NSARB-2023-001-AFF-005
RECEIVED February 20, 2024

NOVA SCOTIA AQUACULTURE REVIEW BOARD

IN THE MATTER OF: *Fisheries and Coastal Resources Act*, SNS 1996, c 25

- and -

IN THE MATTER OF: An Application by KELLY COVE SALMON LTD. for a boundary amendment and two new finfish aquaculture licenses and leases for the cultivation of Atlantic salmon (*Salmon salar*) – AQ#1205x, AQ#1432, AQ#1433, in Liverpool Bay, Queens County

Rebuttal Affidavit of Shawn Robinson, PhD affirmed on February 16, 2024

I affirm and give evidence as follows:

1. I am Shawn Robinson, PhD of St. Andrews, New Brunswick. I was a research scientist with the Government of Canada, Department of Fisheries and Oceans until my retirement in 2022. I am currently a senior scientist with Longline Environment, a UK research and innovation company providing services to a variety of industries, including aquaculture.

2. I have personal knowledge of the evidence affirmed in this affidavit except where otherwise stated to be based on information and belief.

3. I state, in this affidavit, the source of any information that is not based on my own personal knowledge, and I state my belief of the source.

4. I have received and reviewed the following affidavits and reports:

   (a) Dr. Peter Cranford attached as Exhibit A to his Affidavit affirmed on January 18, 2024 and filed in this proceeding by the Intervenor Region of Queens Municipality (the **"Cranford Report"**); and

   (b) Inka Milewski attached as Exhibit A to her Affidavit affirmed on January 15, 2024 and filed in this proceeding by the Intervenor Group of 22 Fishermen (the **"Milewski Report"**).

5. Kelly Cove Salmon (**"KCS"**) has requested my independent expert opinion in response to the opinions expressed in the Cranford Report and the Milewski Report.

6. My response to the Cranford Report is attached as **Exhibit A**.

7. My response to the Milewski Report is attached as **Exhibit B**.

8. My CV was previously filed in this proceeding and is located at Exhibit B of my Affidavit affirmed on January 19, 2024.

AFFIRMED before me virtually on MS Teams with Dr. Robinson in St. Andrews, New Brunswick and me in Halifax, Nova Scotia, on February 16, 2024.

[redacted]

Sara D. Nicholson
Barrister of the Supreme Court of Nova Scotia

[redacted]

Shawn Robinson, PhD

KCS Application re AQ#1205X, AQ#1432, AQ#1433 in Liverpool Bay, Queens County

This is Exhibit A referred to in the Affidavit of Shawn Robinson, PhD, affirmed virtually before me on February 16, 2024.

[redacted]

Sara D. Nicholson
Barrister of the Supreme Court of Nova Scotia

Rebuttal to the Report of Dr. Peter Cranford

Shawn Robinson, Ph.D.
Longline Environment, [redacted], London, [redacted], United Kingdom

(1) Introduction

1. At the request of Kelly Cove Salmon Ltd. ("**KCS**"), I have reviewed the report of Dr. Peter Cranford titled "Potential Effects of Solid Organic Wastes on Benthic Habitat and Macrofauna Communities from Kelly Cove Salmon Ltd. Marine Aquaculture Lease Locations in Liverpool Bay (AQ#1205x, AQ#1432, AQ#1433)" dated January 17, 2024 and attached as Exhibit A to his Affidavit affirmed on January 18, 2024 and submitted on behalf of the Intervenor Region of Queens Municipality (the "**Cranford Report**").

2. In this report, I provide my response to Dr. Cranford's opinion with respect to the potential effects from salmon marine aquaculture on the fisheries.

(2) Response to Section 7 of the Cranford Report

3. Section 7 of the Cranford Report deals with the possible implications of organic loading to the larger ecosystem and the trickle-down effect on the prey species that commercially fished species consume. This is an international concern as aquaculture is generally regarded as a newcomer to the marine working waterfront and the fishing industries have a right to be concerned for the continuation of their livelihood.

4. Subsection 7.1 of the Cranford Report reviews some of the efforts to address these issues from scientists in Europe. They have developed biological criteria for many species with regard to habitat, oxygen requirements, and life style, and categorized them in relation to the stages of anoxia in the sediment during organic loading events. Dr. Cranford has used this categorization system (known as "**AMBI**") and applied it to the dietary items that local commercial fish species consume. In most cases, the prey species require undisturbed habitat, based on the AMBI classification. This is mostly a literature-based analysis and there is nothing to critique with this approach, as a starting point for a conversation on impacts.

