

Swimming AGAINST **THE TIDE**

The case for salmon fish farming
in British Columbia

Ken S. Coates

February 2025



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Cover design: Renée Depocas (photo: iStock modified)

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Executive summary | *sommaire*

In the summer of 2024, the Government of Canada banned new salmon farming licences on the West Coast, allowing existing farms to keep operating until 2029. Fish farms had one option for business survival: adopt a commercially unproven closed containment and land-based salmon farming technology.

The decision to end open net pen salmon farming represents the triumph of activism over science, signalling the further erosion of the economies of vulnerable coastal communities. If left unchallenged, the government's decision will destroy a vibrant and successful industry, undermine a key Canadian export, and harm coastal and First Nations' economies.

Salmon farming in British Columbia changed dramatically over the years, part of a long struggle to rebuild coastal economies and solve the puzzle of declining wild salmon stocks. Initially, the industry's rapid expansion stalled in the face of scientific questions about the impact of farmed salmon on regional eco-systems, criticism from wild salmon activists, and opposition from some First Nations. This led to pullback, with many pens closing and the industry collaborating with interested First Nations and leveraging global innovations.

Around the world, the salmon farming industry has grown dramatically to meet the demand for high-quality protein. With declining wild fish harvests and strong efforts to bring order to the biological turmoil on the high seas, farmed salmon appeared to be a logical and urgently required alternative.

Yet, the long-term decline of the West Coast wild salmon harvests concerned government officials, academic scientists, and supporters of wild salmon. Activists, with strong cross-border organizations and funding, used social media and activism to turn public and political opinion against fish farming. The federal government, particularly B.C. Liberal Cabinet ministers Joyce Murray and Jonathan Wilkinson, adopted the activists' views.

However, salmon farming has strong supporters, including First Nations communities that engage in the activity and appreciate the economic stability it provides. Coastal communities, reeling from long-term declines in commercial fishing and forestry, see salmon farming as a lifeline – contributing significantly to the provincial economy.

Unfortunately, the BC government – by choosing not to appeal a recent court ruling that handed the management of salmon farming over to the federal Fisheries and Oceans Canada – has turned its back on the industry. Research does not point to salmon farming as the culprit for the worrisome decline in the wild West Coast salmon population. Despite this, the Government of Canada has acquiesced to the activists' demands.

Salmon farming (which has a smaller footprint on the East Coast) could benefit Canada by providing economic stability to coastal communities, fostering greater cooperation with First Nations (including those supporting and opposing the farms), driving technological innovation, and protecting wild salmon.

Moving forward requires reversing the outright ban, and returning to evidence-based decision-making that relies on government scientists, Indigenous knowledge, and academic experts. Reinstating the Government of British Columbia as the primary authority over an industry more akin to cattle ranching and agriculture than wild fish harvesting would also help.

The ban on West Coast salmon farming exemplifies the dangers of special interest-driven decision-making. Canada has time to get it right, but the nature of the federal decision has allowed emotion to override effective policy-making. [MLI](#)

À l'été 2024, le gouvernement canadien a interdit l'octroi de nouveaux permis d'élevage sur la côte Ouest, tout en consentant au maintien des exploitations existantes jusqu'en 2029. Un seul mode de survie est désormais envisageable pour les exploitants : la salmoniculture en parcs clos et terrestre, une technologie non éprouvée commercialement.

La fin de l'élevage du saumon montre que l'activisme a prévalu sur la science, menaçant ainsi les économies, déjà fragiles, des communautés côtières. Si la décision n'est pas contestée, elle détruira une industrie dynamique, compromettra un secteur d'exportation clé et nuira aux économies des communautés côtières et des Premières Nations.

L'élevage du saumon en Colombie-Britannique a changé dramatiquement au fil des ans, couronnant une longue lutte visant à revitaliser les économies côtières et résoudre le casse-tête que constitue le déclin des populations sauvages. À l'origine, l'essor rapide de l'industrie a cessé face aux questions d'ordre scientifique relatives à l'impact du saumon d'élevage sur les écosystèmes régionaux, aux critiques des défenseurs de l'espèce sauvage et à l'opposition de certaines Premières Nations. Cela a entraîné la fermeture de nombreux parcs et incité l'industrie à collaborer avec les Premières Nations concernées, tout en s'appuyant sur les innovations à l'étranger.

À l'échelle mondiale, la salmoniculture s'est en effet développée de manière spectaculaire pour répondre à la demande de protéines de haute qualité. Devant la baisse des récoltes de saumon sauvage et les efforts considérables pour contrer les ravages en haute mer, le saumon d'élevage s'est imposé comme une solution à la fois pertinente et pressante.

Parallèlement, les fonctionnaires, les chercheurs universitaires et les défenseurs du saumon sauvage se sont inquiétés du déclin à long terme des récoltes sur la côte Ouest. Les militants, qui disposent d'organisations et de sources de financement transfrontalières solides, ont employé les médias sociaux et l'activisme pour influencer l'opinion publique et les décisions politiques. Le gouvernement fédéral, notamment par l'intermédiaire des ministres libéraux de la Colombie-Britannique Joyce Murray et Jonathan Wilkinson, a intégré leurs perspectives.

Néanmoins, la salmoniculture attire de fervents partisans, notamment les communautés des Premières Nations qui la pratiquent et reconnaissent sa stabilité économique. Durablement éprouvées par le déclin prolongé de la pêche commerciale et de la sylviculture, les communautés côtières considèrent la salmoniculture comme une bouée de secours – un espoir économique réel pour la province.

Or, en ne faisant pas appel d'un récent jugement confiant la gestion de la salmoniculture à Pêches et Océans Canada, la Colombie-Britannique a choisi de se désengager de ce secteur. D'après les études, la salmoniculture n'est pas en cause dans la baisse alarmante des populations de saumon sauvage sur la côte Ouest. Pourtant, malgré ce fait, le Canada a quand même souscrit aux requêtes des militants.

L'élevage du saumon (de faible empreinte sur la côte Est) serait avantageux pour le Canada. Il offrirait stabilité économique aux communautés côtières, coopération renforcée avec les Premières Nations (celles qui soutiennent les élevages et celles qui s'y opposent), innovation technologique et protection du saumon sauvage.

Pour avancer, il est impératif de lever l'interdiction totale et de revenir à la prise de décisions fondées sur les données probantes des scientifiques gouvernementaux ainsi que sur les connaissances des Autochtones et des experts universitaires en la matière. Il est également souhaitable que le gouvernement britanno-colombien retrouve son statut d'autorité principale dans un secteur davantage axé sur l'élevage et l'agriculture que sur la récolte de poissons sauvages.

*L'interdiction de l'élevage du saumon sur la côte Ouest souligne les risques d'une décision motivée par des intérêts particuliers. Le Canada dispose de suffisamment de temps pour bien faire les choses, mais la décision fédérale a permis à l'émotion de prévaloir sur l'élaboration d'une politique efficace. **MLI***

Introduction

Salmon Farming has emerged as a promising contribution to the ongoing effort to feed the world's surging population. With wild fish stocks declining globally and conservation efforts ramping up rapidly, the idea of raising penned salmon profitably in natural settings and delivering many tons of carefully monitored, healthy fish into food markets appeals to governments, entrepreneurs, and communities around the world. Farmed fish accounts for one-half of all fish consumed by human beings, with farmed salmon representing more than 4 per cent of the total. Salmon fish farms have expanded in Norway, Iceland, the Faroe Islands, Chile, Tasmania (Australia), Scotland (United Kingdom), New Zealand, and Canada. In a world searching for ecologically sustainable food sources and reliable economic growth, salmon farming appeared to be a sustainable and safe solution.

In British Columbia, salmon farming has become highly contentious, leading to protests, legal challenges, competing Indigenous positions, and struggles over the management of the resource. Across the country, the industry is largely regulated by the provincial governments with the Department of Fisheries and Oceans limited to its role in protecting wild fish. In British Columbia, however, interventions by opponents of salmon farming led to a 2009 BC Supreme Court ruling that resulted in Fisheries and Oceans Canada being assigned responsibility for oversight of the sector (Sportfishing BC 2009). British Columbia, somewhat uncharacteristically, did not appeal the court decision, negotiating an arrangement with the federal government in 2010 that left Ottawa with preponderant responsibility for regulating the industry (Cox 2018). This, in turn, left the salmon farming industry subject to both federal regulation and federal politics, for the decisions of Fisheries and Oceans Canada have often become highly political in nature (Mitchell and King 1984).

The salmon farming industry has grown increasingly complicated over the years. Norway, the world's largest producer of farmed salmon (with companies active both domestically and internationally), continues to support the industry, albeit while facing some dissent in the country. In the Faroe Islands, salmon farming is integral to Faroe economic revitalization and the stabilization of community life in the archipelago. Scotland is now an active supplier of farmed salmon to the European Union. The industry also enjoys considerable support in Chile, the world's second-largest producer of farmed salmon. In Canada, farming of Atlantic salmon did not initially take a firm hold on the East Coast but enjoyed considerable economic success off the coast of British Columbia.

Although welcomed in the beginning by governments, non-Indigenous communities and environmentalists, British Columbia's early salmon farms began to attract considerable opposition, with the criticism growing steadily over time. The concerns were primarily ecological, coalescing eventually around the assertion that diseases and parasites (especially sea lice, all of which occur naturally in local waters) from farmed fish – either by direct transmission from escaped penned fish or interbreeding with local stocks or through indirect diffusion into the waters traversed by migrating wild salmon – were affecting other fish stocks. Concerns raised by government scientists, environmentalists and First Nations put pressure on the industry to respond; over time, the industry changed – but slowly at first. As wild salmon stocks declined, wild salmon activists, a loose but well-financed coalition of sports fishers, First Nations, and environmentalists, launched campaigns to have the fish farms shuttered entirely. There were other forces at play, including interventions by salmon fishers from Alaska who worried about competition from the BC-farmed salmon. With the science still far from settled, a passionate debate quickly emerged around the highly emotional matter of the survival of West Coast salmon and the role of salmon farming in the well-documented decline in the regional fish migrations.

While salmon farming has become global in nature – China, Taiwan, Vietnam, and other nations have large and numerous commercial fish production facilities (but not for salmon) – the environmental battle in British Columbia is unique. Norway is politically comfortable with its standing as the world's largest fish-farming nation and the largest global investor and industry innovator (much as it has also strongly defended its highly profitable oil and gas

extraction industry). The Faroe Islanders, already known for their unrepentant defence of their controversial pilot whale harvests, brush aside protests about the fish farms and celebrate the fact that they produce high-grade fish, solid economic returns, and stabilized vulnerable small towns. The situation in Chile is more complex, with strong government backing and considerable support for the sector, alongside growing environmental opposition to the fish farms.

“ *Canada stands out among the nations of the world in its receptiveness – some would argue vulnerability – to strong environmentalist positions.* ”

In the Pacific Northwest, opposition shifted toward a call for a complete ban, in this case on West Coast open net pen salmon farming. This industry-ending argument found major policy expression in the summer of 2024 when the Government of Canada announced a phasing out of salmon farms, to be completed by 2029. Washington State recently took similar steps. Canada stands out among the nations of the world in its receptiveness – some would argue vulnerability – to strong environmentalist positions. Canada has, particularly since the election of the Liberal national government in 2015, embarked on an extensive campaign to protect and preserve wilderness areas and marine zones. Canada expanded its already large national park system, created a truly impressive network of Indigenous and Conserved Areas, banned oil shipments from Prince Rupert Harbour, in northwest BC, spent a decade embroiled in a nasty and expensive debate about the construction of heavy oil and natural gas pipelines (but showed enough pragmatism to tolerate the construction of the Trans Mountain Pipeline), imposed restrictions on the use of plastic bags and plastic straws, developed strong regulatory measures to reduce CO2 emissions, and implemented other related environmental initiatives (Natural Resources Canada 2025; 2025a).

