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September 18, 2017

Dominic LeBlanc
Minister of Fisheries, Oceans and the Canadian Coast Guard
House of Commons
Ottawa, Ontario
K1A 0A6

Re: First Nations Occupation of Salmon Farms in the Broughton Archipelago

Dear Minister LeBlanc,

The Musgamagw Dzawada'enuxw, Namgis and Mamalilikulla First Nations in the Broughton Archipelago, British Columbia, have peacefully occupied two salmon farms operating against their wishes in their traditional territories. These tactics may seem extreme to some, but one must consider the full history of salmon farming in B.C. and the accumulated knowledge of the industry's ecological impacts, for a balanced viewpoint.

Since our inception 19 years ago, Watershed Watch Salmon Society has been supporting, communicating and producing science on the interactions between wild and farm salmon. We support the assertion of aboriginal rights in B.C. In this case, published science, past investigations and our firsthand experience lead us to support the Musgamagw Dzawada'enuxw, Namgis and Mamalilikulla Nations' stance on removing salmon farms from their territories. In addition, we are calling on other organizations, businesses and citizens across Canada to support the removal of salmon farms from wild salmon migration routes.

At least 13 scientific publications (Appendix 1) report that parasitic sea lice from salmon farms can infect, kill or impede the growth of juvenile wild salmon and drive their populations toward extinction. Diseases from salmon farms are also a threat to wild fish. We now know *Piscine orthoreovirus* is found on B.C. salmon farms and can cause heart disease^{1,2} and we are unaware of evidence that proves it is harmless to wild salmon. We understand that industry may be introducing this potentially harmful virus into the ocean via infected smolts³. The more science reveals about this industry, the more risk is identified; yet, DFO has taken no meaningful precautionary action to protect wild fish from salmon farms.

¹ Di Cicco E, Ferguson HW, Schulze AD, Kaukinen KH, Li S, Vanderstichel R, et al. 2017. Heart and skeletal muscle inflammation (HSMI) disease diagnosed on a British Columbia salmon farm through a longitudinal farm study. PLoS

² Wessel Ø, Braaen S, Alarcon M, Haatveit H, Roos N, Markussen T, et al. 2017. Infection with purified *Piscine orthoreovirus* demonstrates a causal relationship with heart and skeletal muscle inflammation in Atlantic salmon. PLoS ONE 12(8): e0183781. <https://doi.org/10.1371/journal.pone.0183781>

³ Nikiforuk, A. 2017. Study Confirms Deadly Disease in BC Salmon Farms Research identifies HSMI in farmed fish, links to widespread virus. <https://thetyee.ca/News/2017/02/27/BC-Salmon-Farm-Disease-Confirmed/>

Numerous investigations and inquiries have examined the threats posed by salmon farms (Appendix 2). Several call for the removal of salmon farms and a transition of the industry to closed-containment. Despite these and other recommendations, the provincial and federal government have taken no significant action on the salmon farming file. This inaction must also be taken into account when considering the tactics of First Nations in the Broughton Archipelago.

Over the years, Watershed Watch Salmon Society has partnered with DFO and industry on several research projects in an attempt to come to shared agreements on the impacts of salmon farms. After investing significant time and effort, all we primarily experienced was delay, distraction and denial.

It is clear to us that your agency is putting the desires of the salmon farming industry before the interests of B.C.'s wild salmon and citizens. Two prestigious entities—an expert panel appointed by the Royal Society of Canada and the \$37 million Cohen Commission—concluded in 2012 that DFO may have a conflict of interest, whereby the Department's mandate to promote the salmon farming industry may impede the agency's ability to protect wild salmon and biodiversity (Appendix 2).

In conclusion, we implore you to remove salmon farms from the territories of the aforementioned First Nations and other regions of B.C. where they overlap with wild salmon migrations.

Sincerely,

A handwritten signature in black ink, appearing to read "Stan Proboszcz".

Stan Proboszcz
Science Advisor, Watershed Watch Salmon Society

Cc Lana Popham, B.C. Minister of Agriculture

Appendix 1 – Scientific Papers Reporting Sea Lice Derived from Salmon Farms can Infect, Kill or Impede the Growth of Juvenile Wild Salmon and Drive their Populations toward Extinction.