5. Subsection 7.2 of the Cranford Report begins to extrapolate on the predicted exposure zones ("**PEZ**"). I would agree with Dr. Cranford that the 2.46 Km of exposure away from

the cages is highly precautionary. The use of a threshold of 1g C $m^{-2}d^{-1}$ of organic loading is much more in line with the international standards. In relation to salmon farms in the Bay of Fundy, this zone would extend 30-50 m away from the farms and has recently been corroborated with the latest models[1]. This distance is also what Dr. Cranford has used in his projections on the areas involved that will be impacted to a greater or lesser degree from the salmon farm operations (68 football fields). While this seems like a large number, in comparison to Liverpool Bay farms and a 50m buffer around them only represent 4.6% of the available area. Considering the volume of food produced, this might be an acceptable trade-off.

6. But there is more to the story of wild-farmed environmental interactions than was reported in the Cranford Report. The interactions of aquaculture operations on local wildlife are an international concern and there are several studies and reviews addressing this topic that are relevant to this discussion for Liverpool Bay.

7. One of the most recent reviews of this subject was done by Myriam Callier and a suite of international authors who examined the various aspects of wild-farmed interactions[2]. Aside from housing and growing various cultured species, fish and shellfish farms also interact with the surrounding ecosystem in a number of ways. The simple presence of a farm in the water creates a new 3-dimensional habitat that can be used by a number of different species. Biofouling on the structures (nets, ropes and buoys) creates its own ecosystem that is subsidized by food from the fish and organisms like amphipods, sea urchins, sea cucumbers, hydroids and tunicates will grow there in abundance (Robinson, personal observation). Some of these are food for higher trophic-level commercial fish[3,4].

8. Zooplankton has also been shown to aggregate around fish farms thought to be due to the eddies caused by the cage configuations[5]. Interestingly, in 2016, my team deployed a DIDSON (a type of high-resolution sonar) on a salmon farm in Passamaquoddy Bay, New Brunswick to look at the activity of wild fish species around the fish cages. The sonar scanned a swath of the water down to about 15m continuously and recorded the footage. We downloaded the images daily and viewed the results. The footage showed regular occurrences of wild fish (herring and other larger unidentified fish species) around the outside of the cages.

9. I have also seen these diving while I was conducting research in the area. This supports the observations that some wild fish can successfully use the farm infrastructure as shelter and/or a food source[6]. There are observations that wild fish regularly travel between different farms and this would appear to be a common feature among aquaculture sites[7,8].

10. Since most of the organic output and the potential impact from the salmon farming operations occurs benthically, there has been concern from managers internationally that demersal fish may be negatively impacted. However, of the studies that have been done on this subject, the results indicate that at least some of the commercial species can benefit from the additional food. A study in Norway found that the cod and saithe (another name for Atlantic pollock) around the farm benefited from the extra food and had a higher condition factor than comparable fish away from the farm[9,10]. They suggested that the increased condition in the fish might lead to higher reproductive outputs that could benefit the wild populations.

11. A study in Ireland on the effects of salmon farming on the benthic invertebrate fauna showed that some of the groups of invertebrates that were able to withstand the organic loading were able to use the nutrients from the farm and incorporate it into new biomass, based on stable isotope analysis[11]. The traditional biodiversity patterns based on distance from the farm and organic loading rates (outlined the Cranford Report) still applied.

(3) Conclusion

12. In conclusion, it is a given that there will be an impact from the organic loading from feeding fish directly under the cages and out to approximately 50 m in an exponentially declining fashion. This has clearly been demonstrated both in Canada and internationally in other salmon farming areas. However, the effect on commercial species that are associated within the geographic areas of the farm is not at all clear or necessarily negative.

13. Smaller, filter-feeding invertebrates and smaller organisms that require harder substrate may be impacted, but deposit feeders may thrive as long as oxygen levels do not become limiting. The literature bears this out and both benthic and pelagic commercial fish have been shown to benefit from the increase in nutrients and possibly shelter.