Canada, and particularly the current Liberal government elected in 2015, has become uniquely susceptible to environmentalist-based public policy

arguments. Opponents have pushed back on many fronts, sometimes successfully. Pipeline construction eventually proceeded, albeit at a much greater cost and with numerous protests and legal delays than anticipated (Natural Resources Canada 2025; Auditor General of Canada 2015). Liquefied natural gas plants have been constructed, with substantial Indigenous engagement, and oil and gas exports have expanded (Natural Resources Canada 2025a). Vast tracks of land, particularly in the North but including the remarkable Great Bear Rainforest on the British Columbia central coast, have been protected from development; the expansion of Indigenous and Protected Conserved Areas is an under-the-radar initiative that will likely have dramatic effects on ecological management (CTRP 25).

Canada established complex and, in the eyes of many in the resource sectors, intrusive regulatory processes that have slowed mine development, halted or delayed pipelines and diverted billions of dollars in investment in resources and infrastructure to other nations (Khanal, Mansell, and Fellows 2023; Mintz 2024). The country's national politicians, particularly on the centre-left, are exceptionally sensitive to public and international criticism and are eager to burnish the nation's standing as truly "green" and ecologically sound. In the process, federal politicians opened the policy-making process to easy and frequent intervention by environmental activists. Many Canadians, according to public opinion surveys (Natural Resources Canada 2023; Terrazzano 2024, Battershill 2024), oppose major government environmental initiatives, including carbon taxes, regulatory interventions, and restrictions on the development of energy infrastructure. Recent studies conducted by the BC Salmon Farmers Association indicate that the British Columbia public does not want to see the fish farms shuttered, despite the Government of Canada's action and the arguments presented to support the decision (Dalhousie University 2021). Conversely, activists, including Wild First, conducted surveys that suggest the people of British Columbia support the ban (Pacific Wild 2025; Wild First 2021).

Competing images of an evolving industry

The debate about fish farms in British Columbia is sharply divided, with passionate defenders of the industry standing opposite equally determined opponents of salmon farming. There is virtually no middle ground. The industry has already made significant concessions to public criticism and in response to policy changes involving the provincial, federal, and First Nations governments. Not all of the companies operated the same way, but some firms eliminated farms when faced with First Nations' opposition and quickly removed the farms in areas deemed particularly ecologically vulnerable (Cruikshank 2023; Whitney 2023). Salmon farmers took expensive and science-based steps to further limit any potential risks to wild salmon and regional eco-systems. Opponents remain unimpressed and unrepentant, continuing to press for the total closure of the ocean-based fish farms in British Columbia and their replacement, if at all, with land-based contained water systems that conceptually avoid all interaction with wild salmon.

Even more than oil sands extraction and pipeline construction, salmon farming has emerged as a simple “black and white contest,” with groups separated by an ever-growing divide based on a potent mix of competing science, different economic priorities, and sharp divisions on the role of First Nations in environmental decision-making. These positions can be summarized as follows:

- *Pro-aquaculture position – Fish farming is a sustainable, non-intrusive industry that sustains small towns:* To the supporters of West Coast salmon farming, the case is simple. Ocean-based salmon farming is a scientifically proven, environmentally sound, economically viable, globally proven, and impressive industry that has produced well-paid jobs and solid employment in areas beyond the reach of most of the mainstream economy (BC Salmon Farmers 2025). Proponents assert that the claims of risks to wild salmon are not supported by science and/or overstated (referring to the findings of CSAS, whose research indicates there is “no more than minimal risk” to Fraser Sockeye), reduce commercial pressure on wild salmon, and improve Canadian food security (BC Salmon Farmers 2025a; Dawson 2024). It is also an economic response to the more than 100 years of overfishing of wild salmon along the coast. Furthermore, the industry in British Columbia

has had a positive impact on the revitalization and stabilization of small coastal towns suffering from the recent decline in regional forestry and commercial fishing sectors. The industry is supported in this position by some First Nations, many small-town politicians and business leaders, and is endorsed by many government and academic scientists (CFNFS 2025). The Government of British Columbia has been inconsistent, at best, in responding to the trials in the sector.

- *Anti-farming position – An ecologically unsound industry that must be eliminated to protect wild salmon:* Opponents of salmon farming argue, based on their interpretation of the available science, that the industry poses an existential threat to wild salmon through the spread of disease and sea lice (Pacific Salmon Foundation 2024; Mather 2024). And, at least implicitly, they appear to assert that the removal of the salmon farms will result in the rapid re-emergence of large-scale wild salmon runs. While they acknowledge the economic dislocation associated with the farm closures, they prioritize the protection of wild salmon, which they see as integral to the ecological vitality of the West Coast. The opponents are supported by wild salmon activists, sports fishers worried about continuing access to wild salmon, some First Nations, and the broader British Columbia environmental movement (Watershed Watch Salmon Society 2025).

The volatility of the BC salmon industry and wild salmon

The current debate about the farming of Atlantic salmon¹ in pens off the West Coast emerges in the wake of a generations-long transformation of what was one of British Columbia's most important industries and that remains a major part of the cultural memory along the coast.² Before Spanish, British, and American traders arrived in the 1770s, salmon sustained First Nations peoples for thousands of years. Modern observers have difficulty understanding the scale and reliability of the salmon cycles on the coast and in the coastal rivers, which literally teemed with fish during peak migrations. The fish supplies were

so voluminous and reliable that the First Nations in the area had among the largest non-agricultural populations in the world. First Nations had an intense understanding of salmon migrations, cycles and biology and maintained a sustainable and large-scale fishery for centuries (Indigenous Foundations 2025; The Hydrologic Blog 2020; Harris 2001; Newell 1999). The arrival of Europeans – particularly after the importation of European disease – devastated the Indigenous population, leaving the coast a significantly widowed area and reducing Indigenous viability in the process.

By the late 19th century, newcomers identified and exploited the commercial potential of the multiple salmon runs. Dozens of companies built fishing fleets and established canneries that took products to global markets. The industry flourished, creating the backbone of the coastal economy and sustaining dozens of small communities that stretched from Vancouver Island and the Fraser River to the southern tip of the Alaskan Panhandle north of Prince Rupert. The economically virtuous arrangement lasted into the 1960s and 1970s, creating stable coastal prosperity in dozens of communities (Dupont and Nelson 2010).

“ *The collapse of coastal fisheries on the East and West Coasts challenged national confidence in the intersection of science, public policy, commerce, and local prosperity.* ”

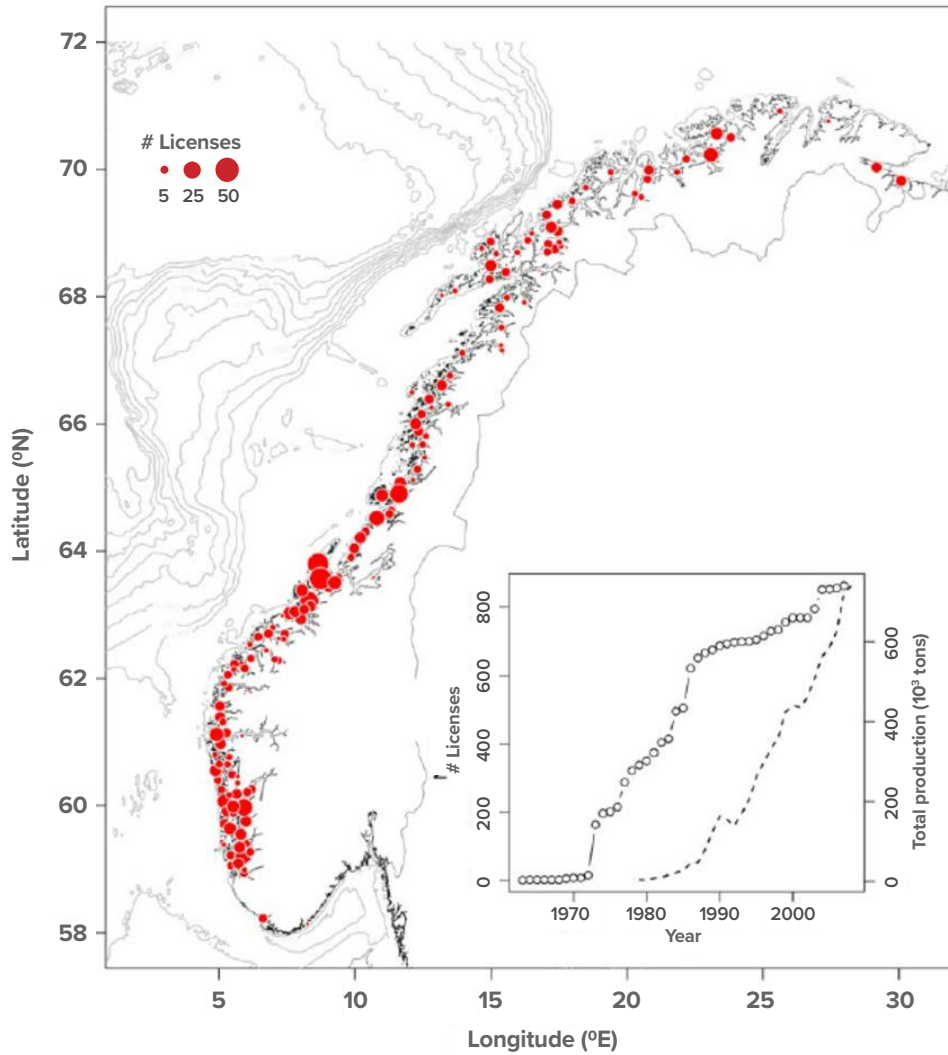
The collapse of coastal fisheries on the East and West Coasts – the cod in the Maritimes and salmon in British Columbia, due both to mismanagement and a complex web of commercial, climatic and ecological factors – challenged national confidence in the intersection of science, public policy, commerce, and local prosperity. The Atlantic cod fishery collapsed in stages between the 1970s and the mid-1990s, prompting the federal Department of Fisheries and Oceans to close the commercial fishery (Matthews 1995; Milich 1999; Mason 2002). Salmon stocks fluctuated more widely on the West Coast due to Canada-US (mis)management of the

fisheries, dramatic changes in the Alaskan fish ranching industry, industrial and residential development along major salmon rivers like the Fraser River, and general ecological change. A catastrophic collapse in the sockeye salmon in 2009 – so large that it generated the classic Canadian response, an expensive public inquiry, led by Bruce Cohen – highlighted the vulnerability of the salmon stocks, the lack of knowledge about the experience of the salmon in the high seas (North Pacific) and uncertainty about the economic future of the coastal industry (Cohen 2012). The stocks rebounded substantially but unpredictably. Broader industry restructuring was underway. Government payments to fishers and transition arrangements for others in the industry masked significant aspects of the economic downturn, albeit only temporarily, but did not rebuild the local economies. Diversification, particularly in wilderness and adventure tourism, provided a commercial offset for some of the coastal communities.

In recent years, debate escalated about the future of West Coast salmon. Conflicts continued with the United States over the efficacy of the *Pacific Salmon Treaty*, focusing on the capture of BC-bound salmon by the Alaskan fleet (Mayer 2022). There were other pressures at play. In several regions, including Alaska, the salmon industry adopted a practice of salmon “ranching,” releasing large numbers of salmon fry into the ocean, where they join and compete with wild salmon for uncertain food supplies (Positive Aquaculture Awareness 2025). The 2023 collapse of the Alaska King Crab stocks along Alaska’s coast sent shockwaves across the region and heightened awareness of the environmental changes in the North Pacific. In addition, years of poor harvests led to the withdrawal of many commercial vessels, the shuttering of a large portion of the region’s processing capacity, and the concentration of the industry in the hands of Canadian entrepreneur Jim Pattison and his firm, the Canadian Fishing Company. In 2022, the province’s fisheries accounted for less than one per cent of the world’s commercial wild salmon harvest, a sharp drop from the glory days of the West Coast industry.

