



Pacific Coast  
Wild Salmon  
Society



June 17, 2019

Bernie Taekema  
Senior Aquaculture Management Coordinator  
Fisheries and Oceans Canada  
1965 Island Diesel Way  
Nanaimo, British Columbia V9S 5W8

Dear Mr. Taekema,

**Re: Application by Grieg Seafood BC Ltd. for an aquaculture licence at Lutes Creek**

Please accept these comments on behalf of the Conservation Regulatory Working Group, with reference to the application by Grieg Seafood BC Ltd. for an aquaculture licence for the Lutes Creek tenure in Hecate Channel.

We are opposed to the granting of another licence in Hecate Channel, where three farms currently operate with a history of problems with sea lice control, including drug resistance. We find the application at best premature, for the reasons elaborated below. This applicant has failed utterly to demonstrate the ability to control lice at its existing farms and has, so far as we can determine, no new plan, equipment or treatment regime to offer.

We note at the outset your advice by telephone that you are considering issuing the licence but without increasing the total biomass licensed in Hecate Channel. This suggestion might avail if the farms are having difficulty meeting benthic recovery requirements, but it will do nothing to alleviate issues with sea lice. In fact, it will likely make those issues worse, as Lutes is not currently licensed to use Paramove: an outbreak of resistant lice will be impossible to treat and will serve as a source of re-infection for the other farms.

### ***Recent history of uncontrolled lice in Hecate Channel***

The recent records from this area disclose extremely high levels of salmon lice and an industry that is unable to control them. No information about the impacts of lice loads on wild fish is publicly available.

The Hecate tenure was stocked in October 2017 and by July, 2018 was reporting lice numbers averaging 7.37. In-feed treatment was apparently not undertaken until August, when the lice count reached an average of 32.86; and it apparently failed, as the September and October counts remained at 20.63 and 24.31, respectively. A hydrogen peroxide bath treatment administered in October was temporarily effective; but by December, lice were again at 5.79 and a further in-feed treatment was administered. This appears to have been effective to lower lice levels below the management threshold going into the sensitive period, though we note that the public reports record, but fail to explain, an innovation in the sampling methodology.

The Steamer Point tenure, stocked in November of 2017, displayed similar problems with in-feed treatment in August, 2018 when the lice count reached 34.49 and failed to reduce below 24.62 following SLICE application. Bath treatments administered in Nov/Dec 2018 appear to have reduced on-farm lice for a time; but by March, they again exceeded the management threshold at 4.33. It is noteworthy that, in its previous production cycle (October 2015 through June, 2017), Steamer Point's lice counts rose to five times the management threshold by September, 2016 and unaccountably, were allowed to continue to rise without any management action disclosed in the public record from that time until harvest was completed in June, 2017. Throughout the 2017 outmigration, lice levels remained at 5 to 10 times the management threshold.

The situation is presently worse at Esperanza, where in July, 2018, counts averaged 17.3 and SLICE treatment was deferred until August, by which time lice levels were at 53.37. That treatment failed; though a regime of alternating in-feed and bath treatments administered between August and November brought the lice count down. It was rising again by December; also vulnerable to the lice load created by the Hecate farm. Lice were apparently left untreated from November through March, with the result that this farm entered the 2019 wild juvenile migration period with lice levels more than double the treatment threshold (7.74). The public record stops in March, with a note that "management action is planned". Both harvest and bath treatments are referenced, giving rise to concern that Grieg intends leaving heavily infested fish in the water throughout an extended harvest, despite the migration window.

We understand that SLICE resistance was documented in this region in 2016/2017<sup>1</sup>. We note that all three farms experienced simultaneous and apparently uncontrolled lice outbreaks in the summer of 2018 as well, giving rise to the reasonable supposition that the farms were dealing with resistant lice again last year.

