] As a result of these separate jurisdictions, Canada now regulates and licenses finfish aquaculture operations and British Columbia regulates the land on which aquaculture projects operate. Both levels of government are also involved in the spheres of processing, distributing, marketing and quality control. The working understanding of the roles of these two levels of government are described in the 2010 "Canada–British Columbia Agreement on Aquaculture Management."[19] When the federal government took over the regulation of aquaculture, it adopted many of the procedures, practices and systems that the province already had in place. It also chose to

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[14] Farmed salmon continues to be British Columbia's largest agricultural product: "2017 British Columbia Agrifood and Seafood International Export Highlights" (2017; accessed 29 September 2018), at 3, online: Government of British Columbia.

[15] *Constitution Act, 1987*, see note x, at ss 92(5), (13), (16).

[16] *Morton v British Columbia (Minister of Agriculture & Lands)*, 2009 BCSC 136 (CanLII) online.

[17] *Constitution Act, 1987*, see note x, at s 92(5).

[18] *Reference re: Ownership of the Bed of the Strait of Georgia and Related Areas*, 1984 CanLII 138 (SCC) online.

[19] "Canada – British Columbia Agreement on Aquaculture Management" (10 December 2010), online: Government of British Columbia. This replaced a previous MOU signed in 1988.

license all 120 open net-pen salmon farm operations that had been licensed by the province.[20] Of course, Ottawa also needed to develop a federal management framework, including new regulations, if not an entirely new piece of legislation. The Conservative government at the time opted to regulate the industry primarily under the existing *Fisheries Act*, rather than table new legislation.[21] It enacted the *Pacific Aquaculture Regulations*[22] ("*PAR*") to enable a new federal licensing regime.[23] It also needed to to provide a legal way for fish farming companies to continue to deposit waste into the ocean. Subsection 36(3) of the *Fisheries Act* prohibits the deposit of a deleterious substance in water frequented by fish,[24] and so the *Aquaculture Activities Regulation*[25] came into force to essentially provide an exemption to this general rule, allowing farms to release drugs and pest control products, as well as fish waste and excess feed, directly into the surrounding environment.

The Core Themes in Criticism of Aquaculture Regulation on the West Coast.

The current regulatory regime for fish farming on BC's coast has been criticized as being "complex, fragmented, and deficient in many respects."[26] First, the laws and regulations that apply to aquaculture operations are scattered and not cohesive. Both the provincial and federal government have multiple pieces of legislation that apply to different aspects of the industry and there have been calls as early as 1982 for a central piece of legislation at the federal level that is specific to aquaculture.[27] Second, there have been issues with data availability and transparency. The public has had little access to industry and regulator information about the impacts of the farms and there hasn't been enough research done to provide clear answers to major questions about risks and impacts. The importance of dedicating adequate resources to research and communicating technical information clearly with all interested parties was emphasized in the Cohen Commission's 2012 report. Cohen was clear that greater transparency around data from industry and governments could improve the regulatory system.[28] Finally, critics have argued that existing enforcement mechanisms are ineffective and that there are insufficient resources allocated to support on-the-ground enforcement. The Cohen Commission highlighted the limited enforcement options available and lack of resources as well:

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[20] BI Cohen, "Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, Volume 3" (October 2012; accessed 21 September 2018), at 18 (PDF p 35), online: Government of Canada.

[21] *Fisheries Act*, see note x, at s 7.

[22] SOR/2010-270 ["*PAR*"]. The *PAR* were enacted pursuant to s.43(1) of the *Fisheries Act*, see note x.

[23] *PAR*, see note x, at s 4; see also *Fishery (General) Regulations*, see note x, at s 22(1).

[24] *Fisheries Act*, see note x, at s 36(3):

[25] SOR/2015-77 ["*Aquaculture Activities Regulation*"].

[26] A Lee & P Cloutier de Repentigny, "Farming the Sea, a False Solution to a Real Problem: Critical Reflections on Canada's Aquaculture Regulations" (Working Paper Series 2018, No. 1; forthcoming in Ottawa Law Review, Vol 50, Issue 1), at 5-6, available online..

[27] Meinhard Doelle and Phillip Saunders, "Aquaculture Governance in Canada: A Patchwork of Approaches" (September 1, 2015; accessed 27 September 2018), at 31, 34, online: SSRN.

[28] *Cohen Commission Report, Vol 3*, see note x, at 19 (PDF p 36).