14. In Liverpool Bay, rock crabs actively foraged under the existing Coffin Island salmon farm during the entire production cycle, similar to the observations from New Brunswick, as did

the lobsters which were preying on the crabs. The video (submitted as Tab 1 to my expert report at Exhibit A of my affidavit affirmed on January 19, 2024) also clearly shows high densities of lobsters under the cages. Based on work done in Grand Manan, both crabs and lobsters are obtaining nutrients from the farms[12].

15. Therefore, with the empirical evidence from the research done by DFO on the lobster-salmon farm interactions in Liverpool Bay and in southwestern New Brunswick as well as the research results from studies done in Norway and Ireland, it is difficult to conclude that there will be large scale negative impacts on commercial species.

References

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5 Fernandez-Jover, D., Toledo-Guedes, K., Valero-Rodríguez, J. M., Fernandez-Gonzalez, V. & Sanchez-Jerez, P. Potential retention effect at fish farms boosts zooplankton abundance. *Estuarine, Coastal and Shelf Science* **181**, 144-152, doi:https://doi.org/10.1016/j.ecss.2016.08.015 (2016).

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KCS Application re AQ#1205X, AQ#1432, AQ#1433 in Liverpool Bay, Queens County

This is Exhibit B referred to in the Affidavit of Shawn Robinson, PhD, affirmed virtually before me on February 16, 2024.

[redacted]

Sara D. Nicholson
Barrister of the Supreme Court of Nova Scotia

Rebuttal to the Report from Inka Milewski

Shawn Robinson, PhD
Longline Environment, [redacted] London, [redacted] United Kingdom

(1) Introduction

1. At the request of Kelly Cove Salmon Ltd. ("**KCS**"), I have received the report of Inka Milewski titled "Review of Kelly Cove Salmon Ltd Development Plans and DFO Science Response (2022/039) to the proposed marine finfish aquaculture expansion in Liverpool Bay, Queens County, Nova Scotia" dated January 15, 2024 and attached as Exhibit A to her Affidavit affirmed on January 15, 2024 (the "**Milewski Report**") and filed on behalf of the Intervenor Group of 22 Fishermen in Liverpool Bay to review and provide a response.

2. This Rebuttal Report is divided into three sections. In the first section, I respond to the summary of key findings located at page 2 of Ms. Milewski's report. In the second section, I comment on the section of Ms. Milewski's report in which she identifies as missing data and information from the KCS's and/or DFO's assessments. In the third and final section, I comment on specific parts of her report where there is additional information available to address the points she raises. Please note that I reference the page numbers which are located at the bottom of the pages of Ms. Milewski's report.

(2) Summary Section of the Milewski Report (Key Findings, p 2)

3. The Milewski Report states at Bullet 1: "*the proposed lease sites will occupy areas of known lobster fishing activity and result in restricted access to fishing areas*" (p 2).

4. This is technically correct as the proposed leases do overlap with the fishing activity that occurs in Liverpool Bay close to shore. This is where the rocky areas are located and that lobster tend to prefer, while the center of the bay is primarily sand, based on the McKee study[1]. The McKee study also showed that lobster traps were traditionally set in the area as indicated in the figures in the paper. It is not necessarily a given that lobster fishers would be excluded from the area as traps are regularly set around salmon farm leases in the southwestern New Brunswick area and have been for decades. Similar observations have also been made in southwestern Nova Scotia. There is some area between the proposed lease and the shoreline that could likely be fished (Fig 1).

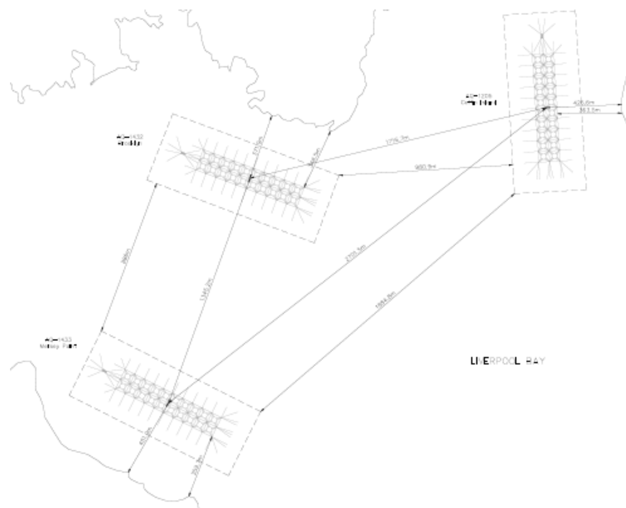

Figure 1. Diagrammatic layout of the proposed farms with distances from the shoreline.