Connors B.M., Krkosek M., Ford J., and L.M. Dill. 2010. Coho salmon productivity in relation to salmon lice from infected prey and salmon farms. *Journal of Applied Ecology* 47: 1372-1377.

Godwin, S.C., Dill, L.M., Krkosek, M., Price, M.H.H., Reynolds, J.D. 2017. Reduced growth in wild juvenile sockeye salmon infected with sea lice. *Journal of Fish Biology* 91: 41-57.

Krkosek, M., J.S. Ford, A. Morton, S. Lele, R.A. Myers, and M.A. Lewis. 2007. Declining wild salmon populations in relation to parasites from farm salmon. *Science* 318:1772-1775.

Krkosek, M., M. A. Lewis, A. Morton, L. N. Frazer and J. P. Volpe. 2006. Epizootics of wild fish induced by farm fish. *Proceedings of the National Academy of Sciences USA* 103:15506-15510.

Krkosek, M., M.A. Lewis, and J.P. Volpe. 2005. Transmission dynamics of parasitic sea lice from farm to wild salmon. *Proceedings of the Royal Society of London Series B* 272:689-696.

Morton, A., Routledge, R., and Krkosek, M. 2008. Sea lice infestation of wild juvenile salmon and herring associated with fish farms off the east-central coast of Vancouver Island, British Columbia. *North American Journal of Fisheries Management* 28:523-532.

Morton, A. and R. Routledge. 2005. Mortality rates for juvenile pink *Oncorhynchus gorbuscha* and chum *O. keta* salmon infested with sea lice *Lepeophtheirus salmonis* in the Broughton Archipelago. *The Alaska Fisheries Research Bulletin* 11:146-152.

Morton, A., R. Routledge, and R. Williams. 2005. Temporal patterns of sea louse infestation on wild Pacific salmon in relation to the fallowing of Atlantic salmon farms. *North American Journal of Fisheries Management* 25:811-821.

Morton, A., R. Routledge, C. Peet and A. Ladwig. 2004. Sea lice (*Lepeophtheirus salmonis*) infection rates on juvenile pink (*Oncorhynchus gorbuscha*) and chum (*Oncorhynchus keta*) salmon in the nearshore marine environment of British Columbia, Canada. *Canadian Journal of Fisheries and Aquatic Sciences* 61:147-157.

Morton, A.B, and R. Williams 2003. First report of a sea louse, *Lepeophtheirus salmonis*, infestation on juvenile pink salmon, *Oncorhynchus gorbuscha*, in nearshore habitat. *Canadian Field-Naturalist* 117:634-641.

Price, M.H.H, Proboszcz S.L, Routledge R.D., Gottesfeld A.S., Orr C., Reynolds J.D. 2011. Sea Louse Infection of Juvenile Sockeye Salmon in Relation to Marine Salmon Farms on Canada's West Coast. *PLoS ONE* 6(2): e16851. <https://doi.org/10.1371/journal.pone.0016851>

Price, M.H.H., Morton, A. and J.D. Reynolds. 2010. Evidence of farm-induced parasite infestations on wild juvenile salmon in multiple regions of coastal British Columbia, Canada. *Canadian Journal of Fisheries and Aquatic Sciences* 67: 1925–1932

Peacock, S. J., Bateman, A. W., Krkosek, M., Connors, B., Rogers, S., Portner, L., Polk, Z., Webb, C. and Morton, A. (2016), Sea-louse parasites on juvenile wild salmon in the Broughton Archipelago, British Columbia, Canada. *Ecology* 97: 1887. doi:10.1002/ecy.1438

Appendix 2 – Key Salmon Farming Recommendations and Findings from Previous Investigations

Title: Effects of Salmon Farming in British Columbia on the Management of Wild Salmon Stocks. Report of the Auditor General of Canada.

Year: 2000

Key Recommendations: DFO act immediately to strengthen monitoring and enforcement capabilities for salmon farming operations and to expand and improve the Atlantic Salmon Watch Program to provide the information necessary to assess the effectiveness of the department's regulatory and management activities.