> *The only option to ensure compliance is to lay charges under the Fisheries Act, necessitating an expensive and time-consuming process for what may be a minor offence…Also, [DFO] does not currently have the financial or human resources capacity to undertake major investigations and keep abreast of its inspection duties with respect to salmon farms.* [29]

While debates have intensified around specific topics, these three core issues continue to underlie the majority of the ongoing tensions around the industry and its impacts.

The Cohen Commission

In 2009, the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (the "Cohen Commission") was established to investigate the decline of salmon stocks and develop recommendations. The Commission investigated potential causes of the decline of the wild salmon fishery, including open net-pen Atlantic salmon farms. Cohen concluded that aquaculture operations are a stressor for wild sockeye salmon and made a number of recommendations in relation to fish farms specifically (recommendations #3, 11-20, 58 and 68, as laid out in italicized, indented text below).[30] Perhaps most notable in terms of its impact on the aquaculture industry, the Cohen Commission Report stated that given DFO's "paramount regulatory objective [is] to conserve wild fish", it must protect the health of wild salmon stocks above all else—and this can include prohibiting net-pen salmon farming.[31]

Overall, the Cohen Commission found that there was a lack of research into the many stressors identified for wild sockeye salmon.[32] It found that, in particular, the state of the scientific research on wild sockeye salmon and fish farm interactions had not progressed enough to rule out diseases in fish farms contributing to the decline of the wild salmon.[33]

Beyond underlining the need for vastly improved scientific understanding about the risks posed to wild salmon from fish farms, the Cohen Commission Report expressed concern about DFO's double mandate to conserve wild stocks as well as promote the salmon farming industry. As Cohen concluded, this dual mandate results in an internal departmental conflict of interest

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[29] Bruce I Cohen, "Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, Volume 1" (October 2012; accessed 21 September 2018), at 372 (PDF p 402), online: Government of Canada.

[30] All of the Cohen Commission Report's recommendations are listed in the *Cohen Commission Report, Vol 3*, see note x, at p 104 (PDF p 121).

[31] *Cohen Commission Report, Vol 3*, see note x, at 11 (PDF p 28).

[32] *Cohen Commission Report, Vol 3*, see note x, at 89 (PDF p 106); in relation specifically to the lack of research into the effects of diseases from fish farms on wild salmon, see also BI Cohen, "Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, Volume 2" (October 2012; accessed 21 September 2018), at 113 (PDF p 129), online: Government of Canada.

[33] *Cohen Commission Report, Vol 3*, see note x, at 20 (PDF p 37).

when it comes to objectively assessing the risks that farms pose to wild stocks.[34] DFO has invested significant funding in promoting and supporting the fish farming industry. How can we expect the Department to neutrally determine whether the industry needs to be reformed or curtailed in order to protect wild salmon?[35]

To address this fundamental conflict that Cohen felt undermined the ability of the Department to regulate the sector effectively, he made the following recommendation:

> *The Government of Canada should remove from the Department of Fisheries and Oceans' mandate the promotion of salmon farming as an industry and farmed salmon as a product.*

In total, the Commission's Report made ten recommendations.

Data Collection and Transparency

First, it made the following recommendations about improving data collection:

> *In order to provide a longer time series of data on which to test for relationships between stressors found at salmon farms and the health of Fraser River sockeye salmon, the Department of Fisheries and Oceans should continue to require the collection of fish health data directly from operators of salmon farms and through DFO audits.*
>
> *For research purposes beyond routine monitoring, the Department of Fisheries and Oceans should require, as a condition of licence, that the operator of a salmon farm provide, on reasonable demand by DFO, fish samples, including live fish or fresh silvers (recently deceased fish), in a quantity and according to a protocol specified by DFO.*

And in relation to improving transparency and providing more open access to fish farms' fish health data, it made the following recommendation:

> *The Department of Fisheries and Oceans should give non-government scientific researchers timely access to primary fish health data collected through DFO's routine monitoring programs, including data that relate to farmed or wild salmon.*

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[34] *Cohen Commission Report, Vol 3*, see note x, at 12 (PDF p 29).

[35] *Cohen Commission Report, Vol 3*, see note x, at 11-12 (PDF pp 28-29).

A Precautionary Approach in Key Wild Salmon Habitats.