5. The Milewski Report states at Bullet 2: "*the proposed lease sites will occupy areas of high to moderately suitable lobster habitat*" (p 2).

6. There is a reasonable probability that the Mersey Point and the Brooklyn sites will overlap on known lobster habitat, at least in the overall lease area. The video footage from the ROV, which was evaluated by me and a DFO scientist, who works on juvenile lobsters, and attached as Tab 1 to my expert report at Exhibit A of my affidavit affirmed on January 19, 2024, shows that the area of Mersey Point was a boulder-cobble rubble and a potentially good juvenile lobster habitat. However, there are no empirical data on juvenile lobster densities in this area to back this up (e.g. dive surveys with suction sampling). This could be done through the proposed enhanced monitoring program or DFO could expand their work to look at juvenile lobster recruitment in the region and include Liverpool Bay. It should be noted that mud has also been identified as a potentially good habitat for juvenile lobsters[2,3], so cobble may not be the only suitable habitat. As far as exclusive habitat is concerned, the adult lobsters are not restricted to the rocky areas of the bay and readily traverse across multiple types of habitat around the entire bay in their foraging activities as demonstrated by the telemetered tagging studies.

7. The Milewski Report states at Bullet 3: "*the release of farm waste will cause smothering and hypoxic (low oxygen) events in areas of suitable lobster habitat that will negatively impact lobster behaviour, settlement and distribution and potentially catch rates*" (p 2).

8. The release of farm organic waste will impact the seabed, particularly under the cages themselves and the pathway of effects are that the increased organic loading stimulates the bacterial population whose feeding drives down the oxygen levels in the sediment that impacts the larger organisms that need lots of oxygen. There is lots of data internationally to show that loading is the highest under the cages and then drops off in a roughly negative exponential manner as the distance from the cage increases. This is generally handled with models (e.g. DEPOMOD, ORGANIX), but these are based on estimated water flows and average particle densities. They do a reasonable job of estimating loading rates for management purposes, but often lack the finer details for a particular site.

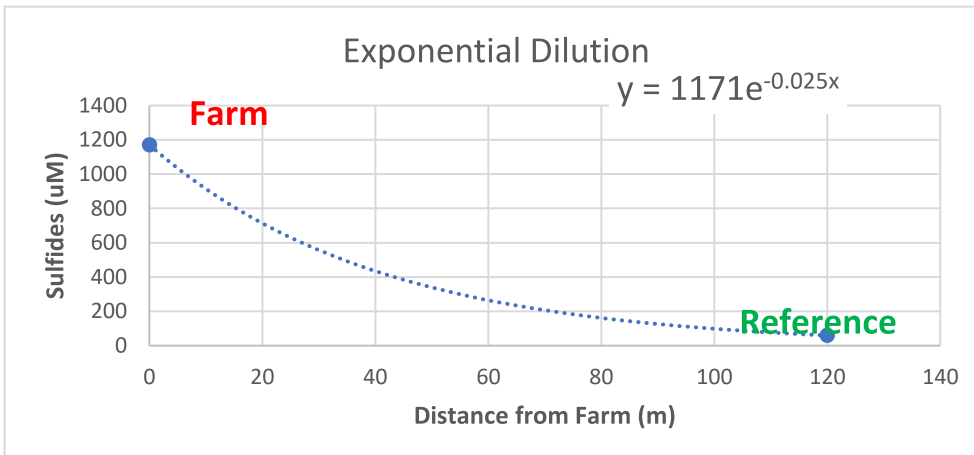

Figure 2. Calculation of an exponential decay curve for sulfides based on the NS Environmental Monitoring Program.

9. But there are some data that we can use to help address some of these questions of scale from the Nova Scotia Environmental Monitoring Program (EMP). Samples for sulfide (an indicator of oxygen level in the sediment) are taken annually at the end of summer at the edge of the salmon cages and then about 120 m away from the farm as a reference site. This has continued since 2009.

10. In 2022, the mean sulfide level at the cages was 1172 μM while the reference site was 60 μM. If we fit an exponential curve for these points (Fig 2), we can estimate what the pressure would be for organic enrichment at further distances. At 100 m, the sediment is well into the oxic zone and the pressure of organic loading from the farm is minimal. The level of the sulfides at the reference site in Liverpool Bay is very similar to that found in

reference sites in Port Mouton. So, the degree of potential impact to the lobsters from organic loading is likely less than 100 m from the cage operation. Supporting this analysis with empirical data is the video showing the bottom under the cages from 2021 that shows minimal buildup of organic waste under the farms and the high densities of lobsters and crabs inhabiting there.