The gradual closure of the British Columbia commercial fisheries has not resulted in a recovery of salmon stocks. Some observers worry that the salmon migrations have come close, if they have not already gone over, to the tipping point of long-term sustainability. Rehabilitation efforts are underway along severely damaged spawning rivers and streams; fish hatchery operations place millions of fry (baby salmon) into the ocean each year. Greater care

FIGURE 1: Salmon farms in Norway



Source: Otero et. al 2011

is being taken with industrial and residential development along the key salmon rivers, taking long-term pressure off the migrating salmon. Improved environmental management and eco-system reclamation are offset, in some measure, by the steady population growth in the Lower Mainland and South and Central Vancouver Island, which put greater pressure on the land and waters of British Columbia (Knowler et. al 2003; Mantua 2015; Langer, Hietkamp, and Farrell 2020).

The British Columbia aquaculture industry

Commercial Atlantic salmon aquaculture developed in British Columbia in the 1980s. Numerous net-pen Atlantic salmon operations opened, primarily on farms located along the Sunshine Coast region and the West Coast of Vancouver Island. During the 1980s, salmon aquaculture expanded to Campbell River and Port McNeil. Within a few years, the farmed salmon fishery was producing over \$400 million per annum. The establishment of the BC Salmon Farmers Association in 1984 represented a significant step forward in the professional development of the industry.

Globally, the aquaculture industry has expanded dramatically. Currently, about 70 per cent of the global salmon industry is now farmed salmon. Despite the increasing global appetite for salmon, Canadian exports of Atlantic salmon have been in decline. In 2022, Canadian Atlantic salmon exports were worth over \$970 million, but in 2023, Atlantic salmon exports declined to over \$800 million (Shabandeh 2024). There are various reasons for the decline of the BC salmon aquaculture industry, but an important part of the reason is that market prices for Atlantic salmon decreased steadily after 2016. Other reasons involve conflicts over aquaculture policy and increasingly strict statutory requirements, which add cost and complexity.

British Columbia managed the salmon farming industry, conducted various studies, and adapted regulations until the 2009 court case brought by activist Alexandra Morton resulted in the transfer of responsibility to the Government of Canada. Fisheries and Oceans Canada conducted its own reviews and participated in the work and implementation of the Cohen Commission. Despite the initial economic success of salmon aquaculture, conflict continued to intensify. After the Gillespie Public Inquiry of 1986 and an ombudsman investigation in 1988, salmon aquaculture licences became difficult to acquire (Hamouda et al. 2005). The results of the Gillespie Inquiry had a significant impact on salmon aquaculture policy in British Columbia, leading to the establishment of the Coastal Interest Studies Program, which was meant to identify conflict and attempt to mitigate it (Wynn 1996). Additional concerns included the possible ecological impacts of raising Atlantic salmon in Pacific waters and how these impacts might affect the environment and the wild-caught Pacific salmon industry. Importantly, the worry focused on the potential for harm that could arise from interactions

between wild Pacific salmon and Atlantic salmon that sometimes escaped from the open net pens (Wynn 1996).

Government officials established a BC Minister's Aquaculture Industry Advisory Committee and a stakeholder group, whose mandate was to advise the Minister of Agriculture, Fisheries, and Food on the orderly development of salmon aquaculture. An ombudsman's report called for improved regulation and administration, as well as recommendations for dispute resolution. Despite the attention and efforts toward improving difficult situations concerning salmon aquaculture, public sentiment toward the industry remained uneven.

By the 1990s, many of the BC Atlantic salmon farms had gone out of business or were sold to large corporations (Positive Aquaculture Awareness 2024), largely as a result of low market prices in the late-1980s. At the same time, farmed Atlantic salmon from international sources had flooded the global markets, depressing the price further (Knapp 2019). The Pacific salmon fishery began to feel significant pressure from the existence of Atlantic salmon aquaculture in British Columbia. The long-established wild-caught Pacific salmon industry was unable to compete with the cheaper-priced farmed Atlantic salmon, which had the added benefit of consistent product quality and continuous supply. Farmed Atlantic salmon had become available for much less per kilogram than the wild-caught Pacific salmon (Knapp 2019).

In 1995, the province released its Action Plan for Salmon Aquaculture, which reviewed industry practices and regulations through a socioeconomic lens. In its wake, BC declared a moratorium on the growth of the salmon aquaculture industry until 2002. At that time, the province agreed to issue further salmon aquaculture permits in pursuit of "responsible expansion" of the industry (Hamouda 2005).

Despite these challenges, the British Columbia salmon aquaculture industry continued to grow after the moratorium ended in 2002. During the 2000s, BC aquaculture expanded to represent 20 per cent of the entire Canadian fisheries production, equaling a third of the total value. In 2009, however, the federal government appointed the Cohen Commission of Inquiry into the Decline of Sockeye Salmon, led by Justice Bruce Cohen, to investigate the reasons behind a devastating 18-year decline of the iconic Fraser River sockeye salmon. As part of the review, the commission recommended monitoring salmon farming in the Discovery Islands and changing the Department of Fisheries and Oceans' mandate so that it would no longer be responsible for

both promoting salmon farming as an industry while also being required to protect wild salmon. The report indicated that action might be needed if there was “minimal impact found through scientific study (*Victoria Times-Colonist* 2017). The DFO commissioned several peer-reviewed studies of the decline in salmon populations; these investigations produced no substantial evidence of the impact of Salmon Farming on wild salmon. The Cohen inquiry identified the need for more and systematic scientific study of the salmon ecosystems but did not single out the ocean net fishery for criticism. The commission’s work, which included some 75 recommendations aimed at solving the decline of the Fraser River salmon, echoed that of a series of scientific studies that, similarly, found “no more than minimal impact” from ocean net salmon farms (Fisheries and Oceans Canada 2025a). As the sub-report on salmon farms indicated, “Overall, the incidence of diseases in farmed salmon that would be classified as high risk to sockeye salmon is very low and do not pose a significant risk” (Cohen 2012).

A 1997 report by the Environmental Assessment Office concluded that: “Farming in British Columbia, as presently practiced and at current production levels, presents a low overall risk to the environment” (*Victoria Times-Colonist* 2017). A court challenge launched by anti-aquaculture activists led to a 2009 BC court decision to shift regulatory responsibility from the Government of British Columbia to the Department of Fisheries and Oceans; the province retained a role in the industry through its responsibility for the land-based element of the farming operations. In December 2020, the Department of Fisheries and Oceans announced that the Discovery Islands farms would be phased out over an 18-month period. Critics also drew attention to the inherent conflict in the mandate of the Department of Fisheries and Oceans, which had a duty to both promote the salmon farming industry and protect wild salmon.

A substantial and diverse commercial eco-system grew up around the fish farms, involving fish processing, nets and maintenance, transportation, packaging, containers, diving, machinery and equipment and a significant number of high technology and ICT companies (Garder Pinfold 2013, 6). But the sector did not have a free run. The intense political scrutiny and public concerns expressed about the ecological viability of salmon farming in BC led to greater regulatory controls and requirements around every aspect of farm operations. A commercially successful but politically vulnerable industry developed. By of

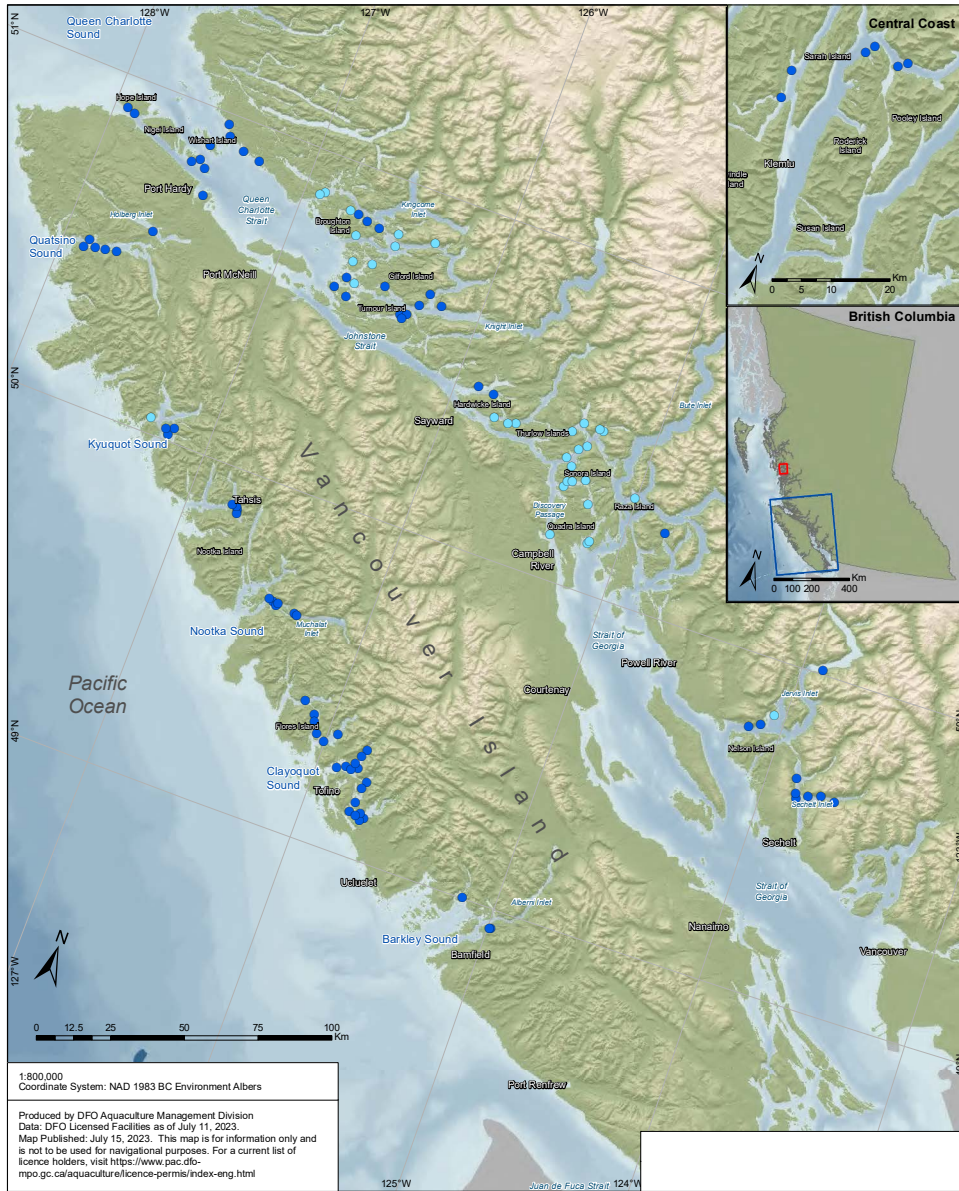
2010, there were 130 finfish sites (Atlantic Salmon for the most part) on the BC coast, with another 500 sites for shellfish (clams, oysters, mussels, scallops, geoducks) and 80 sites for freshwater finfish operations (rainbow trout, sturgeon, coho, and sockeye). The number of salmon farms had fallen to 57 by 2023 (Little and Charles 2023). More than two-thirds of the salmon production occurs in the Comox-Strathcona region, with the major salmon companies headquartered in Campbell River (Plummer 2022; 2023; 2024).

“ *The salmon industry has long attracted a great deal of public interest and growing activism.* ”

The economic impact of the Atlantic salmon farming industry is substantial, employing between 10,000 and 14,000 people, nationally mostly in small coastal and rural communities (Gardner Pinfold 2013, 4). This included 5,800 direct full-time equivalent jobs and total employment of over 14,000 FTEs. Income amounts to over \$190 million with an overall economic impact of over \$600 million (Gardner Pinfold 2013, 7). In Comox-Strathcona, host to the largest concentration of workers, Salmon Farming accounts for 8 per cent of regional employment and income (Gardner Pinfold 2013, 7). (For recent data, see Canadian Aquaculture Industry Alliance (2025).)