The essence of the precautionary principle is that, where a risk of serious or irreversible harm exists, a lack of scientific certainty should not be used as a reason for postponing or failing to take reasonable and cost-effective conservation and management measures to address that risk.[36] Though the Cohen Commission Report noted that Canada's position during the inquiry was that "the precautionary principle is not a principle of customary international law," it said that Canada has expressed its commitment to the precautionary principle in several pieces of domestic legislation relevant to the management and conservation of Fraser River sockeye,[37] as well as in several policies, action plans and strategies.[38] Overall, Mr. Cohen determined that he was "satisfied that the precautionary principle serves as an important guide in my consideration of the management and conservation of Fraser River sockeye."[39]

An example of the Cohen Commission Report specifically applying the precautionary principle is recommendation #14, which recommends that no new licenses be issued in the Discovery Islands and that existing licenses not be extended or have their production capacity increased. Wild salmon that migrate via the waters between northern Vancouver Island and the BC mainland must navigate a complex set of narrow channels, many of which are dotted with open-net pen Atlantic salmon farms.[40] As Cohen noted, these confined channels and the high density of salmon farms increases the risk of disease transfer to wild fish. This was the basis for Cohen's application of the precautionary approach (see below) in his recommendations about salmon farms in the discovery islands region:

> *Beginning immediately and continuing until at least September 30, 2020, the Department of Fisheries and Oceans should ensure that:*
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> - *the maximum duration of any licence issued under the Pacific Aquaculture Regulations for a net-pen salmon farm in the Discovery Islands does not exceed one year;*
> - *DFO does not issue new licences for net-pen salmon farms in the Discovery Islands ; and*

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[36] *Cohen Commission Report, Vol 3*, see note x, at 13 (PDF p 30).

[37] *Cohen Commission Report, Vol 3*, see note x, at 37 (PDF p 67). It cites: the *Oceans Act*, see note x; the *Canadian Environmental Protection Act*, SC 1999, c 33; the *Canadian Environmental Assessment Act*, SC 1992, c 37 (since replaced by the *CEAA, 2012*, see note x); and the *SARA*, see note x.

[38] *Cohen Commission Report, Vol 3*, see note x, at 37 (PDF p 67). It cites: the Wild Salmon Policy, the 2002 Aquaculture Policy Framework, DFO's 2005–10 Strategic Plan: Our Waters, Our Future, the Federal Sustainable Development Strategy, Canada's Framework for Science and Technology Advice, the 2005 Oceans Action Plan, and the Sustainable Fisheries Framework, among others [individual citations available in actual report].

[39] *Cohen Commission Report, Vol 3*, see note x, at 37 (PDF p 67).

[40] *Cohen Commission Report, Vol 3*, see note x, at 38 (PDF p 21).

- *DFO does not permit increases in production at any existing net-pen salmon farm in the Discovery Islands.*

In relation to the September 30, 2020 date included in the recommendation, Commissioner Cohen explained:

> *I have chosen September 30, 2020 because DFO should by then be able to adequately assess the likelihood of net-pen salmon farms causing serious harm to Fraser River sockeye. If, by that date, DFO cannot confidently say the risk of serious harm is minimal, it should then prohibit all net-pen salmon farms from operating in the Discovery Islands. If DFO is satisfied before September 30, 2020, that the risk is more than minimal, it should order a stop to net-pen salmon farming at that earlier date.*[41]

This recommendation (#14) is supplemented by recommendations #18 and #19, which relate to re-evaluating risk and mitigation measures for salmon farms prior to the stated deadline of September 30, 2020:

> *If at any time between now and September 30, 2020, the minister of fisheries and oceans determines that net-pen salmon farms in the Discovery Islands (fish health sub-zone 3-2) pose more than a minimal risk of serious harm to the health of migrating Fraser River sockeye salmon, he or she should promptly order that those salmon farms cease operations.*
>
> *On September 30, 2020, the minister of fisheries and oceans should prohibit net-pen salmon farming in the Discovery Islands (fish health sub-zone 3-2) unless he or she is satisfied that such farms pose at most a minimal risk of serious harm to the health of migrating Fraser River sockeye salmon. The minister's decision should summarize the information relied on and include detailed reasons. The decision should be published on the Department of Fisheries and Oceans' website.*[42]

As 2020 approaches, there will undoubtedly be increased debate about whether risks from existing salmon farms are "minimal". As these debates inevitably move through the court system, courts will be required to assess whether DFO is meeting its obligations, including the application of a precautionary approach to the protection of wild pacific salmon.

DFO's Aquaculture Policy Framework states that the federal *Oceans Act*[43] requires the government to "promote the wide application of the precautionary approach to the

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[41] *Cohen Commission Report, Vol 3*, see note x, at 93 (PDF p 110).

[42] Recommendation 20 explains how DFO may undertake recommendation 19.