Title: Clear Choices, Clean Waters. The Leggatt Inquiry into Salmon Farming in British Columbia

Year: 2001

Key Recommendation: All net-cage salmon farms be removed from the marine environment by 2005 or be converted into closed-loop, containment systems.

Title: Salmon Stocks, Habitat, and Aquaculture. Report of the Federal Commissioner of the Environment and Sustainable Development.

Year: 2004

Key Recommendations: DFO collaborate with the provinces to assess and monitor salmon aquaculture in order to prevent harmful effects on wild stocks and habitat. DFO set priorities and develop a long-term research plan to address knowledge gaps on the potential effects of salmon aquaculture in aquatic ecosystems and on wild salmon stocks.

Title: Salmon Forever: An Assessment of the Provincial Role in Sustaining Wild Salmon. Auditor General of British Columbia Report 5.

Year: 2005

Key Recommendations: The Province of B.C. should take steps to resolve the aquaculture-siting issues; pool its research resources with those of relevant federal agencies to address more efficiently and effectively the priority knowledge gaps associated with the interaction of wild and farm salmon; reassess the statutory time limit and strengthen the penalty provisions in its current aquaculture policy framework.

Title: Special Committee on Sustainable Aquaculture, Legislative Assembly of British Columbia, Final Report, Volume One.

Year: 2007

Key Recommendations: A rapid, phased transition to ocean-based closed containment should begin immediately. Within three years, ocean-based closed containment must be developed. Once developed, industry must transition to this technology within the subsequent two years. To meet the initial three-year deadline, the provincial government, in partnership with the federal government and the salmon aquaculture industry, must urgently finance and conduct a full commercial-scale, ocean-based closed containment project. The provincial government should develop and provide incentives to the aquaculture industry to facilitate the transition to ocean-based closed containment technology.

Title: Final Report and Recommendations, Report of the BC Pacific Salmon Forum.

Year: 2009

Key Recommendations: Set performance-based indicators for farmed salmon production and support a coordinated area management approach in the Broughton Archipelago. Apply the ecosystem-based approach piloted in the Broughton Archipelago to other coastal regions. Adopt a coordinated area management approach to salmon aquaculture throughout the province. Adopt integrated pest management and integrated disease management approaches to salmon farm management, through working with the salmon-farming industry. British Columbia should design and implement a commercial-scale trial of a closed containment system for raising farmed salmon.

Title: Sustaining Canada's Marine Biodiversity: Responding to the Challenges Posed by Climate Change, Fisheries, and Aquaculture. Royal Society of Canada Expert Panel.

Year: 2012

Key Findings and Recommendations: The exchange of pathogens between farmed and wild fish can seriously threaten the persistence of wild fish populations. Open-sea net pens have far greater potential and realized negative consequences to marine biodiversity than closed-containment facilities. Progress in meeting biodiversity obligations is impeded by the regulatory conflict within DFO to simultaneously promote industrial development and ocean conservation. The Government of Canada should resolve regulatory conflicts of interest affecting Canada's progress in fulfilling obligations to sustain marine biodiversity.

Title: Cohen Commission Inquiry into the Decline of Sockeye Salmon in the Fraser River

Year: 2012

Key Findings and Recommendations Not Implemented: As long as DFO has a mandate to promote salmon farming, there is a risk that DFO will act in a manner that favours the interest of the salmon-farming industry over the health of wild fish stocks. The Government of Canada should remove from the DFO's mandate, the promotion of salmon farming as an industry and farmed salmon as a product.

After seeking comment from First Nations and stakeholders, and after responding to challenge by scientific peer review, DFO should by March 31, 2013, and every five years thereafter, revise salmon farm siting criteria to reflect new scientific information about salmon farms situated on or near Fraser River sockeye salmon migration routes as well as the cumulative effects of these farms on these sockeye. These siting criteria should be applied to all licenced salmon farms and those that do not comply should be promptly removed.

If at any time between now and September 30, 2020, the Minister of Fisheries and Oceans determines that net pen salmon farms in the Discovery Islands (fish health sub-zone 3-2) pose more than a minimal risk of serious harm to the health of migrating Fraser River sockeye salmon, he or she should promptly order that those salmon farms cease operations.