11. In conclusion, there is a possibility that increased organic loading could affect lobsters directly under the cages, but this effect is very likely localized to 10's of meters from the cages. The dilution of the organic material as it moves away from the farm and the rapid metabolism of the organic material underneath the cages by the bacteria[4] suggest that the direct impact decreases quickly away from the cages.

12. The Milewski Report states at Bullet 4: "*benthic areas (3.8 - 4.3 km from each lease site) in Liverpool Bay may be impacted if in-feed pesticides are used and could potentially negatively impact juvenile and adult lobster survival, behaviour, maturation, moulting, spawning, and/or reproduction*" (p 2).

13. The benthic areas potentially impacted (Predicted Exposure Zones ("PEZs") of the proposed sites) are taken from the 2022 DFO Canadian Science Advisory Secretariat (CSAS) report[5] on the predicted areas of particle release and dispersion from a salmon farm based on the water currents in the area and the settling velocities of the various particles (fines, faeces and food). Much of the empirical information to assess the effects of in-feed sea lice treatments comes through lab-based studies where controlled doses were given to lobsters and the resulting effects noted.

14. Of the in-feed therapeutants used for sea lice in Canada, emamecten benzoate (SLICE™) represents 94% of the products used since 2006[6]. Its use in industry has dropped approximately 60% from 2006-2021. It is still used in British Columbia as it is still effective as an in-feed treatment, but it has dropped significantly in all the other salmon-producing

provinces (Fig 3) as other treatment technologies have developed (e.g. warm water, pressure, cleaner fish, fresh water). Nova Scotia has only used a very small amount in 2021.

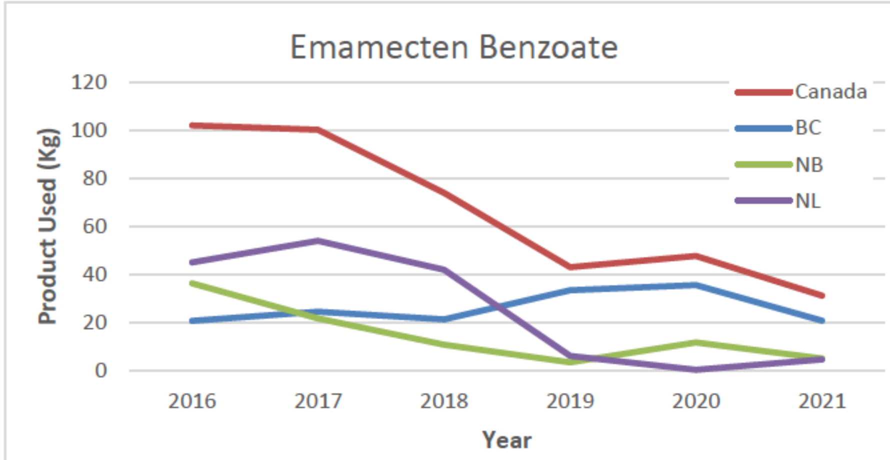

Figure 3. Use of emamecten benzoate by province from 2016 to 2021. Data are from the National Aquaculture Public Reporting Data database (https://open.canada.ca/data/en/dataset/288b6dc4-16dc-43cc-80a4-2a45b1f93383)

15. In the Kelly Cove Salmon NS Sea Lice Management & Treatment Plan for AQ1205, AQ1432 and AQ1433 (which can be found at page 245 of the Report on Outcomes of Consultation) the company has proposed treatments in the following order of priority: 1) Use of KCS mechanical sea lice removal (preferred option), 2) Use of cleaner fish and/or sea lice tarps, 3) Harvesting of the affected stock (if fish are of marketable size), 4) In-feed therapeutants approved by Health Canada and 5) in rare instances, enclosed bath treatments with products approved by Health Canada. Should enclosed bath treatments be required, they would be administered under the direction of a veterinarian; notice would be given to NSDFA and Fisheries and Oceans Canada (DFO) 48 hours prior to a treatment; treatments would only occur at one marine farm per day; only cages deemed necessary would receive treatments; and the use would not occur from July to September.