[43] SC 1996, c 31 ["*Oceans Act*"].

conservation, management and exploitation of marine resources, in order to protect these resources and preserve the marine environment," and that DFO's use of the precautionary principle in the context of aquaculture development is to be informed by the *Oceans Act*.[44] Prime Minister Trudeau's August 28, 2018 mandate letter to the Minister of Fisheries and Oceans includes the precautionary principle as one of the Minister's top priorities: "[using] the precautionary principle… when making decisions affecting fish stocks and ecosystem management."[45]

The December 2017 report on Salmon Farming by the Office of the Auditor General found that DFO had not defined how it would manage aquaculture in a precautionary manner in the face of scientific uncertainty. The report recommended that DFO "determine and communicate how it applies the precautionary approach to managing aquaculture when there is uncertainty about the effects of aquaculture on wild fish… [and] clearly articulate the level of risk to wild fish that it accepts when enabling the aquaculture industry."[46]

In DFO's response to the report, it defends its current approach:

> *DFO will continue to apply the precautionary approach according to the Government of Canada's framework on precaution. The Department applies the precautionary approach where appropriate, as a subcomponent within an overall decision-making approach, to deal with risks of serious or irreversible harm even with significant scientific uncertainty. Even when a particular activity is deemed "low" risk, lack of full scientific certainty shall not be used to postpone mitigation measures to prevent further potential environmental degradation…*[47]

DFO then states it "will further explore options, building on best practices in the current pathway of effects framework, to more clearly articulate, by March 2019, how precaution and the application of risk assessments inform departmental decision making."[48]

Siting Criteria

In addition to specifically addressing the concerns with salmon farms in the narrow channels of the Discovery Islands, the Cohen Commission also recommended revising the general siting criteria for Atlantic salmon farms. It recommended that these criteria include the proximity of

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[44] Fisheries and Oceans, *Aquaculture Policy Framework* (modified 1 November 2018: online.

[45] Office of the Prime Minister, *Minister of Fisheries, Oceans, and the Canadian Coast Guard Mandate Letter*, (August 28, 2018), online.

[46] *Report of Auditor General on Salmon Farming*, see note x, at 1.50.

[47] *Report of Auditor General on Salmon Farming*, see note x, at 1.50.

[48] *Report of Auditor General on Salmon Farming*, see note x, at 1.50.

the proposed site to migrating salmon and be revised every five years with input from First Nations and stakeholders—and that they be subject to scientific peer review:

15. *The Department of Fisheries and Oceans should explicitly consider proximity to migrating Fraser River sockeye when siting salmon farms.*
16. *After seeking comment from First Nations and stakeholders, and after responding to challenge by scientific peer review, the Department of Fisheries and Oceans should, by March 31, 2013, and every five years thereafter, revise salmon farm siting criteria to reflect new scientific information about salmon farms situated on or near Fraser River sockeye salmon migration routes as well as the cumulative effects of these farms on these sockeye.*
17. *The Department of Fisheries and Oceans should apply revised siting criteria to all licensed salmon farm sites. Farms that no longer comply with siting criteria should be promptly removed or relocated to sites that comply with current siting criteria.*

Wild-Farmed Disease Interaction Research

Finally, Cohen recommended that the Department undertake research to shed light on the disease risks that wild salmon face during their migrations and whether Atlantic salmon farms are transferring diseases to wild fish:

> *The Department of Fisheries and Oceans should undertake or commission research into the health of Fraser River sockeye salmon, including the following issues:*
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> - *determining, in conjunction with the research proposed in Recommendations 64 and 65, what pathogens are encountered by Fraser River sockeye salmon along their entire migratory route, and the cumulative effects of these pathogens on Fraser River sockeye salmon;*
> - *the hypothesis that diseases are transmitted from farmed salmon to wild sockeye;*
> - *the hypothesis that diseases are transmitted from salmonid enhancement facility salmon to wild sockeye; and*
> - *the thresholds of sea lice infection and resilience in sockeye and the patterns of sea lice distribution and infection on juvenile sockeye [emphasis added].*

And while progress has been made in understanding the risks and vectors related to some diseases that may affect wild salmon since the Cohen Commission, there is still significant debate about the extent of pathogen transfer between farms and wild migrating populations as well as the risks associated with those transfers. Essentially,

the hypothesis that diseases are transmitted from farmed salmon to wild salmon is now largely accepted. But there is still substantial disagreement about how risky and prolific these transfers are.