The expansion and subsequent scrutiny of the BC salmon farming industry spawned greater scientific engagement, much of it by the industry, and the identification of diseases and viruses in the farmed and wild fish stocks. These included Piscine Reovirus (PRV), heart lesions and sea lice. The salmon industry has long attracted a great deal of public interest and growing activism. A powerful and informal alliance emerged, consisting of commercial fishers of wild salmon, sports fishers, and West Coast wildlife activists – the latter drawing on a powerful history of regional environmental engagement represented by Greenpeace, CBC’s *The Nature of Things*, the Suzuki Foundation, and numerous eco-interventions on forestry, pipelines, mines, roads, and bridges. Industry participated in these public discussions, presenting plans to further

FIGURE 2: Marine finfish aquaculture in British Columbia in 2023



Legend

- Licensed marine fish aquaculture facilities (85)
- Not currently licensed marine finfish aquaculture facilities (32 since 2019)

Source: Fisheries and Oceans Canada.

reduce potential interactions between farmed and wild salmon and continuing innovation at the commercial level.

Fisheries and Oceans Canada continued to respond to pressures from activists to slow down the industry, acquiescing to public pressure and, in the case of the Broughton and Discovery Islands, First Nations opposition. In 2020, the open-net salmon farm licences were extended for two years, save for those from the Discovery Islands (Chase 2022a). The federal court slowed the plan in 2022, although the farms were subsequently withdrawn from the area (Chase 2022b).

The Government of Canada experienced sustained pressure from activists, particularly Alexandra Morton and the Wild Salmon Alliance, and with direct engagement with key Liberal politicians on the West Coast, including Jonathan Wilkinson (MP for North Vancouver and Minister of Fisheries and Oceans, 2018–19, Minister of the Environment, 2019–2021, and Minister of Natural Resources from 2021 to the present) and Joyce Murray (MP for Vancouver Quadra and Minister of Fisheries and Oceans for 2021–23). The industry pushed back, supported by some academic scientists, community leaders from salmon farming areas, and First Nations working in partnership with the fish farms, but to no avail.

The Government responded decisively in the summer of 2024. On June 19, 2024, the government announced a commitment to ban open-net salmon aquaculture in BC waters within five years, the half-decade designed to allow the companies to phase out operations. All existing open-net salmon licences are to expire after a five-year period. Only fully closed and contained systems, marine or land-based, would be reviewed for salmon aquaculture licences after July 1, 2024. The federal government issued a draft transition plan for the phased-out operations toward the end of September 2024 (ISED 2025). As of the end of 2024, closed containment farms, land or water-based, have yet to operate profitably in British Columbia according to industry specialists. Downstream developments, based on current and planned research on close containment systems, could well see a revitalization of salmon farming, although there is no assurance (or even likelihood) that these new systems would be in British Columbia; the chance of them being built in the remote coastal communities are even smaller. Under current Government of Canada regulations, the ban on open-net salmon aquaculture in BC will take effect on June 30, 2029.

Land-based systems

The Government of Canada's 2024 announcement offered a small concession to the salmon farming industry, holding open the possibility of licencing land-based, fully contained salmon farming systems. Conceptually – and maybe in practice in the decades ahead – the containment model could work. By closing off all possible contact between the farmed and wild fish, the already small possibility of cross-contamination could be reduced to close to zero. The system would not be without its challenges: operations would require a substantial amount of land and reliable electrical and power sources; the systems would use a great deal of water. Scientifically and technically, land-based, self-contained fish farms are possible, even for such large fish as Atlantic salmon.

Having such a plant operate successfully on a commercial basis is another matter. Proponents point to the operations of Atlantic Sapphire, founded in 2010, as a potential model. Atlantic Sapphire aspires to produce sustainable and environmentally safe farmed salmon. Their “Bluehouse” technology allows for large-scale land-based fish farms that use recirculating aquaculture systems (RAS), which use continuously purified water and provide strong currents that mimic those found in nature (Bluehouse Salmon 2025a). The system avoids problems such as escapes, sea lice infestations, and disease, thus lowering the need for antibiotics or pesticides.

The original Bluehouse facility in Denmark produced tonnes of salmon annually to the European market. The company built its North American facility at Homestead, Florida, where it capitalizes on the availability of the freshwater Biscayne aquifer and the saltwater Floridan aquifer situated below it. Atlantic Sapphire asserts a strong commitment to environmental responsibility (Bluehouse 2025b). The company's intention is to protect wild fish populations and to avoid the pitfalls of sea-based salmon aquaculture that involve waste management, parasites, disease outbreaks, and the use of hormones and antibiotics. Almost all the Bluehouse water is recycled, which means there is no release of aquaculture waste. Due to the low 1:1 ratio of feed to growth required for salmon farming, their product is considered to have a lower carbon footprint than beef and pork. To assist in lowering further the carbon footprint, Bluefish salmon is not transported by air but instead delivered to local regions by truck. According to the company's promotional materials, Atlantic Sapphire's Bluehouse salmon product has been rated as “Best Choice”

by the Monterey Bay Aquarium's Seafood Watch and certified by SeaChoice and Ocean Wise.

The long-term importance of land-based Salmon Farming is unclear. According to press reports, Atlantic Sapphire is not operating at a profit and is facing serious financial challenges (Vanvik and Furuset. 2024; Jensen 2024). According to industry leaders, there are currently no full containment systems, land or ocean-based, operating successfully on a commercial basis. The systems work technically, but they are not yet cost-effective. Furthermore, land-based systems are unlikely to be effective replacements for current fish farms. To be successful (eventually), they will require access to a secure water supply, ready access to markets (Homestead is 54 kilometres from downtown Miami), and locally available feed. If the land-based systems are introduced to Canada, they might be workable on Vancouver Island south of Campbell River – provided the power grid is sufficient to support their electrical demands – but they would be much more profitable if they were located close to a major metropolitan centre. Southern Ontario makes a great deal more fiscal sense than Tahsis (West Coast of Vancouver Island) or Klemtu in a remote location on the BC mainland.

Resistance and reformation of salmon farming

Salmon farming has attracted critical attention around the world, just as it garnered accolades from local politicians and businesspeople for building and strengthening the economies of coastal and remote communities and contributing to the global need for food. The concerns were commonplace: that disease and viruses might transfer from the farmed fish to wild stocks, that interbreeding between escaped Atlantic salmon and wild West Coast fish would spoil the stock, and that the fish pens would become breeding grounds for sea lice, which would spread to the non-domesticated fish.

Indigenous communities, carrying the age-old responsibility for caring for their traditional lands and waters, worried about the industry's impact on the local ecosystem. Several wanted the farms, initially placed on their territories without consultation or approval, removed. Government and the industry heeded the concerns expressed about the Broughton Islands and the Discovery Islands, two ecologically vital areas that were critical to the southward migrations of the salmon from the North Pacific to the Fraser Rivers and other southern coast spawning grounds. The salmon farming companies withdrew

at a considerable cost and with significant impacts on the economies of the affected coastal areas.

Many First Nations, effectively most of the Nations along the BC coast and in the interior of the province, joined the activists in their opposition to salmon farming. They urged the Government of Canada to constrain and increase the regulation of the industry. Many joined the call for the total ban of the industry on the West Coast. Those with the greatest concerns about salmon farming convinced First Nations in the interior. The inland communities also relied historically on the regular salmon runs (but less so following the decimation of the coastal salmon in recent years). Coastal advocates argued that the fish farms, by affecting the salmon while they were still in the ocean, undermined the vitality of the stock – accelerating the decline of the fishery and reducing the number of fish reaching the rivers and the tributaries in the interior.

Coastal First Nations supporting salmon farming argued, in opposition to the stance of these interior First Nations, that they had neither been consulted nor did they intervene on project decisions that affected the First Nations on the mainland. The local First Nations' environmental oversight and the protection of their traditional territories were respected, even though the First Nations' acceptance of resource and infrastructure developments in the interior could well have downstream and province-wide impacts.)

The salmon farming companies understood the need to get First Nations on board, and they expanded their consultation efforts, building on previous collaboration and partnership agreements. Interest intensified after the decisions around the Discovery Islands ocean pen nets. Increasingly, the companies turned their attention to negotiating with First Nations to secure their explicit support and participation. The new approach worked, with seventeen communities remaining or becoming involved with the salmon farms. At Klemtu, on the mainland coast north of Bella Bella, the establishment of a fish farm transformed the Indigenous settlement, ushering in near-full employment, eliminating much of the alcohol and drug abuse, and ushering in an era of opportunity and prosperity that fit nicely with the community's desire to earn a living from the ocean and with the success of Great Bear Rainforest tourism (Robinson 2024).

Much of the same held true at Ahousaht, half an hour by boat from the Pacific Coast tourism centre of Tofino. Here, hereditary Chief Hasheukumiss

(Richard George) led the First Nation's effort to expand its economic base. He was skeptical about salmon farming and initially opposed the presence and expansion of the farms in Ahousaht territories. He investigated the science behind salmon farming and the activists' claims about the industry. His opposition shifted to cautious support. The First Nations became more heavily involved with the local operations, insisting on environmental standards, such as the presence of sea lice, that were substantially more strict than federal regulations. The local fish farms outperformed the official standards, and the industry quickly emerged as the cornerstone of the community's economic renewal and steps toward prosperity. As Hasheukumiss and some other Indigenous leaders from the BC coast make clear, the removal of the fish farms would have devastating effects on their First Nation, increasing unemployment, damaging hard-won steps toward sustainable prosperity, and, in remote communities where welfare is the only alternative to working on resource activities, adding dramatically to social and cultural challenges.

Wild salmon activists and the demonization of salmon farming

The planned ban on West Coast Atlantic salmon farming is, at this point, an unqualified success for the efforts of environmentalists opposed to Salmon Farming. This initiative had an emotional and spiritual leader in wild salmon activist Alexandra Morton and high-profile supporter in Tony Allard, entrepreneur and founder of the Wild First organization that has spearheaded and helped financial opposition. They were joined by other groups, most notably the First Nations Wild Salmon Alliance (headed by Bob Chamberlin, former vice-president of the Union of BC Indian Chiefs and a former councilor with the Kwikwasut'inuxw Haxwa'mis First Nation), and a variety of environmental organizations, including the Suzuki Foundation, Living Oceans and the Sierra Club. The First Nations Salmon Alliance has 120 members, many of them from non-coastal areas. They are motivated to participate by the argument that diseases or viruses endemic to wild salmon picked up along the coast would be concentrated because of the ocean net farms and would affect the upstream fish populations that the First Nations, like their coastal counterparts, relied on the salmon for food. These various groups, with the First Nations often given high profile, lobbied politicians, held public protests, challenged the industry on social media and otherwise pushed for the elimination of the farm farms.

These groups brought the full and impressive passion, commitment and organizational strengths of the West Coast environmental movement. For half a century, environmentalists in the region have led, and in some instances forced, a dramatic rethinking of the use, protection, and management of the natural resources of British Columbia. Different environmental groups fought to protect the Stein Valley from development, campaigned against proposed bitumen and natural gas pipelines from Alberta and Northeastern British Columbia, and ran lengthy protests against old-growth forestry around Clayoquot Sound and Fairy Creek on Vancouver Island, among many other interventions.

“*Environmentalists in the region have led, and in some instances forced, a dramatic rethinking of (...) natural resources of British Columbia.*”

Collectively, the environmental movement operated with substantial funding, many eager volunteers, a penchant for coordinated action, excellent media ties and influence, strong connections to like-minded municipal, provincial and federal politicians, and ties to a large community of scientists and other academics with interests in the field. The environmental movement enjoys considerable influence in BC, largely because they combine the passion of the activists with the ability and willingness to use aggressive, even personal, social media interventions, advanced media skills, and the capacity to connect with willing and/or vulnerable politicians who cultivate their support in elections. Like all non-political and non-governmental actors, environmentalists are not constrained by the standards and expectations that govern bureaucrats and industry representatives. In the world of social media, where numerous partner organizations and citizen supporters, bots (automated digital communication systems), and well-financed international collaborators, environmentalists in BC (and elsewhere) have become a formidable political force and a major policy influence (Salazar and Alper 2011; Zelko 2004; Langer 2011).