16. So, the ongoing risk of in-feed treatments will likely decline over time as the other technologies become more prevalent and this will undoubtedly happen in Nova Scotia future developments as well.

17. In the 2022 DFO CSAS report, it is acknowledged that “The benthic-PEZ does not provide an estimate of the intensity of organic loading within the site, and the zones do not imply that everywhere within the zone has the same exposure risk. The intensity of exposure is expected to be highest near the net-pen arrays and decrease as distance from the net-pens increases.” This is very true and the values of 3-4 Km as a potential zone of effect need to be kept in perspective. What is possible is quite different than what is probable.

18. There are no empirical data using tracers that show what the dilution rate of particles are away from a fish farm in Liverpool Bay, or elsewhere for that matter, but we can use the EMP data (above) as an estimate for a potential loading rate.

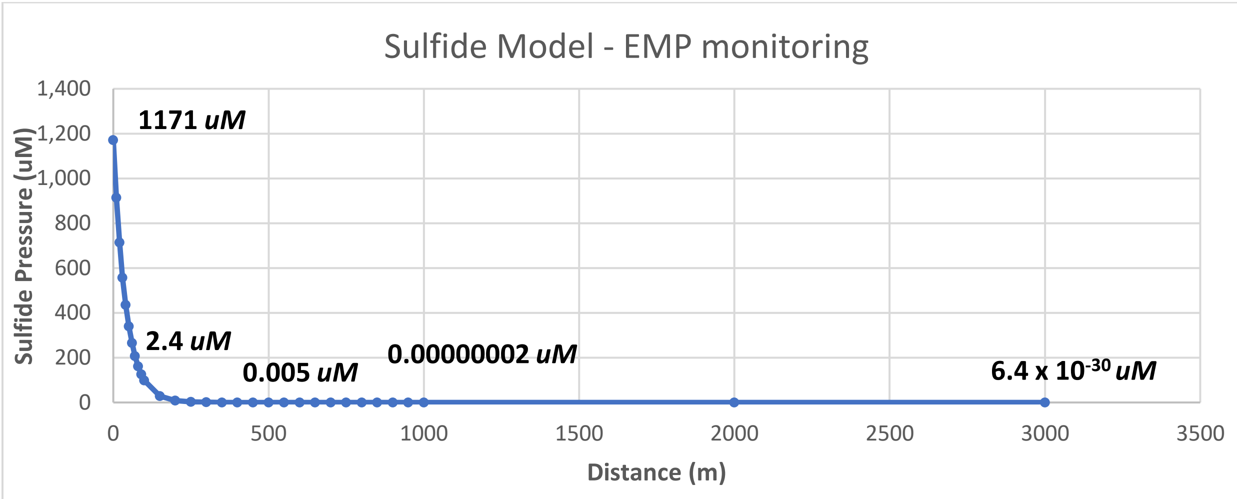

Figure 4. Model of dilution rate of particles away from a fish farm in Liverpool Bay based on sulfide data from the Environmental Monitoring Program in Liverpool Bay, Nova Scotia.

19. Based on the sulfide data provided and an assumption of an exponential decline away from the farm, it can be observed that the potential dilution of particles happens very quickly (Fig 4). At 500 m, the dilution rate is about 1 million times (6 orders of magnitude) and at 1 Km, it would be 11 orders of magnitude. At 3 Km, the distance referred to by the DFO CSAS report, the dilution might be up to 33 orders of magnitude. While there are some significant assumptions here regarding simple exponential decline and the applicability to organic particles and their physical properties, the scale analysis suggests that any significant effect would only be at the local level where it can and should be monitored. Since the likelihood of using any in-feed treatments are also low as other sea lice treatment technologies are being adopted, the risk should also be proportionally lower as well.

20. The Milewski Report states at Bullet 5: "*the proposed farm leases will collectively discharge an estimated 2541 - 2922 mt of fecal and feed waste and 343 mt of nitrogen waste during every 22-month production period and, when combined with existing waste loading to Liverpool Bay, will potentially negatively impact water and habitat quality for many species, including lobster, and potentially the health and functioning of the local ecosystem*" (p 2).