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<sup>1</sup> ATIP A-2018-00799 at pp. 97 and 136-137

There is no reason to expect that the situation is any different today. Dr. Ian Keith of DFO noted that Grieg’s own husbandry was aggravating the growing drug resistance. On October 12, 2017 he wrote to DFO’s Zac Waddington to explain that the way Grieg Seafood was stocking their farms with salmon of different sizes meant that there would not be “uniform therapeutic dosing” with SLICE: smaller fish would not take up as much of the drug as larger fish, potentially leading to sub-optimal dosing and aggravating resistance. He warned that continuing to use the drug in a region where the lice were becoming resistant was dangerous and would increase resistance.<sup>2</sup>

### ***Failure to Implement Area-based Management***

While we are heartened to see DFO beginning to consider how to implement area-based management, we note that it is not in place despite being desperately needed. The Department has yet to come to grips with the essential components of an ABM scheme; and is far from deciding whether those components should be housed in regulations or conditions of licence. British Columbia is the only salmon farming jurisdiction that has failed to implement ABM requirements as an essential part of regulating everything from siting of farms to the treatment of parasites and pathogens and preserving benthic and water quality<sup>3</sup>. The consequence of that failure is becoming clear in the increasing lice loads observed on wild out-migrating salmon and may also be reflected in degraded benthic and water quality conditions.

It is worthy of note that Grieg’s management actions during the fall, 2016 outbreak of SLICE-resistant lice purported to include “co-ordinated multi-facility management action<sup>4</sup>”, yet still failed to bring lice loads under control. While the absence of detailed public reporting makes it impossible to parse what Grieg considered to be co-ordinated action here, we note the concerns raised by DFO veterinary staff about the growout of fish of different year-classes or markedly different sizes in the same or contiguous netpens, because the uptake of in-feed drugs cannot be properly managed among fish of different sizes.

Whether or not Grieg stocked the three Hecate Channel farms with a single year-class of fish in the current grow-out cycle is not part of the public record, although we presume that they would have taken this precaution in an area already known to have experienced SLICE resistant lice. Such precautions should not be left to the discretion of the industry, but should be a component of a regulated area-based management system.

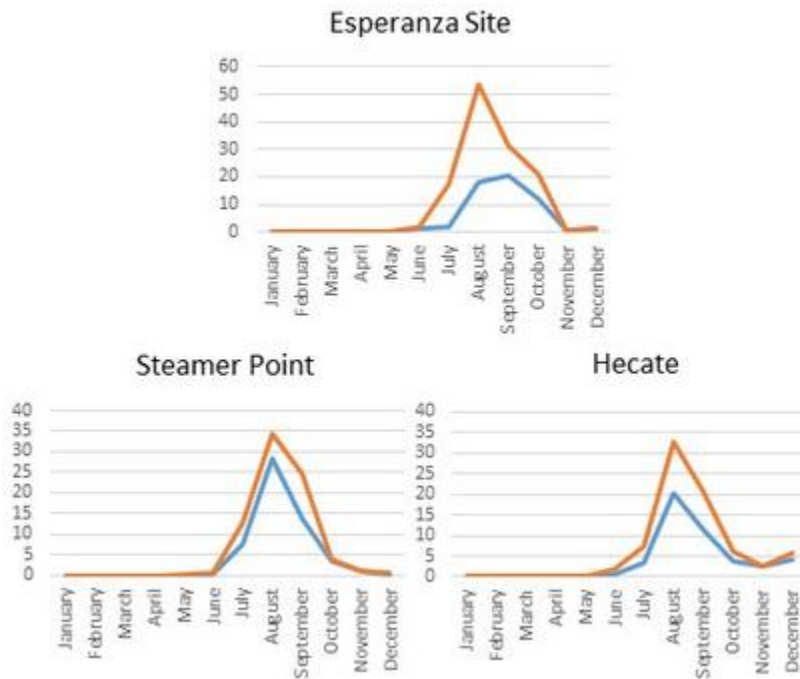
The licensing of any new sites in British Columbia must await the development of a comprehensive ABM regime and the promulgation of regulation to support its implementation and enforcement.

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<sup>2</sup> Ibid, at p. 304

<sup>4</sup> Aquaculture Stewardship Council, The Current State of Sea Lice Management, <https://www.asc-aqua.org/the-current-state-of-sea-lice-management/>

<sup>3</sup> lice-count 2011-ongoing, September, 2016 reports for Esperanza, Hecate and Steamer Point. <https://open.canada.ca/data/en/dataset/3cafbe89-c98b-4b44-88f1-594e8d28838d>



***The farms are sited too close together***

Objections were raised at the time the Lutes Creek farm tenure was originally granted that it was less than 1 kilometer away from Esperanza. The co-occurrence of sea louse infestation on the operating farms suggests that they are too close together to prevent sharing lice loads and other infections. Indeed, this observation was made by Dr. Ian Keith, who advised that Grieg must figure out how to get lice numbers reduced on

all their farms throughout Nootka Sound, because the lice larvae were drifting between farms throughout the area infecting young fish in other Grieg farms before the older ones are removed.<sup>5</sup>

Adding a farm in such close proximity to three that are already unable to manage lice cooperatively appears likely to confound the problem.