In the case of salmon farming, opponents of salmon farming included a combination of a “trigger” activist, particularly Morton, who personalized and animated an otherwise technical and commercial conversation, support from the sports fishing and adventure tourism industries, strong financial support from key backers, particularly Allard, ready access to key federal Liberal decision-makers, particularly Members of Parliament Joyce Murray and Jonathan Wilkinson, and well-managed organizations prepared to work publicly and loudly in support of the cause. They were adept at gaining access to the media and, collectively, were especially skilled at using social media to build support for the anti-salmon farming position.

The list of active environmental groups is impressive: Watershed Watch Salmon Society, Global Salmon Farm Resistance, Living Oceans Foundation, Wild Salmon Center, Wild Forever Society, Sport Fishing Institute of Canada, and the Raincoast Conservation Foundation, plus wilderness and adventure tourism organizations, and a broad group of environmental associations, including Tides Foundation, Greenpeace, and the Sierra Club. Watershed Watch Salmon Society, to select one example of this broad movement, was founded by ecologist Craig Orr. It is a science-centred conservation organization noted for its active intervention in local and regional watershed and fish-related issues. It has a small staff – about 10 people at present – who bring a combination of scientific, conservation and environmentalist credentials to the task. Watershed Watch is excellent at mobilizing public support, using a solid core of engaged volunteers and effective engagement with the media. Its members are not utopians in an ecological sense and look to improve commercial harvesting and encouraging a transition from “catch and release” sports fishing to “catch and retain” as a means of reducing the overall loss of fish (given that a significant portion of the released fish die soon after being let go). The Global Salmon Farm Resistance (GSFR), formed in 2021 to build on the successful local protests that stopped the approval of Salmon Farming in Argentina, has like-minded members in 13 countries. Canada and Chile, with 19 member organizations in each, have the largest number of participants with GSFR, but there are partners from New Zealand to Norway (only four members despite its dominance in the field), Namibia, and land-locked Switzerland. The reach and diversity of anti-salmon farming groups around the world demonstrate that the science, the protests, and the organizational heft are truly international in scope and

scale, supported by entrepreneurs like Yvon Chouinard of Patagonia, who engaged actively in the opposition (Jedeur-Palmgren 2019).

While such a diverse group of organizations came to the cause for a wide variety of reasons and from many perspectives, they were linked by a simple argument: the combination of waste released into the ocean from fish farms and the prospect of the mingling of escaped farmed Atlantic salmon and wild Pacific Salmon threatened to contaminate the regional stocks or wild salmon. Sea lice, an unappealing limpet-like creature (the marine equivalent of a tick) that attach themselves to the salmon, were, in the eyes of the critics of salmon farming, a particularly serious threat. Sea lice, like diseases and viruses, occur naturally in the ocean, but opponents of salmon farming argued that these risks are much greater when concentrated in salmon farms.

As can be the case in highly public and emotional debates, images matter. Opponents of the oil sands highlight pictures of birds soaked in oil or aerial shots of large tracts of land stripped of their vegetation and surface soils. Protestors battling old-growth logging release startling photos of hillsides denuded of all trees or massive logs, hundreds of years old, loaded onto the logging trailer. Critics of fish farms make effective use of images of fish with significant number of sea lice or sick from viruses or diseases, with the implication that further and unchecked farming would lead to the spread of the illnesses or parasites.

The activists generate powerful responses, from supporters, some scientists, industry representatives, and community leaders. They are characterized in often unflattering terms, although generally more polite and modulated than the comments that critics of salmon farming direct at industry supporters. Their determination is matched only by their certitude about their environmental assessment. As a group, they approach the anti-salmon farming campaigns with impressive resolve and either engage in or accept tactics that approach with the boundaries of preferred public discourse, particularly online. The critics are, in many ways, admirable people who fervently believe that their actions and demands are backed by science and the need for environmental justice (Volpe and Shaw 2008; Schreiber 2004; Walling and Hiemstra 2006; Morton 2022; Page 2007).

Scientists and salmon farming

Scientists have weighed in, repeatedly but often cautiously, on the salmon farming controversy. According to several of the top scientists, both in academia and in the Canadian public service, there is no incontrovertible evidence that salmon farming has contributed to the decline in the West Coast wild salmon stocks. They agree emphatically that the decline is real, albeit cyclical, and point to seriously understudied transformations in the North Pacific climate and food supply as the likely source of the dramatic collapse of some salmon runs. The scientists also attribute a portion of the difficulties in British Columbia to over-harvesting by Alaskan fishers, who have the first crack at the fish migrating from the North Pacific to BC waters. Adding to the problems, urban and industrial growth along the Fraser River system, climate change, and the reduction in salmon spawning grounds and expanding salmon “ranching” in Alaska have doubtlessly contributed. There is uniform agreement that the wild salmon stocks are in serious trouble, but analysts are sharply divided about the costs and consequences of the decline (Welch, Porter, and Rechisky 2021; Noakes, Beamish, and Kent 2000; Lackey 2003; Lackey 2015; Ohlberger et. al 2018; Nehlsen 1997).

There are sub-groups within the salmon farming scientific community. The salmon farming industry employs numerous scientists and veterinarians, and the companies have made impressive investments in improving and enhancing the output from the farms. There were serious problems as well with the provincially regulated forestry industry. The practice of cutting down trees adjacent to spawning pools increased the evaporation of snow and reduced the snow melt entering the pools and decreasing the shading over the spawning waters. This raised water temperatures and impeded the development of cold water-liking fry. Norwegian companies, in particular, have world-leading capabilities in this field. One of the advantages of the engagement of Norway-based multinationals is that they have a formidable global presence and major commitments to scientific research. The industry’s scientists have contributed substantially to the improvement of the industry and, in their view, to the protection of wild salmon and the raising of high quality, safe farmed salmon. The West Coast industry, eager to calm concerns about the fish farms, has been extremely transparent, putting vast quantities of proprietary information online, freely available for scientists around the world. The availability of statistical evidence has not silenced the critics, however.

An Eastern Canadian scientist with years of experience with salmon farming is disappointed in the triumph of emotion and activism over science and common sense. Larry Hammel of the University of Prince Edward Island's College of Veterinary Medicine finds it ironic that the industry's commitment to openness and transparency, which includes making large quantities of technical information freely available to the public, appears to be contributing to its downfall (Hammel 2024). Scientists on the East Coast cannot get ready access to comparable company data and rely instead on the detailed information provided by the BC fish farms.

“*Larry Hammel, an Eastern Canadian scientist (...), is disappointed in the triumph of emotion and activism over science and common sense.*”

The activists and environmentalists have their scientific backers. Few of them have done extensive field research. They draw, instead, on their extensive work in environmental science and offer strong and consistent condemnations of the salmon farming industry. A significant number are university-based, with professional affiliations that strengthen their standing with the media, politicians and the public. The presence of dueling scientists has become the norm in science-centred public policy debates, as has been revealed in ongoing controversies over COVID vaccines, climate change, effective means of mitigating ecological change, and the environmental impact of major resource projects. A sizeable professional industry has developed around the project assessment processes as governments, proponents and critics of major initiatives line up their biologists, geographers and social scientists to a particular side of the public policy agenda.

The standard failsafe in Canada has long been non-partisan scientists, either in the universities or within government. The Department of Fisheries and Oceans has a large scientific workforce with responsibilities for research and analysis across the country. It is caught in a complex web of departmental responsibility for salmon farms, with DFO the regulator of the industry while

also addressing a mandate to support sustainable development, a reality that places the department in a potential conflict of interest. Agriculture and Agri-Food Canada, which could be a home for salmon farming, has not stepped up to assume a role in the sector. Until the British Columbia court decision on the matter, responsibility for the oversight of fish farms rested with the Government of British Columbia. The BC authorities managed the land-based elements of the farms; initially, no special permits were required for the stationing of the fish pens.

Scientists have been engaged in the study of coastal salmon, although the intensity and continuity of the research have been uneven. Scientists have well documented the collapse of the coastal salmon stocks but have been less comprehensive in explaining the causes of the decline (Beamish 2017; 2024; Noakes, Beamish, and Kent 2000). Through the main Fisheries and Oceans Canada research operation, the Pacific Biological Station, the Government of Canada maintained substantial research oversight of the fisheries. The scientists, as a group, are noted for impartiality on a broad cross-section of environmental and policy issues, as well as for their willingness and capacity to give policy advice to the government and their collective desire to stay out of the political fray. Government scientists have, on occasion, spoken out (as with several environmental scientists who spoke up during the Conservative government reign of Stephen Harper, and the Chief Statistician of Canada, Munir Sheikh, who stepped down when the Conservative administration cancelled the long-form census in 2010.) Such actions by scientists were, and are, rare in Canada. Critics of salmon farming have also argued that Pacific Coast scientists have been barred by their employer from speaking out on the negative effects of the industry on salmon stocks (West Coast Now 2024).

Scientists with Fisheries and Oceans Canada have been largely silent on the banning of salmon farms; their peer-reviewed research on the farms did not identify the facilities as being the cause of, or even a significant contributing cause to, the decline of wild salmon. According to scientists familiar with the timing of the announcements, the scientists at the Pacific Biological Station were informed about the ban on salmon farms after the decision had been made but before the news was made public. The decision on salmon farms does not appear to be based on a thorough investigation of the scientific evidence provided by government researchers or extensive engagement with impartial scientists, an argument critics of salmon farming reject (Beamish 2024).

Alternatives have been discussed. The Canadian Science Advisory Secretariat is responsible for organizing the peer review process for Fisheries and Oceans Canada (or DFO), providing scientific advice on the many complex and often interrelated scientific issues relating to the oceans and fisheries. The CSAS work is based on open, transparent and peer-reviewed scientific research. The DFO established an Independent Expert Panel on Aquaculture Science in May 2018, charged with recommending an appropriate approach for the use of scientific research to inform federal policy in the field. The recommendations were quite clear:

Overall, the Panel recommends that DFO develop an integrated risk management framework that can be used to promote continuous, proactive and systematic processes to understand, manage, and communicate risks from an organization-wide perspective. Such an evidence-based approach requires the scientific identification and characterization of all potential risks and impacts associated with aquaculture activities....

To achieve this, the Panel recommends that an integrated scientific advisory system consisting of an externally appointed Departmental Science Advisor, as well as an External Advisory Committee on Aquaculture, be established by DFO. This would ensure the ongoing participation of independent external experts in the science process at DFO – from research prioritization to peer review and evidence synthesis and interpretation. Additionally, the adoption of an open science framework that includes accessible data and scientific publications is recommended.

The specific recommendations called for a science-based decision-making system, with room for external input and transparent decision-making processes (Government of Canada 2018). The Government of Canada did not follow the recommendations when reviewing the BC salmon farming system. It instead maintained a system that prioritized political decision-making over a science-centred approach.

A Parliamentary Committee review of DFO fisheries science argued that departmental scientists were too closely aligned with the salmon farming industry and recommended the establishment of more independent scientific oversight of the sector. Specifically, they recommended that “Given the

conflict of interest between DFO's mandate relating to aquaculture versus the application of the precautionary principle and the ongoing crisis for the health of wild Pacific salmon stocks, that the government implement, on the West Coast only, Recommendation #3 in the Cohen Commission report on the state of wild salmon: "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" (House of Commons 2023). The committee's recommendation for an independent scientific evaluation of the industry's impact is an indication of the contested nature of salmon farming science.

There were other scientists engaged in the study of the fishery, including university scholars and retired Fisheries officials. These professionals, using academic research funding like the Natural Science and Engineering Research Council of Canada, and a variety of public sources, focused their efforts on producing peer-reviewed research, sharing their results with the broader scientific community through research papers and scholarly publications (Noakes, Beamish, and Kent 2000; Beamish 2017; Vollset et. al 2021; Beamish, McFarlane, and Thomson 1999; Bradford and Irvine 2000; McNeil 1991). West Coast salmon has attracted considerable scientific interest, with attention rising or falling in part based on the sense of crisis or catastrophe in the annual runs. Compared to Norway, however, scientific research in British Columbia is limited and far from commensurate with the economic potential of the industry.