Cohen's Recommendations Still Unfulfilled

In September 2016 DFO provided an update on its progress on the Cohen Commission Report's recommendations.[49] Though it reported that it implemented or "partly implemented" the fish health data-related recommendations (#11-13), as well as those relating to a moratorium in the Discovery Islands (#14), these were arguably the easiest to implement and there has been a lack of action on the remainder of aquaculture-related recommendations. This inaction has included: DFO providing evasive responses to the recommendations relating to DFO's double mandate (#3); it pushing the siting criteria-related recommendations on to the province (#15, 16); it rejecting the recommendation that it apply updated siting criteria to existing licensees (#17); it ignoring the precautionary approach integral to the recommendation to close operations in the Discovery Islands that pose more than a minimal risk to wild salmon (#18) (when it states that the research has not been completed); and DFO citing a lack of funding as a reason why increased enforcement of aquaculture operations has not been implemented (#58). DFO stated that it was in the process of conducting research into disease transmission from farmed salmon to wild salmon (recommendation #68); however, presumably the Cohen Commission Report contemplated the research concluding well in advance of the September 2020 deadline, so that other recommendations dependent on that research could be implemented. For example, recommendations #19-20 cannot be implemented until this disease transmission research is completed.

A December 2017 report on Salmon Farming by the Office of the Auditor General also acknowledges DFO's failure in relation to conducting disease transmission research as directed by recommendation #68, and makes the following recommendation of its own:

> *Fisheries and Oceans Canada should conduct its planned disease risk assessments by 2020 to increase its knowledge of the effects of aquaculture on wild salmon, as it committed to doing in its response to the Cohen Commission report.*[50]

[49] Fisheries and Oceans Canada "Fisheries and Oceans Canada's update on the implementation of the Cohen Commission's recommendations" (modified 9 August 2016; accessed 1 October 2018), online: <http://www.dfo-mpo.gc.ca/cohen/report-rapport-eng.htm>.

[50] Office of the Auditor General of Canada "2018 Spring Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada: Report 1—Salmon Farming" (report completed 17 December 2017; webpage accessed 1 October 2018), online.

Ongoing 'Namgis Litigation Focused on the Risk of Piscine Reovirus (PRV)

As mentioned above, on March 6, 2018 'Namgis First Nation filed a judicial review of a DFO policy that allows salmon farmers to transfer smolts from their hatcheries to their ocean pens without testing those smolts for piscine reovirus (PRV).

The 'Namgis began the lawsuit by filing for an injunction to prevent DFO from issuing a license allowing Marine Harvest to transfer up to 1 million juvenile Atlantic salmon to its Swanson Island fish farm without testing them for PRV.[51] The federal court[52] denied that short-term injunction for practical reasons, but acknowledge that there is a real issue that needs to be decided and that the larger litigation should proceed.[53] The court also concluded that there is "real and non-speculative likelihood of irreparable harm" to the 'Namgis First Nation's way of life due to the the risk of diseases spread by farmed fish.[54]

On March 6, 2018 the 'Namgis First Nation filed a judicial review of a DFO policy that does not require testing for piscine reovirus ("PRV") in Atlantic salmon smolts before they are transferred to net pens in 'Namgis territory. Days later the 'Namgis filed for an interlocutory injunction, which would have prevented DFO from issuing a license to allow Marine Harvest to transfer the smolts without testing them for PRV.[55] Though the application for an injunction was rejected, the underlying judicial review is ongoing, which means the Court will eventually rule on the issue of whether the DFO policy that allows Atlantic salmon smolts to be transferred from hatcheries to ocean pens without being tested for PRV. The results of this case will likely depend on the state of the science regarding PRV, the extent of its transfer from farmed to wild fish, and the severity of its impacts in wild populations.

Section 56 of the *FIsheries (General) Regulations* under the *Fisheries Act.*

he provision at issue in the 2015 Federal Court decision in *Morton v Canada (Fisheries and Oceans)*,[56] which struck down fish transfer license conditions that allowed companies to transfer fish infected with PRV to net pens. That decision found that "subsection 56(b) of the *FGR*, properly construed, embodies the precautionary principle,"[57]

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[51] Hanna Petersen "Updated: 'Namgis First Nation takes legal action against restocking of fish farms" (13 March 2018), online: North Island Gazette.

[52] *Namgis First Nation v. Canada (Fisheries, Oceans and Coast Guard)*, 2018 FC 334.

[53] Canadian Press, "Federal court dismisses B.C. First Nation's bid to block fish farm restocking/" (26 March 2018), online: CTV News.

[54] *Namgis First Nation Injunction decision*, see note x, at para 93.