We note your advice shared by telephone that one possible solution would be to licence Lutes Creek, but require the same total biomass to be maintained for the area—i.e., divide the biomass currently licensed to the three operating farms among 4 farms. While lower stocking densities might be effective in combatting any benthic problems you may have noted with the farms (not part of the public record so we cannot comment), there seems to be no advantage from the viewpoint of sea lice control in spreading the biomass among more farms within the same area. Clearly, these farms are sharing parasite loads; placing another farm among the existing farms, sited even closer to them than guidelines permit, will not cure this.

***Impacts on wild juvenile salmonids***

Wild juvenile fish making their way to the open ocean from streams in this area will be exposed to the effluent and lice loads from all of the operating farms in Hecate Channel.

Both the Zeballos and Little Zeballos Rivers support five species of salmon, at such low numbers that stock rebuilding may be jeopardized for all but chum. Espinosa Creek used to support the

<sup>5</sup> Ibid, at p. 275

same range of species but the most recent stream counts reviewed found no sockeye, coho or Chinook and only 6 chum. Pink salmon survival in the area is tenuous, with observed spawning numbers in the single-digits in some years; in 2016, no pinks were observed. Sockeye, coho and Chinook number in the hundreds each; the chum in the low thousands but we note that these are hatchery-enhanced numbers. There are probably additional rivers and streams that support wild salmon in the Inlet, but these were the only relevant rivers for which spawning surveys could be located.<sup>6</sup>

Any impact on wild salmon returning at such low numbers as cited above would have to be considered a population-level impact. If the impacts are similar to those observed in areas of Clayoquot during the outbreak of lice in 2018 (40-96%)<sup>7</sup> and in 2019 (100%), or in the Broughton earlier in the year (90%)<sup>8</sup>, the consequences for survival of the runs in this area could be dire.

No wild salmonid monitoring data is publicly available for the Lutes Creek site. We note that Grieg did participate in, and published, wild salmonid monitoring for the Broughton. Are they required to monitor in Esperanza Inlet? We do not see any evidence that this is the case in the data made public on the DFO website and would appreciate production of any data that may have been filed with you.

### ***Provincial Pesticide Use Permit (PUP) not in place for Lutes Creek***

The PUP for the use of hydrogen peroxide treatments in Hecate Channel explicitly covers only three farms. Unless Grieg intends to surrender the licence for one of its existing farms, this means they will not be able to treat Lutes Creek with bath treatments in the event that SLICE proves ineffective. With one farm of four left with no effective treatment options and the other three in such close proximity, bath treatments on the farms permitted to use it will be effective only in the short term, as lice generated at Lutes will resettle on treated fish in Hecate, Esperanza and Steamer.

Further work with the Province may need to be done to ensure that this farm does not face a situation where skyrocketing lice numbers cannot be controlled at all, as the company has no alternative management solution. It is our understanding at present that the Province would require bioassays on lice from the affected farm before amending the PUP. That process, together with subsequent public consultation, takes too long as a responsive measure to a lice

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<sup>6</sup> 2015 West Coast of Vancouver Island Salmon Extensive Escapement Stream Summary, [http://publications.gc.ca/collections/collection\\_2017/mpo-dfo/Fs97-13-1266-eng.pdf](http://publications.gc.ca/collections/collection_2017/mpo-dfo/Fs97-13-1266-eng.pdf); 2016 West Coast of Vancouver Island Salmon Extensive Escapement Stream Summary, [http://publications.gc.ca/collections/collection\\_2018/mpo-dfo/Fs97-13-1288-eng.pdf](http://publications.gc.ca/collections/collection_2018/mpo-dfo/Fs97-13-1288-eng.pdf)

<sup>7</sup> Lousy Choices: Drug Resistant Sea Lice in Clayoquot Sound, [https://livingoceans.org/sites/default/files/Lice%20report%20final\\_0.pdf](https://livingoceans.org/sites/default/files/Lice%20report%20final_0.pdf) at p. 3

<sup>8</sup> Personal communication Alexandra Morton

outbreak. We would suggest that obtaining amendment of the PUP to include Lutes Creek be a precondition to the issuance of any aquaculture licence at this tenure.