Industry representatives

The salmon farming industry sought to counterbalance the work of the activists and environmentalists. They work through the BC Salmon Farmers Association and the Canadian Aquaculture Industry Alliance to coordinate meetings with federal and provincial government officials in Ottawa, organize publicity campaigns and press conferences, and respond to actions to respond to statements and activities by industry critics. While many of the Canadian-based operations are owned by foreign companies, industry representatives note that the head offices are not eager to participate in Canadian political matters (Salmon Farming Companies 2024). The provincial and national associations cultivate strong federal and provincial relationships and try to

work with the politicians. They have received limited support from elected officials and, compared to the opponents, have limited resources for public relations campaigns and no large cohort of volunteers to support their cause.

Representation in Ottawa and Victoria: To the degree to which the protection, enhancement, and promotion of salmon farming is a part of Fisheries and Ocean's Canada's responsibility – and technically it is all these things – the salmon farming industry feels it has been ill-served by recent federal DFO ministers. The department is low-profile (but conflict-prone) in Ottawa and is not viewed as a front-bench responsibility. Jonathan Wilkinson, Member of Parliament for North Vancouver-Capilano, has strong ties to the coastal environmental movement and tight contacts with the principals behind the Wild Salmon Alliance/Wild First, particularly entrepreneur Tony Allard (Kingzett and Kennedy 2024; West Coast Now 2024). He was followed by Bernadette Jordan (2019–2021), whose tenure as minister was dominated by conflict on the East Coast fishery and ongoing difficulties with First Nations' treaty rights under the Marshall decision in the sector. Joyce Murray (2021–23) was another West Coast Liberal Cabinet minister, representing the riding of Vancouver-Quadra. Like Wilkinson, she had a long track record of supporting environmental causes. Murray was followed by Diane Lebouthillier (2023–present), who represents Gaspésie Les Îles-de-la-Madeleine, a prominent fishing area in Eastern Quebec. Lebouthillier has been more responsive to the salmon farming industry and to First Nations' representations than her three immediate predecessors, and, for the first time in years, the industry felt it had received a fair hearing, although formal assurances of a continuation of the Salmon Farming were not, as of the end of 2024, forthcoming. Lebouthillier has not been a saviour for the industry. She announced the BC salmon farming ban in Ottawa; Wilkinson made an announcement the same day in Vancouver, supported by wild salmon activists (Labbé 2024). Lebouthillier met with industry representatives and participating First Nations in the fall of 2024 and, according to attendees, reassured participants that she was open to learning more about the industry.

Ministers do not act autonomously, and the broader Liberal Cabinet retained a strong interest in all environmental issues. Wilkinson was elevated to the more prominent role of Minister of Environment and Climate Change (2019–2021) while also serving as the political minister for British Columbia. He was subsequently assigned to the post of Minister of

Energy and Natural Resources (2021–present), a key portfolio in the hyper-eco-sensitive Trudeau Cabinet. Wilkinson has apparently retained an active interest in the file, a prospect that discourages industry representatives and empowers the activist community.

The Liberal government, riding low in the polls during a winter 2024–25 leadership campaign, faces an election in 2025. The Conservative Party does not support the Liberal government’s environmentalist agenda and routinely opposes activists’ positions on key resource development issues. In the 2021 national election, the Conservative Party indicated that it would “Maintain the decision to remove salmon farms from the Discovery Islands but model the transition after the process that has been undertaken in the Broughton Archipelago to be more respectful of local First Nations, communities, and workers” (Rooney 2021). The platform did not commit the party to the future expansion of the BC salmon farming industry. The federal New Democratic Party is committed to removing the fish farms from British Columbia waters.



Fish farming had become the proverbial hot potato, with the BC government and other provincial parties shying away from direct engagement.

The salmon farming sector lacked proponents in the provincial legislature until the fall of 2024. The New Democratic Party government, under Premier John Horgan (2017–2022) and Premier David Eby (2022–present), allowed the Government of Canada to take the lead, following the BC court decision (which was not appealed) that called on Fisheries and Oceans Canada to oversee the industry. Fishing farming had become the proverbial hot potato, with the provincial government and, until 2024, provincial parties shying away from direct engagement, let alone support. NDP and BC United (formerly the BC Liberal Party) North Island Members of the Legislative Assembly met with industry representatives, activists and scientists, gave a polite audience to their arguments, but shied away from either public support of the industry or overt endorsement of the activists’ position.

The political situation changed in the fall of 2024. During the October 2024 BC election, BC Conservative leaders and local Conservative candidates came out in vocal and public support of the sector. The close results of the 2024 election (47 NDP seats, 44 BC Conservative seats, and 2 Green Party representatives), the rise to prominence of the long-dormant BC Conservative Party and the election of the Conservative MLAs in the two Northern Vancouver Island ridings holds the possibility for continuing political profile in the provincial legislature for the sector. In the current political environment, it is unlikely that the NDP government would take a strong stand in opposition to the Government of Canada's proposed ban, but the strength of the Conservative Party's performance in the last election certainly strengthens the industry's public and political profile. Should the federal Conservatives join in strongly, the issue will add to the growing anti-activist sentiment that is offsetting support for the policies of the pro-activist federal Liberal Party.

First Nations sovereignty and Indigenous and treaty rights

Canada's relationship with First Nations continues to evolve through ongoing processes of negotiations, treaty-making and legal proceedings. The rights and authority of First Nations have crystallized in recent years. The Supreme Court of Canada ruled that Indigenous people must be consulted and accommodated when resource projects and infrastructure developments are being proposed. Modern treaties with First Nations, including several signed on the West Coast of Vancouver Island, have provided specific and substantial Indigenous authority over land and water use in the signatories' traditional territories.

Both the Government of Canada and the Government of British Columbia have declared their support for Indigenous rights and autonomy. Both have adopted the United Nations Declaration on the Rights of Indigenous Peoples. BC has done a great deal, as much as any jurisdiction in the world, to take the vague outline of UNDRIP and convert it into public policy and government practice. These slightly opened legal and policy doors have provided significant opportunities for First Nations to exercise administrative autonomy and to assert their role in local resource and environmental management.

Governments, however, tend to support Indigenous rights primarily when First Nations' priorities align with government objectives, a pattern observed over the years of conflicts over pipeline projects, LNG initiatives, and mining

ventures. On the resource file, this enthusiasm has resulted in strong government support – to the point of funding projects’ opponents on occasion – for First Nations who share the government’s attitude toward resource and infrastructure initiatives. The Government of Canada’s acceptance of the First Nations’ ability to say “no” is not often matched by a comparable willingness to concur with their desire to “yes” to a project that the government views with skepticism.

Those First Nations that support and engage with the salmon farming industry assert that they have the right to determine the use of their waters. They are confident that they have done sufficient due diligence, including multiple visits to Norwegian fish farms and research laboratories, consultations with scientists, First Nations Guardians’ oversight of salmon farms, and experience with increasingly collaborative salmon farming companies. They respect, in full, the right of other First Nations to reject the placement of fish farms in their territories and expect the same respect and autonomy in return (Robertson, Smith, and George 2024). (First Nations and activists opposed to salmon farming argue that contact between farmed fish and wild salmon can be transferred well beyond the immediate vicinity of the fish farms. Supporters of salmon farming point out that much the same applies to the impacts of resource developments and infrastructure expansion in coastal areas or along salmon rivers, many of which are approved by specific First Nations with limited engagement with Indigenous communities further afield.)

First Nations defend their autonomy and sovereignty carefully and aggressively. Among the First Nations active in and supportive of salmon farming, there is deep frustration with the Government of Canada’s willingness to undercut the economic vitality of their communities and potentially reverse several decades of social stability and cultural revitalization (Robertson, Smith, and George 2024). In regions with few other economic prospects, particularly as commercial fishing remains in the doldrums, salmon farming is a major piece of local plans for prosperity building. The elimination of fish farms will plunge several communities into prolonged hardship, denying hope to First Nations that are determined to break entrenched cycles of welfare dependency and related hardships (Robertson, Smith, and George 2024).

The legal and constitutional rights of First Nations may well be the wild card in the salmon farming debate. If the participating First Nations exercise their treaty and Indigenous rights over their traditional lands and waters, and if

their assertion of autonomy is backed by the courts, the Government of Canada could well find itself immersed in a lengthy, costly, and embarrassing litigation as the First Nations fight to have their authority recognized. The run of court decisions on Indigenous rights would seem to favour the participating First Nations. If, however, the court proceedings unfold, as they typically do, over many years, the fish farms could well be removed before the First Nations' legal authority is recognized and reestablished.

The impact of fish farm closures

Fish farms are not generally located near major cities or even mid-sized towns. Initially, the best sites were bays, inlets, and island groups with significant current and shelter that are protected from the open ocean and the rough waters that can undermine the safety of the fish pens. The ocean nets are now placed in exposed and high-current areas. To be commercially viable, a site must be close to a decent-sized workforce and have reasonably good access to transportation to international markets (approximately 20 per cent of BC farmed salmon is sold commercially in Canada but the majority is exported, primarily to the US. Ironically, Canada is currently importing substantial quantities each month to meet national demand). In these smaller communities, a professional salmon farming operation is a major employer and a substantial commercial asset. Numerous suppliers, service providers and environmental professionals are needed to operate the pens.

The closure of a fish farm has substantial economic and employment implications. The employees lose their jobs, although some are, when commercial circumstances warrant, offered positions at other company operations. The latter option has been disappearing as companies contract their operations or exit the industry. Management personnel, too, are either relocated or let go. Contractors and subcontractors lose contracts, and they also must cut back on operations and expenditures. The dislocations run up and down the supply chain, from the feed producers to the British Columbia Ferries that had come to count on regular trips by the rigs carrying the harvested fish to market and fish feed to farms from mainland feed mills. Extend this further to include local business taxes, reduced sales in local stores when the employees leave the area and increased social welfare spending by governments (BC Salmon Farmers Association 2024).

When the industry first arrived in British Columbia, relations with First Nations were limited and largely incidental. As time passed, First Nations gained greater legal and political authority, leading to the adoption of UNDRIP by the Governments of Canada and British Columbia. With some of the fish farms located near First Nations communities and with First Nations looking for economic opportunities, the Indigenous people and the fish farm industry found a common purpose. Some, but not all, First Nations, accepted the fish farms in their territories. Over time, employment expanded. First Nations moved into local management positions. Some Indigenous firms contracted with the farming operations. Some remote communities, Klemtu being an excellent example, embraced the industry, producing near full employment and considerable local pride in commercially successful operations.

In the communities along the coast of British Columbia, the withdrawal of the salmon fish farms will be economically devastating, as it is one of the only sustainable business opportunities in the region (BC Salmon Farmers Association 2024). Any decision about the future of salmon farming should, as a matter of course, take the socioeconomic impacts of fish farm closures into account. It is quite clear that the decision to ban fish farms rested on arguments about real and potential environmental implications and not about the broader implications for the region (Krause et. al 2015). Indeed, it appears that the Government of Canada's decision rested on concern about potential ecological impacts rather than proven and demonstrated effects of salmon farming in the region.

Understanding the precautionary principle

In announcing the salmon farming ban in 2024, the Government of Canada referred to the “precautionary principle” in justifying its decision. This concept is simple: in a situation where there is insufficient scientific knowledge to make a clear and unequivocal decision about serious and irreversible downstream harm, governments should err on the side of caution. It sounds on the surface like a fair and cautious approach to environmental matters. But an over-abundance of caution in policy-making could and would be extremely damaging on a variety of economic and social fronts.

Should this same approach be enacted more generally, the effects would be dramatic and even catastrophic. All human activity, as is now well

understood, has environmental impacts, sometimes small, typically acceptable and oftentimes not immediately appreciated. Government policy requires comprehensive risk assessment – environmental, economic, political, social and cultural – and almost always works on the basis of acceptable risk and not the precautionary principle. Canadian authorities are currently finalizing, over prolonged objections and lengthy community consultations, a site for a 10,000-year repository for nuclear waste (now slated for Iqaluit, Ontario) (Leiss 2024). Had authorities applied the precautionary principle, it is unlikely that a repository would be built. Similarly, the Government of Canada and provincial and territorial agencies have approved everything from pipelines to housing developments, wind farms to mines, massive solar panel installations, and new roads, all based on known and acceptable risks, relying on monitoring, ongoing innovation, remediation, and efforts to minimize environmental and socio-economic costs.