[55] Hanna Petersen "Updated: 'Namgis First Nation takes legal action against restocking of fish farms" (13 March 2018), online: North Island Gazette .

[56] Note: this is a different case involving the litigant in the *Morton v British Columbia (Minister of Agriculture & Lands)* case mentioned above.

[57] *Morton v Canada*, see note x, at para 97.

Section 56 of the *Fisheries (General) Regulations* governs the release or transfer Atlantic salmon smolts for farming activities. Under s.56, the Minister may only issue a license to release or transfer if the fish do not have any disease and the release or transfer will not negatively affect wild salmon populations.[58] The issue in the ongoing litigation is what kind of policies DFO should reasonably be required to have in place to ensure that these hatchery bred non-native fish are disease-free and not likely to harm wild populations. Of course, to answer the question of whether DFO should require testing for PRV, an understanding of the role of PRV in salmon disease is required. And, while the weight of the current scientific evidence suggests that the risks to wild salmon populations from PRV are more than minimal, the actual risk level is still being debated.

This issue is further complicated by the fact that DFO intends to amend section 56. According to the department, the proposed changes are intended to eliminate overlap in fish disease management responsibilities between DFO and the Canadian Food Inspection Agency (CFIA).[59]However, critics of the industry allege that the proposed changes would reduce protection for wild salmon, because testing would be removed from the agency (DFO) that has a mandate to protect wild fish.[60] Unsurprisingly, the lawyers for the 'Namgis have argued that that DFO should not be allowed to offload this responsibility onto the Food Inspection Agency."[61] The amendment proposal is included in DFO's "Forward Regulatory Plan 2018-2020."[62]

The U.S. Pacific Coast and Atlantic Salmon FIsh Farming.

For the past year and a half, Cooke Aquaculture (a Canadian company) and Washington State have been embroiled in a political, legal and public relations battle.

On August 19, 2017 there was a massive escape of Atlantic salmon from Cooke's facility near Cypress Island in Washington State. Cooke initially reported that more than 160,000 fish escaped and it initially attributed the release to strong tides and a solar eclipse (though backed away from this explanation shortly afterwards).[63] A subsequent investigation by the state Departments of Ecology, Fish and Wildlife and Natural Resources found that the number released was actually 263,000 salmon and that Cooke's deficient maintenance program at the

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[58] Section 56 of the *Fishery (General) Regulations*.

[59] Fisheries and Oceans Canada, "Fishery (General) Regulations Section 56 - Licence to Release or Transfer Fish" (modified 4 April 2018; accessed 1 October 2018), online.

[60] Margot Venton, Kegan Pepper-Smith & Olivia French "Amendments to fishery regulations could put wild salmon at risk" (9 November 2017), online: Ecojustice.

[61] *Ecojustice article*, see note x.

[62] Fisheries and Oceans Canada "Forward Regulatory Plan 2018-2020" (modified 1 October 2018), online.

[63] Lynda V Mapes, " Fish farm caused Atlantic salmon spill near San Juans, then tried to hide how bad it was, state says" (30 January 2018), online: Seattle Times .

site was the primary cause of the escape.[64] Despite claims by Cooke that the majority of escaped fish were "dying away" quickly after the release, members of the Upper Skagit Indian Tribe reported catching Atlantic salmon in the Skagit River more than three months after the event.[65]

Immediately after the release, Washington's Governor, Jay Inslee, ordered a hold on any new permits for open net-pen Atlantic salmon farms in the state's waters.[66] Further, in January 2018, the state's Department of Ecology fined Cooke $332,000 USD for violating its water-quality permit before and during the net-pen collapse.[67]

As the state department's investigation also found three violations[68] at one of Cooke's other operations in the Port Angeles area, the state Department of Natural Resources terminated Cooke's lease to operate that facility.[69] On January 4, 2018 Cooke launched a legal challenge to this decision, alleging that it was politically motivated.[70]

On March 22, 2018 the Washington state senate passed legislation to phase out net-pen Atlantic salmon farms in state waters by 2025.[71] As the last lease expires in 2025, the state will simply not renew each lease as it comes up for renewal.[72] Prior to this decision, in January 2018, all of the Washington Treaty Tribes signed onto a letter urging lawmakers to end Atlantic salmon aquaculture in state waters.[73] This is all in the context of the native Pacific salmon being a listed species under U.S. federal endangered species legislation.[74] Cooke, which is a privately-held company based in New Brunswick, has stated that it will attempt to sue the State under international trade rules for its lost $76 million investment.[75] Cooke currently owns eight farms in Washington State.[76] Notably, the remaining U.S. states on the west coast—Oregon, California and Alaska—do not allow for net-pen farming in their public waters.[77]

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[64] *Seattle Times fish farm article*, see note x.