21. There is no question that the salmon farming operations will be adding both organic and inorganic nutrients to the ecosystem of Liverpool Bay in addition to the other nutrients from anthropogenic and natural sources. The mass of nutrients being loaded into the local environment from salmon farming can be considerable and has been estimated in several models over the years[7-9]. Empirical data have shown that dissolved nutrient levels, such as nitrogen, are often elevated in the water column around salmon farms[10]. However, it is not clear on the effects these dissolved nutrients are having on the pelagic ecosystem. Two independent studies in southwestern New Brunswick found no evidence of an increase in phytoplankton biomass or bacterial densities in the vicinity of the salmon farming cages[10,11]. There was some speculation that the phytoplankton were light limited rather than nutrient limited in the Bay of Fundy[10] and that flushing of the inlets did not allow for a significant buildup of nutrients[11]. Reasonably rapid flushing is also a feature of the inlets in southern Nova Scotia. Studies on the various bays in the vicinity of Liverpool Bay show that flushing rates range from 1.5 to 4.5 days[12] and that the flushing rates can be affected by atmospheric events (e.g. strong winds)[13]. This has been suggested to possibly affect lobster larval settlement[14].

22. The rapid water exchange in Liverpool Bay may dilute the dissolved nutrients that come from the salmon farms in the same way that nutrients from the other anthropogenic activities are diluted. There are no obvious signs of large algal blooms that are responding to increased levels of nitrogen, so it would appear that the carry capacity of Liverpool Bay is handling the existing nutrient load.

23. In the benthos, the loading under the cage will likely follow the typical loading pattern where organic material from the feeding operations will deposit mostly under the cages with minimal spread out to 50m[15] and the species biodiversity will switch to primarily deposit feeders[16,17]. This has been found in most salmon farming operations in shallow coastal waters. However, the direct impact of the organic loading may be spatially limited due to the exponential decrease in loading away from the salmon farm cages. A study using a multi-beam sounder showed very clear images of bottom sedimentary changes only under the cages where clear circles were observed where the cages were[17], indicating most deposition was underneath the cage.

(3) Missing Information Section of the Milewski Report (p 2-3)

24. The bullets in this section of Mileski Report highlight information that would be great to have for an evaluation of the development of Liverpool Bay for all the stakeholders that use and impact the system. Much of this information falls in the purview of the federal Department of Fisheries and Oceans who are responsible for managing and accessing commercial fish stocks and their critical habitat. However, this information is not currently available and will take decades to gather, assuming DFO can marshal the fiscal and human resources to achieve this. The fact that much of this information is to-date unknown, even though lobsters represent over 40% of the value of the entire Canadian fishery, suggests that resources will be difficult to acquire to gather answers even some of these questions. This implies that a decision will have to be made without explicit knowledge of the large-scale ecological implications of fish farming. However, it should be acknowledged that salmon farming has existed for over 4 decades in several countries in temperate locations in the world (similar to ours) and that no evidence of larger scale ecological effects has been determined.

(4) Specific Comments of the Milewski Report (page 9-10)

25. The Milewski Report states, "*While these observations may be valid for the particular fish farm studied in Grand Manan, the simple presence of lobsters around salmon farm sites is not evidence of their catchability*."

Figure 5. Photo of lobsters caught in a trap next to the salmon farm (Coffin Island) after a 24-hour soak time with herring as bait. (Sept. 2019) Photo credit: Shawn Robinson

26. When our DFO team started the tagging and microbiome study in Liverpool Bay, we had to trap lobsters in the three different areas. Coffin Island, Fralick Cove (Brooklyn) and Mersey Point, during September in all 3 years (2019-2021) and in July 2021. Commercial lobster traps were rented from a local lobster fisher and deployed for 24 hours or less with standard

bait (frozen herring). Catches were very high around the salmon farm with well over 25 lobsters per trap (Fig 5). This refutes any suggestions that lobsters will not enter into traps in the vicinity of salmon farms.

27. At page 12, the Milewski Report states, "*It is worth noting that as fish production increases, the quantity of pesticides and antibiotic use appears to increase.*"

28. This statement is not true.

29. As the production of salmon has increased, the total amount of antibiotics has not increased and has dropped (Fig 6). The data from 2021 are probably artificially low estimates as the data are likely not updated as of yet, but the trend remains the same. On the east coast, tetracycline is the most used antibiotic to combat infections. Its use across Canada has also decreased over time dropping from almost 14,000 Kg per year in 2016 to less than 4,000 Kg/year in 2020 (Fig 7).