In the case of salmon farming, the standards implied in the precautionary principle have, in the eyes of supporters of the industry, been met. Atlantic salmon fish farms have been around for decades. Industry innovations and government regulations have brought about many modifications to commercial operations. Advanced and peer-reviewed research in many countries and regions, including in British Columbia, have documented the risks and consequences of farm farming. According to leading scientists, salmon farms represent minimal risk to wild salmon; the scientific research presented and evaluated to date does not support the more cataclysmic forecasts introduced by wild salmon activists (Beamish 2024).

The current problem is simply stated: to the activists, including many First Nations in affected areas, the risks are either too great or unknown; they wish to keep the fish farms out, preserve wilderness values, and protect against future potential impacts on the fishery. For the industry, DFO scientists, participating First Nations and affected communities, the risks are small, known, and manageable, and the minor costs are acceptable given the substantial and proven returns. One side adheres to the precautionary principle and wants salmon farming banned from the region; the other supports the idea of acceptable risk and wishes to continue salmon farming on the coast of BC. These are, ultimately, irreconcilable positions.

Governments must choose a side, after having tried for years to find a collectively acceptable middle ground. In taking the decision to ban fish farms,

the Government of Canada has accepted activism and general environmental considerations over peer-reviewed science, international experience, industry strategies, and the strongly expressed wishes of selected communities and First Nations. That this approach flies directly in the face of the recommendations of the CSAS panel on aquaculture, which endorsed a science-based process, makes the 2024 decision particularly concerning. The current positions cannot be easily bridged. But better policy – scientifically based, unemotional, more transparent, and publicly defensible – is urgently required before non-reversible damage is done to the economies and societies of many First Nations and non-Indigenous communities along the coast of British Columbia.

The Government of Canada will have to decide if it will proceed with the ban on West Coast salmon farming. At present, the phasing-out process is underway, and the companies are, however, reluctantly reorganizing their plans accordingly. Investments are being cancelled, and development activities are slowing down or stopping. Communities are adjusting their economic forecasts, a sombre and difficult process that will invariably include applications for the “transition funding” that has become an unexpected signature of the Trudeau government’s approach to natural resource development in Canada.

Alone on the water

A decision by the Washington State Board on Natural Resources in November 2024 had left British Columbia as the only jurisdiction along the West Coast of Canada and the United States to allow open-net salmon farming (Helmore 2025). Alaska uses open net pen systems for “delayed release” salmon enhancement or ocean ranching. The Washington State scenario unfolds much like the debate in British Columbia: strong opposition by environmental activists, missed responses from First Nations, debatable assertions about the “settled” science of ecological impacts of salmon farming, and limited state-wide interest in the decision. The industry and its community supporters were, in the lead up to the decision and as in BC, politically isolated and without much legislative support. Also, and as in British Columbia, some First Nations saw the action as an intrusion on its impudence and responsibility for local environmental

stewardship. Ron Allen of the Jamestown S’Klallam Tribe declared, “Our Tribe strongly believes we must look at the real threats endangering our native trout and salmon populations, and fish farms are not to blame. Northwest Tribes struggle to sustain the ability to harvest wild fish for livelihood, sustenance, and ceremony. Through the implementation of modern sustainable fish-farming practices, we can produce locally grown seafood, sustain seafood jobs, feed our families, and uphold our Tribal traditions, without further depleting wild stocks” (Allen 2023). Allen argued, further, that the state’s decision eliminated their opportunity to exercise their autonomy: “This decision sets a dangerous precedent by stripping Tribes of the opportunity to exercise our sovereignty and pursue sustainable practices that align with our values for future generations” (Helmore 2025). This position is consistent with that expressed by the First Nations for Finfish Stewardship in British Columbia.

“ Without a federal government change of heart on open-net fish farms, the industry will enter a period of inexorable decline.

British Columbian interest groups followed the Washington State decision closely, alternately applauding and criticizing the action. The American action mirrored Canadian debates and processes, pitting First Nations against First Nations, scientists against scientists, and leaving the far-from-settled matter in the hands of civil servants and politicians. It differed from the situation in British Columbia in that the final judgment came at the sub-national level, with Washington rather than with Canada pulling the plug on the industry. Responding to the situation in Washington State, Stan Proboszcz of the Watershed Watch Salmon Society expressed concern that the next federal election could see a change in salmon farming policy and worried that “It would seem that we’re walking backwards on the issue in terms of how to protect wild fish” (Helmore 2025).

British Columbia now stands alone on the West Coast, perhaps temporarily, hosting commercial open-net fish farms. East Coast jurisdictions,

particularly New Brunswick, have been enthusiastic about the industry and would welcome more investment as would the south coast of Newfoundland. In these areas, small towns in remote and isolated areas, eager for work-producing and high-income industries, keenly support the sector and would like to see more fish farms. Canada is far from Norway, however, in its support for open-net fish farms while lagging far behind the Nordic nation in its investment and research related to alternative closed and contained salmon farming operations. Without a federal government change of heart on open-net fish farms, the industry will enter a period of inexorable decline and disinvestment, to the detriment of small communities along the BC coast and more than a dozen strongly supportive First Nations. It is not yet clear, based on long-term scientific research, that the ban will produce a significant change in West Coast salmon populations and address the underlying challenges facing the regional ecology. Where salmon farms have been removed, there is, to date, no sign that wild salmon re-emerge in large numbers (Smith 2025). There are major forces affecting wild salmon: climate change, marked shifts in food production in the North Pacific, Alaskan fishing activity, challenges along the freshwater salmon rivers, and industrial effects are more significant than salmon farming (Brander 2007; Noakes, Beamish, and Kent 2000; Beamish 2017; Vollset et. al 2021; Beamish, McFarlane, and Thomson 1999; Bradford and Irvine 2000, McNeil 1991).

New approaches to West Coast salmon farming and policy-making

As governments, First Nations, and industry contemplate the future of the salmon farming industry, several key considerations stand out:

- *Trusting science when making decisions on salmon farming:* In controversial circumstances, it is important that the government rely on impartial scientific evidence. The Department of Fisheries and Oceans has a large research enterprise, and the integrity of the Canadian Sciences Advisory process should be trusted. There is a good group of academic scientists working in the field. The results of this research

should be used comprehensively and should be engaged directly in the decision-making process.³

- *Reducing emotions:* Opponents of salmon farming are passionate, well-informed and determined. They have done much to champion the cause of West Coast salmon against all threats and dangers. These opponents have a clear and important role in the public debate about salmon farming and the protection of West Coast salmon. They can use – and have used – the courts to push their ideas forward. The policy decision-making must be, to the greatest degree possible, separated from the highly emotional public debate. Opponents of salmon farming, appropriately and forcefully, put the industry on the national agenda. The final decision must be made separately from these interventions, however well-meaning and strongly held.
- *Solving the puzzle of the decline of West Coast salmon:* Two realities stand out in the contemporary debate: the West Coast salmon are at serious risk, and research on the salmon is, in the view of the professionals, environmentalists, and scholars in the field, far from adequate. The salmon are fundamental to the ecological future of the West Coast. Securing the future of this invaluable species – at risk through a complex web of ecological, industrial, and social factors – is essential and must be made a higher government priority. Importantly, salmon farmers have produced a great deal of research on the salmon population and should be enlisted as allies in the protection and enhancement of both salmon farming and wild salmon.
- *Respecting First Nations sovereignty and self-determination:* Canada has made major strides in recognizing Indigenous and treaty rights and, through UNDRIP, accepts the importance of a whole-of-government approach to re-empowering and respecting Indigenous sovereignty and self-determination. Governments are routinely comfortable with Indigenous priorities that mesh with government objectives. They regularly draw up short when Indigenous groups have preferences at odds with those of the government. This must stop. Either the First Nations have real and substantial autonomy over the management of their territories, or they do not. The former respects Indigenous sovereignty; the latter does not. Canada and British Columbia have

indicated their commitment to UNDRIP, but they have stopped well short of recognizing the full implications of First Nations autonomy. The salmon farming issue provides an excellent opportunity to test the government's commitment to Indigenous rights.

- *Improving salmon farming:* Salmon farming has improved dramatically over the last few decades, and corporate research efforts and government regulations are accelerating the innovations. That improvement must continue. Greater attention to emerging technologies, techniques and management systems is essential. Importantly, maintaining salmon farming in British Columbia is a way of encouraging additional research and thereby continuing to improve the quality and safety of salmon farming. This work should include ongoing investigations of the potential and limitations of land-based salmon farming, with particular emphasis on how land-based fish farms could be located profitably in small and remote communities rather than based in urban and near urban settings.

Desired policy outcomes

There is surprising agreement among people interested in the industry about the future of West Coast salmon and the priorities that should determine policy priorities in the field. These priorities include:

- *Ecosystem sustainability:* There is a uniform agreement that protecting the West Coast system is a top and unassailable priority. Industry, government and environmentalists share a determination to ensure the long-term sustainability of the waters, the fish and the surrounding lands.
- *Expanding economic contributions:* While the environmental critics of salmon farming are accused of being unconcerned about the economic implications of the impending ban, as a group they show considerable interest in the viability of regional societies. The groups vary considerably in this regard but those concerned about the environment are supportive of carefully managed sportfishing and adventure tourism. Many First Nations in the region who are not

engaged with salmon farming are active in Indigenous tourism and related commercial operations.

- *Stabilizing rural economies:* Small coastal towns have pride of place in the history, culture and symbolism of coastal British Columbia. No one sees them as the “enemies” in this fish farming story. They have suffered through repeated crises and downturns in the commercial fishery and forestry sector, through mismanaged commercial fishing and poorly regulated forestry. Outmigration is high and so is unemployment. This has been partially offset by the development of West Coast tourism and lifestyle resettlements, the latter sustained by low house prices, attractive climates and remarkable coastal settings. Opponents of salmon farming do not wish to see these communities suffer.
- *Optimize the use of new and emerging technologies:* The rapid emergence of new technologies, from artificial intelligence and information technologies to sensor and monitoring systems, provides new avenues for the improvement of salmon farming and the improvement of West Coast salmon populations. Companies require a clear and stable commercial runway if they are to make substantial investments. At present, capital is leaving the industry at precisely the time when technology-based innovation is most possible and necessary. Even the shift to land-based system requires research, new technologies, and large-scale investment. The current policy will remove the largest and most successful salmon farming companies from British Columbia. It will be hard to get new firms into the industry.
- *Recognition of First Nations ecological sovereignty:* Most participants in this debate favour First Nations autonomy. Environmentalists, whose work is backed by many First Nations, encourage respect for Indigenous priorities. The salmon farming industry, which has major First Nations supporters, calls for respect for First Nations sovereignty. The problem rests with one major difference: the supporters of the salmon farming ban want their argument extended to all Indigenous territories, arguing that their actions in one area can affect much broader eco-systems, while the supporters of salmon farming argue that they have autonomy over their territorial waters and that they do not try to dictate commercial activities in the areas of other First Nations. While attention must

be paid to overlapping and contiguous First Nations' territories, the long-term reality is that individual First Nations will and should have environmental authority over their traditional lands and waters.