[65] Lynda V Mapes, "Escaped Atlantic salmon found 42 miles up Skagit River" (12 December 2017), Seattle Times.

[66] Colin McPhail, "Salmon escape leads Cooke into legal fight with Washington" (17 January 2018), online: CBC.

[67] *Seattle Times fish farm article*, see note x.

[68] From *CBC salmon escape article*.

[69] *CBC salmon escape article*, see note x.

[70] *CBC salmon escape article*, see note x.

[71] *Douglas Magazine salmon farming article*, see note x.

[72] *Seattle Times fish farm article*, see note x.

[73] Letter from Washington Treaty Tribes to Washington Legislature regarding ending Atlantic Salmon Aquaculture (18 January 2018), online: Document Cloud.

[74] Lynda V Mapes "State kills Atlantic salmon farming in Washington" (2 March 2018), online: Seattle Times.

[75] *Seattle Times farm ban bill article*, see note x.

[76] Liam Britten, "Washington state senate bans Atlantic salmon farming in state waters" (2 March 2018), online: CBC News.

[77] *CBC farm ban bill article*, see note x.

An Incoming Aquaculture Act

As noted above, there have been calls for a single overarching piece of aquaculture legislation for over three decades. These calls have largely come from industry - who would appreciate a more cohesive and easily navigable regulatory environment - but they have also come from critics of the industry who believe that Aquaculture should be regulated outside of the *Fisheries Act* and by someone other than DFO.

Parliament itself has conducted research on the issue and the Standing Senate Committee on Fisheries and Oceans released a 2015 report that called for aquaculture-specific legislation that "asserts the full extent of federal jurisdiction."[78] The report contained a detailed recommendations for the content of a future aquaculture act.[79] Canada is reportedly the only major farmed seafood producing country in the world without specific national legislation governing its aquaculture industry.[80] Similarly, the 2018 report of one of Canada's six Economic Strategy Tables, the Agri-food table, recommended a federal aquaculture act to "reflect the need for an economic growth approach for this sector."[81] It found that aquaculture's complex regulatory framework has resulted in "stifled growth and lost opportunity."[82]

The Executive Director of the Canadian Aquaculture Industry Alliance believes that an Aquaculture Act can clarify roles and responsibilities of federal regulators an is "critical for protecting the environment and growing sustainably."[83] The industry alliance promotes legislative reform that would respond to concerns raised by the federal Auditor General's 2017 report on salmon farming[84] and would incorporate recommendations that emerge from the ongoing Independent Expert Panel on Aquaculture Science.[85] The broader business community has also called for industry-specific legislation, with the BC Chamber of Commerce passing a resolution in 2017 to push for the development a federal aquaculture act.

Given Canada's commitments to reconciliation, the central role of First Nations in stewarding salmon resources and the significant involvement of some First Nations in the the aquaculture

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[78] Standing Senate Committee on Fisheries and Oceans "Volume Three – An Ocean of Opportunities: Aquaculture in Canada" (30 July 2015), at 7 (PDF p 17), online: Senate of Canada.

[79] *Senate Committee Vol 3*, see note x, at 20-25.

[80] "News Release: Canadians overwhelmingly support regulated expansion of national aquaculture industry" (20 April 2011), online: Newswire.

[81] Government of Canada "Report of Canada's Economic Strategy Tables: Agri-food" (modified 28 September 2018; accessed 30 September 2018), online.

[82] *Agri-food report*, see note x.

[83] *News Release aquaculture expansion article*, see note x.

[84] *Report of Auditor General on Salmon Farming*, see note x.

[85] "News Release: Minister LeBlanc announces independent expert panel on aquaculture science" (2 February 2018), online: DFO.

industry, new federal aquaculture legislation would provide an opportunity for a genuine effort at co-development and co-drafting of laws between Crown and Indigenous governments.

A Taste of UNDRIP in the Broughtons

While the Cohen Commission focused specifically on the Discovery Islands area because of the presence of farms in narrow migratory "bottlenecks" for Fraser sockeye, it is the Broughton Archipelago that contains the highest concentration of fish farms on the coast—approximately two dozen.[86] The area has been a hotbed of controversy and resistance to existing and proposed open net-pen Atlantic salmon farms.