### ***Changing oceans conditions demand changing practices***

We note that this is the 5<sup>th</sup> consecutive year in which warmer ocean waters and higher than 'normal' salinity have been blamed for lice numbers soaring out of control. These conditions are predicted by climate science to become only more common and pronounced and they demand a review of lice management, in particular. This is because warmer waters and increased salinity accelerate the time to hatch for louse eggs and the survival of most life stages of the louse. The time required to hatch may be reduced from 45 days to 8 or less. With each female producing 500-1000 eggs per brood, it's clear that the potential for exponential increases in lice levels exists and has in fact been seen to occur over the space of one to two months on some farms.

This means that controlling the number of female lice able to reproduce is critical and the Department's current management threshold does not achieve this, obviously. Not only does it fail to address the number of gravid females, except as a function of general population levels, but it fails entirely to address the levels of Caligus lice that have been shown to favour sockeye salmon and herring on this coast.

The Department's response to both changing environmental conditions and drug resistance that have led to the recent outbreaks has been unacceptable. We have heard DFO staff say that the conditions of licence offer DFO no enforcement capability and yet we have also heard DFO state the conditions are unalterable. The Department has, in effect, thrown up its hands and left it to the industry to make what they can of louse control.

In the result, impacts to wild salmon monitored independently and by the farms themselves have reached levels that are beyond alarming, both on the West Coast of Vancouver Island and in the Broughton, where management thresholds have not been exceeded, but 90% of outmigrating chum and pink salmon were infected in the spring at unnaturally high levels.

The continued suggestion that someone else must prove that these impacts are at 'population-level' before any further management action is taken is unacceptable to the conservation community, as we watch stock numbers plummet. Equally, the assertion that some unknown reservoir or host species must exist that is responsible for these infestations is unacceptable. The life cycle of the salmon louse has been extensively studied; no other host species but salmon has been found to facilitate its reproduction and we happen to have tens of millions of ideal hosts penned on our coast at any given time. The logical conclusion is that our ocean conditions have changed to favour sea louse reproduction at a much faster rate than has previously been seen, and which is beyond the control of methods currently at the disposal of

Grieg Seafood BC Ltd. Management measures must evolve, and become enforceable, to meet these changed conditions.

### **Conclusion**

We conclude that issuing a new aquaculture licence for Lutes Creek would be inappropriate. The company has demonstrated no ability to control lice since the advent of drug resistance in the area and has not made public any plans for alternative management measures that have the potential to keep it in compliance with existing lice management thresholds. DFO has no additional tools in the box to compel the company to control its parasites and has not linked impact on wild juvenile salmonids to any form of management measure on the farms. We believe that, until the Department has developed and can enforce an effective ABM scheme that will address all of the impacts of salmon farming, licensing another facility would be irresponsible.

We have been steadfast in our call that there should be no expansion of open net pen salmon farming in B.C. waters until the Strategic Salmon Health Initiative has completed its work. That has not yet happened.

In addition, the recently convened B.C. Minister of Agriculture's advisory council on fin fish aquaculture recommended that no new licences or amendments be approved unless and until there are signed protocol agreements between affected First Nations and/or local communities and that there be greater openness and transparency in the sharing of information concerning the impacts of this industry on wild fish stocks. Both the BC and federal governments agreed publicly to abide by those recommendations.

Finally, the federal government has committed in their recently announced "Interim Framework for Aquaculture Management" to consider science advice on the scale and potential effects of impacts of this industry on wild fish and fish habitats. This objective too is far from being completed in that current risk assessments being undertaken by the CSAS are focused on only one small segment of BC's wild salmon populations (Fraser River Sockeye salmon).

Unless and until these commitments are met we will have to respectfully oppose any further expansion of this industry in B.C. waters on either a farm by farm basis or as a whole.

Yours truly,



Karen Wristen  
Executive Director,  
Living Oceans Society



Christianne Wilhelmson  
Executive Director,  
Georgia Strait Alliance



Stan Proboszcz  
Science and Campaign Advisor  
Watershed Watch Salmon Society



John Werring  
Senior Science and Policy Advisor  
David Suzuki Foundation



Alexandra Morton  
Pacific Coast Wild Salmon Society