- *Reconnecting science and policy-making:* Both sides in the salmon farming debate rely heavily on scientific evidence and research. Supporters of the industry have in-house scientists and the work of government and academic scientists. The companies are strongly interested in scientific research in the sector. Opponents of the industry have their own scientists and utilize supportive academic and government research. The problem lies with the interpretation of the evidence and the way they understand gaps in the research. The CSAS recommendations pointed in the right direction, but the difficulty of implementing such a transition should not be underestimated. A January 2021 survey conducted for the Coalition of Atlantic and Quebec Fishing Organizations asked Canadians about who they trusted the most to manage the fishery. A large majority (86 per cent) believed that scientists should make the final decision on harvesting; slightly over half would put their faith in Indigenous decision-makers, followed by commercial fishers (44 per cent). Politicians, somewhat depressingly, were selected by slightly more than one-quarter of respondents to the survey (Nanos 2021).
- *Respecting disparate voices:* There is one area where there is less than a meeting of the minds. Salmon farming is an emotional issue. On one side, people have their jobs and economic future at stake. On the other, environmentalists believe the industry represents a threat to the viability of the West Coast ecosystem. There is not a great deal of middle ground (although the First Nations involved in the industry appear to have found a comfortable zone between ecological stability and economic opportunity). At times, commentary and particularly social media interventions are intemperate, unkind and unprofessional. Industry and government officials are careful in their public comments; a few members of the broad and diverse group of opponents of the industry, including some of the most prominent spokespeople, show much less restraint in their public comments. The lack of respect for people with differences of opinion has inflamed the debate and limited the possibility of a broadly acceptable compromise.

Policy recommendations on British Columbia fish farming

Canada's current approach to salmon farming in British Columbia is impetuous, not soundly based on science, and potentially economically destructive to numerous coastal communities and participating First Nations.

The planned ban scheduled for 2029 effectively halts investment and requires the fish farms to start phasing out existing operations immediately. There is no reason to expect that the industry will shift to land-based and fully contained systems in the next decade as the technology is not yet commercially proven; if or when such investments occur, there is little reason to believe that the new facilities will be constructed at or near existing salmon farming locations. Such a policy will harm economies in many remote communities in British Columbia and remove a key opportunity for community renewal.

That this policy flies in the face of acceptable formal and independent scientific risk assessment makes it a serious repudiation of these communities' aspirations and First Nations' autonomy. In a world of growing food insecurity and continued population growth, Canada should be exploring opportunities for long-term expansion of scientifically sound and economically sound food production opportunities, not closing a viable, valuable industry that has minimal and largely controllable environmental impacts. Further, closing the British Columbia salmon farms will not stop fish farming. Instead of buying Canadian-produced salmon (which could be expanded in the right policy environment), Canadian consumers, who clearly desire and appreciate farmed salmon, will purchase fish imported from Norway and Chile.

The Government of Canada must cancel the current phase-out and total ban. The appropriate path forward for the Government of Canada on salmon farming in British Columbia is quite clear. The current decision, as currently presented, is driven by activism, not sound and convincing science, and will have sweeping and negative consequences for participating First Nations and coastal communities. The Government of Canada's efforts to support "just transitions" resulting from government policies in other sectors, particularly oil and gas and including a decades-long and largely unsuccessful effort to rebuild the coastal economies of Newfoundland following the cod fishing moratorium, have not reassured local political and business leaders.

Revisiting the decision to ban salmon farming should only be the first stage in the re-evaluation of federal decision-making relating to the management of Canadian coastal waters and fisheries. Among the measures that should be considered are the following:

- The Government of Canada should establish a specialized scientific task force composed of Canadian and international experts in the environmental impact of salmon farming and provide them with a six-month window to produce an assessment, based on existing scientific evidence, of the need for additional regulations and/or oversight relating to the British Columbia salmon farming industry.
- Should the Government of Canada insist on proceeding with the ban on salmon farming, a decision that would go against DFO research and scientific studies, they will have to deal with the resulting economic damage. In order to make sure the affected communities are given some measure of fairness and equity, a panel of three experts on local economic development should be established with a mandate to recommend a financial compensation package for the First Nations, companies, and communities affected by the government's action, a process that the Government of Canada current has underway through Innovation, Science and Economic Development Canada. A more independent process is essential. This panel should be asked to report back in four months.
- To better inform the Government of Canada's decision-making, the government should establish a one-person investigation of the commercial and ecological benefits of land-based, contained fish farm operations, including assessing suitable locations and incremental costs associated with establishing such farms in Canada. A critical part of this evaluation should be the most effective locations for placing such facilities. The work could draw on numerous studies all undertaken on this theme. This report should be completed in six months to contribute to the active debate about the future of salmon farming in British Columbia. Perhaps most importantly, this work should identify an appropriate regulatory environment for land- or ocean-based closed containment systems to ensure that the closed containment system does not endure the same fate as the existing salmon farming operations in future years.

- For greater clarity, participants (government, First Nations, industry, and collaborative environmental groups) should establish performance objectives for the sector. Setting clear guidelines for sea lice management, fish population health, and industry monitoring, with full public reporting of outcomes would do a great deal to address public concerns.
- Working with the affected First Nations (including both those with fish farms and those who have opposed salmon farming in their territorial waters), the Government of Canada, the Government of British Columbia, and the First Nations (in an organizational configuration selected by the First Nations) should work on a strategic statement on the role of First Nations in making decisions relating to fish farms and environmental management in their traditional territories. This document, prepared in the spirit of the UNDRIP and existing Indigenous constitutional, treaty, and legal rights, could clarify the long-term place of First Nations in West Coast fishing-related decision-making.
- The inherent conflicts in the Department of Fisheries operations concerning salmon farming must be clarified. One option would be to challenge legally the BC court ruling that inserted the federal government into the regulation of salmon farming and to return, as in the Maritimes, to provincial control over the sector. This would leave DFO in its more appropriate and long-standing technical role. The other and preferred option would be to place BC salmon farming under the oversight of the provincial Department of Agriculture, with federal assistance provided by Agriculture and Agri-Food Canada, the standard approach internationally.

Protecting the Canadian policy-making process from activists: More generally, the Government of Canada needs to take steps to address the complex role of activists in the federal decision-making process on environmental matters. Activists are central to the Canadian conversation on ecological, development-related, and many other issues. These people are, in general, well-informed, passionate, occasionally well-funded (although information on the source of their funds is opaque), and typically well-connected to the media and other organizations. They have, in other words, many ways of affecting

public opinion and influencing policy development. None of these activists' opportunities and initiatives should be prevented, controlled, or otherwise harmed by government action.

In the modern world of policy-making and politics, traditional methods of influencing public opinion have been supplemented and, in some instances, superseded by social media interventions and direct, typically anonymous, personal actions. Proponents of salmon farming, for example, report repeated and intense criticism on social media, going as far as promises of retribution. There is evidence of foreign intervention in Canadian democratic processes, including regulatory processes and decision-making. Social media continues to threaten, if not undermine, political and policymaking approaches. To strengthen and protect the integrity of Canadian decision-making, there must be greater transparency. Autonomous critiques and commentaries must be summarily dismissed; hiding one's identity is political cowardice and should not be allowed to influence public decision-making. Activists and project proponents should be required to reveal all funding sources and to be as public about their meetings with and solicitations of politicians as are officially registered lobbyists. Canadians need to know the forces that are attempting to influence and/or change public policy if they are to build and sustain confidence in the political processes and decisions.

The salmon farming experience illustrates an increasingly common and disruptive clash between scientific research, policy-making, and environmental activism. Canada has seen this conflict before in heavily regulated sectors like pipelines and oil and gas development. Projects that have undergone some of the most rigorous, government-mandated environmental assessments in the world routinely find themselves subjected to extensive public and legal attacks from activist organizations, including local Indigenous populations, that are displeased with the results from the tribunals or regulatory processes. Canada, more than most countries in the world, has allowed itself to be vulnerable to these extracurricular attacks, with governments responding by, on occasion, funding critics and project opponents, reopening discussions that have already been through a thorough scientific and technical review, and revisiting decisions that were science and evidence-based.⁴

In these areas, as in other environmental disputes, money matters. The public debate about salmon farming is strongly influenced by the activists' judicious use of the considerable amount of money that they have secured.

While public fundraising is important to some of the groups, substantial amounts of money comes from Canadian and American foundations, with the American funding providing most of the money. Funding comes into play through government-regulated donations to politicians and policy parties. At least here, the public can see the people and organizations supporting the political process. Non-governmental regulations have no such reporting requirements; information can often be gleaned through income tax reports, particularly those submitted to the US government. Hidden money, whether it comes from Canadians or foreigners, industry or private foundations, or individual contributions from supporters or rich benefactors, can direct or at least interfere with the political and policy-making processes. Salmon farming is not a major industry in most provinces and territories, but well-funded environmental groups in British Columbia use their substantial resources – in ways that are legal and appropriate – to sway public opinion and to affect policy. At present, the funding arrangements are not fully transparent. Relatively minor changes in provincial and federal regulations could change this and ensure that British Columbians and Canadians know about the money behind NGOs, environmental groups, public affairs advertising, social media campaigns, and the like.

“ *Hidden money, whether it comes from Canadians or foreigners ... can interfere with the political and policy-making processes.* ”

The experience with salmon farming in British Columbia (importantly, this process has not been reproduced in Eastern Canada) is the latest manifestation of a long-term and troubling development in Canadian public policy-making and implementation. Processes set up to produce scientifically and technically sound, ecologically acceptable outcomes are subject to continuing and ongoing review and direct political lobbying. Interfering with the public’s ability to speak out about government policy

is not appropriate and cannot be part of the governance process. Ensuring that politicians adhere to the established regulatory and review processes, however, is appropriate. They should change decisions only if there is a compelling reason to do so; furthermore, these reasons must be made public and must be fully explained.

All projects with anticipated or potential environmental impact should be subject to technical review, including extended consultation with Indigenous people and affected communities. Politicians and government officials, having established the procedures, should be expected to adhere to both the processes (which they generally do) and the decisions and recommendations (which they occasionally do not). Ministerial or Cabinet oversight and discretion are appropriate, but they must be made transparent and comprehensive. The government, and specifically the Cabinet, have an obligation to prioritize the “good of the country” in its decision-making, an obligation that often leads to trade-offs and compromises between what is technically and scientifically appropriate and what is in the nation’s best interest. Ministers and the Cabinet must be required to report, formally and publicly, about their decisions and to release the information and evidence they used in making the determination.

Returning to the salmon farming situation, it is easy to see that the standard processes and regulatory procedures have not been followed in full. Scientific evaluations within DFO and external to the government supported the cautious continuation and ongoing monitoring and evolution of the salmon farming industry in British Columbia. No human activity, including salmon farming, is without some risk and some ecological impact. The salmon farming sector has done a great deal to address historical environmental concerns and contemporary social realities, including mutually beneficial engagement with First Nations, and would be expected to invest in further innovations if the industry had a future in British Columbia.

The precautionary principle, cited to justify the decision to prioritize what all independent scientists agree is a minimal risk over obvious benefits to communities, companies, and the country at large, has been applied by the Government of Canada injudiciously in this instance. The decision to ban salmon farming in British Columbia, pushed hard by a small number of wild salmon activists and environmental organizations, illustrates the ability of special interests to overpower the Canadian decision-making

processes. Observers, especially within the industry and among First Nations supportive of the industry operating in their territories, are concerned about the activists' influence over a small number of high-profile federal politicians who have been directly involved with the final decision. Salmon farming has made a large and continuing contribution to the global food supply. Atlantic salmon farming in Norway, Chile, and the Faroe Islands are environmentally and socially important, bringing prosperity to hundreds of small and remote communities. British Columbia's share of the global fish-farmed salmon market has already started to decline and will all but disappear in the coming years as the phase-out continues. According to industry leaders, more than a billion dollars of investment has already been deferred and will head to other, more receptive countries. This is an odd way to build and sustain prosperity on Canada's West Coast. **MLI**

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Endnotes

- 1 Other fish species, including Chinook salmon, are also farmed along the coast.
- 2 For the Green Party’s view of the industry, see (BC Greens 2025).
- 3 However, note the concern expressed by the Parliamentary Committee examining the management of Canadian fisheries (House of Commons 2023).
- 4 Comment is based on decades of observing the Government of Canada’s policies related to pipelines, oil and gas development, climate change mitigation, mining and other environmental concerns. This has been expressed politically through opposition to Bill C-69, often referred to critically as the “no pipelines bill.” See (Arc Energy research Institute 2023).

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