Starting in August 2017, members of six First Nations occupied several fish farms in the Broughton Archipelago area. In December 2017 Marine Harvest obtained an injunction to force the protestors to leave one of their facilities. However, some protestors remained and in May 2018 Marine Harvest obtained another injunction to force the remaining protestors to leave. Among them was one of the protest's leaders, Hereditary Chief of the 'Namgis First Nation, Ernest Alfred. The remaining protestors had been occupying the fish farm for almost 270 days.[87] In December 2017, in solidarity with the protestors, the Heiltsuk Tribal Council terminated its stewardship protocol agreement with Marine Harvest.[88]

On June 4, 2018 the Dzawada'enuxw First Nation filed an Aboriginal title claim over the land and waters in and around the Broughton Archipelago. Under the umbrella of that title litigation, on June 19, 2018 the Dzawada'enuxw applied to the BC Supreme Court for an injunction to stop the Province from issuing new tenures for nine fish farms in the area over which it claims Aboriginal title.[89] The farms specified are operated by Marine Harvest and Cermaq Canada. The court did not hear the injunction application because it was "too complex," but a lawyer for the Dzawada'enuxw stated that they will be back in court "in the next couple of months."[90]

This continued pressure may be turning the tide in terms of the government's approach to aquaculture decision-making in the Broughton Archipelago area. On June 27, 2018 the Kwikwasut'inuxw Haxwa'mis, 'Namgis and Mamalilikulla First Nations signed a letter of understanding with the B.C. government to share decision-making regarding provincial fish farm tenures in the Broughton Archipelago area. The letter included a 90-day deadline to

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[86] Andrew Findlay, "A Deep-Dive Into the Controversy of Salmon Farming In BC" (21 April 2018), online: Douglas Magazine.

[87] Lauri Hamelin, "Court orders First Nation occupiers to leave B.C. fish farm, but they say 'that won't stop them'" (19 May 2018), online: APTN National News.

[88] Amy Smart, "B.C. fish farms: a tangled net" (3 December 2018), online: Times Colonist.

[89] The nation filed a claim for Aboriginal title in the BC Supreme Court two weeks earlier, also in June 2018: Chantelle Bellrichard, "Dzawada'enuxw First Nation seeks injunction to stop renewal of fish farm licences" (19 June 2018), CBC News.

[90] *CBC injunction article*, see note x.

develop recommendations.[91] On September 28, 2018 the B.C. government announced it would extend discussions for another 60 days. It has established a Broughton Steering Committee that will handle the day-to-day discussions with representatives from each party.[92] The 25 tenures that were up for renewal in June 2018 are being renewed on a month-to-month basis.[93]

The New Standard: Consent & Proof that Fish Farms are "wild-salmon safe."

In the midst of these initial government-to-government negotiations between BC and the First Nations, the Province announced new forward-looking rules for aquaculture operations. First, as of 2022, all fish farms will be required to have the approval of the First Nations in whose territory they want to operate, before their tenure will be renewed.[94]

Notably, the Province has created an exception to to this new Province-wide policy in the Broughton Archipelago area pending the results of ongoing government-to-government discussions. Some view this exclusion of the Broughtons from the new rules as "a sign that open net pen farms in that region could be shut down before 2022."[95]
This changing approach to First Nations consent for farm operations in their territorial waters should not come as a surprise, given the evolution of the legal standard of *free, prior and informed consent*, Canada's constitutional protection of Aboriginal title, and strong commitments from both levels of Crown governments to implement the UN Declaration on the Rights of Indigenous Peoples.

Finally, in addition to the new rules around territorial consent , the Province has indicated that, as of 2022, tenures will only be granted to fish farm operators that have satisfied DFO that their operations will not "adversely impact wild salmon stocks." This rule has been criticized as being unclear, as DFO already has an obligation to ensure that wild fish stocks are protected. Therefore, some have speculated that this is simply the Province "prodding the federal government to do its job properly" and a reminder that the federal government is ultimately responsible for conserving wild fish.[96]

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[91] Clare Hennig, "B.C. government and 3 First Nations agree to cooperate on fish farms decisions" (27 June 2018), online: CBC News.

[92] Thomas Kervin, "BC government extends formal discussions with First Nations in Broughton Archipelago" (28 September 2018), online: North Island Gazette.

[93] Sarah Cox, "B.C.'s confusing new fish farm rules explained" (21 June 2018), online: Narwhal.

[94] Mike Laanela, "B.C. fish farms to require First Nations approval starting in 2022" (20 June 2018), online: CBC.

[95] *Narwhal fish farm article*, see note x.

[96] *Narwhal fish farm article*, see note x.