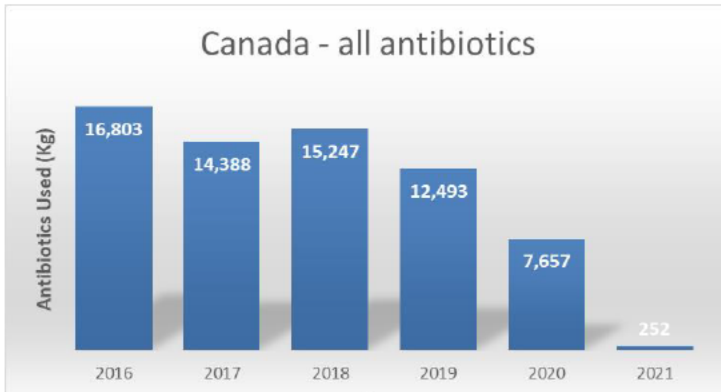

Figure 6. Antibiotic use in Canadian aquaculture from 2016 to 2021. Data from The National Aquaculture Public Reporting Data

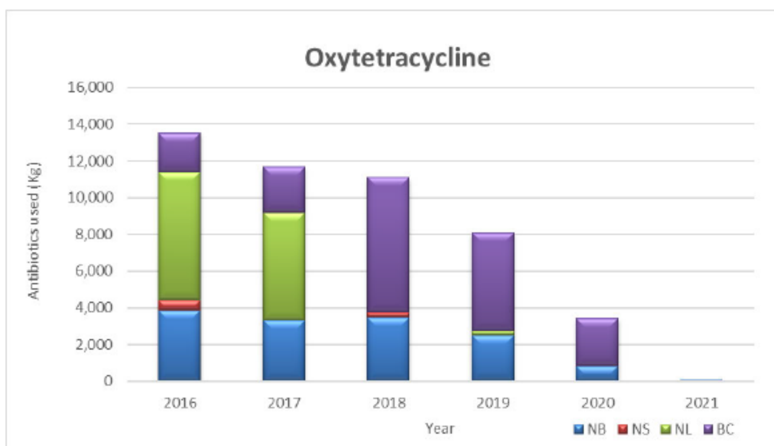

Figure 7. Tetracycline use in Canadian aquaculture from 2016 to 2021. Data from The National Aquaculture Public Reporting Data

30. In response to page 14 and the 2nd paragraph on page 17 of the Milewski Report, most of this information is addressed above in the main bullets. The core of the argument is that salmon aquaculture will contribute dissolved nitrogen, carbon and phosphorus to the water column in relatively large annual amounts due to the metabolism of the fish.

31. This is true, but the dilution effect is ignored and while the concentrations may be higher in the vicinity of the salmon cages, the nutrients are diluted to background levels very quickly due to the physics of water flow and dilution. There are very few studies, mine included[18], that show any effect on primary production from the dissolved nutrients. In my study, the salmon farm was situated in the mouth of a long, narrow shallow, blind-ended cove that dried at low tide. The opportunistic *Ulva intestinalis* green seaweed was able to capture some of the dissolved nitrogen and grow into large mats that affected the soft-shell clam populations in the cove. This was a special case that was strongly affected by the geography of the inlet.

(5) Conclusion

32. There will be some overlap of the proposed salmon farming additional leases to the rocky habitat in Liverpool Bay as evidenced from the McKee survey as well as traditional knowledge and fishing data from the Liverpool lobster industry. Rocky habitat is known to support lobster populations as a source of food and shelter, thus the concern. However, it is not the only lobster habitat as lobsters in Liverpool Bay range broadly and cover several different types of habitats in their daily excursions for food. This is supported by the telemetry tagging studies in Liverpool. The lobsters do not remain in the salmon farm lease areas and therefore are able to be readily captured by the lobster fishery, as demonstrated by our (DFO) success in capturing lobsters adjacent to farms. In the rocky areas, there will also be some space available to deploy traps on the inshore areas of the proposed leases as well as outside.

33. The other concerns involving therapeutants and antibiotics have been a concern for managers for many years and as a result the use of these products has decreased substantially in Canada and elsewhere and replaced with other strategies (e.g. vaccines, warm-water showers etc.) by the fish health professionals. When the decreasing use and the dilution rates of particles originating from salmon farms are considered, the risk of any impacts are much reduced and mostly limited to the area just adjacent (50m) to the cages themselves.

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