

2023

NSARB 2023-001

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 expansion for the cultivation of Atlantic salmon (*Salmo salar*) – AQ#1205x in Liverpool Bay, Queens County

Closing Submissions on Behalf of the 23 Fishermen of Liverpool Bay Intervenor

November 28, 2025

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Overview of KCS's proposed expansion of Coffin Island salmon aquaculture site

1. The intervenor group 23 Fishermen of Liverpool Bay makes the following closing submissions in support of its position that the Board should not approve the lease boundary amendment proposed by Kelly Cove Salmon Ltd. (KCS) for its Coffin Island site (AQ#1205x) in Liverpool Bay, Nova Scotia.
2. KCS proposes to increase the current lease from 3.99 hectares to 40.7 hectares and to add six cages to the existing 14 cages, expanding the number of fish held at the Coffin Island site to 660,000 from a current number of approximately 380,623 to 402,356 fish (approximately 64% to 73% increase in number of fish).
3. In deciding whether to approve the KCS application, Section 3 of the [Aquaculture Licence and Lease Regulations](#) states that the Review Board “must take all of the following factors into consideration:
 - a. The optimum use of marine resources;
 - b. The contribution of the proposed operation to community and Provincial economic development;
 - c. Fishery activities in the public waters surrounding the proposed aquaculture operation;
 - d. The oceanographic and biophysical characteristics of the public waters surrounding the proposed aquaculture operation;
 - e. The other users of the public waters surrounding the proposed aquacultural operation;
 - f. The public right of navigation;
 - g. The sustainability of wild salmon;
 - h. The number and productivity of other aquaculture sites in the public waters surrounding the proposed aquacultural operation.”¹
4. For the reasons that follow, with respect, the proposed increase to the site presents too great of a risk to the lobster fishermen and lobster fishery of Liverpool Bay.

Fishermen's Evidence: Lobster fishing and navigation would be disrupted by proposed expansion

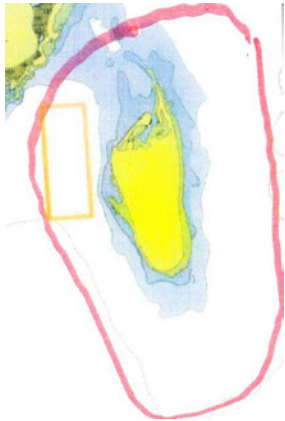
5. Victor Westhaver fished lobster in Liverpool for 33 years. He noted that he has caught (and released) female lobster with eggs in Grid #310 lobster fishing area, which includes Liverpool Bay, and thus noted that Grid #310 is lobster spawning habitat [Westhaver affidavit, [Exh. 024](#), p. 3, paras. 6 and 11].²
6. Mr. Westhaver also noted that the proposed cage sites would interfere with his flexibility to set traps where he wants to set them [para. 15].
7. Mr. Westhaver noted that the proposed expansion of the current site “will be hazardous to me and my crew during windy stormy days when I take my boat close to the shore to avoid the rough waters in the middle of the Bay. ... I need flexibility to take my boat close to shore during

¹ Applicant's Book of Authorities (BoA), Tab D.

² Sadly, Mr. Westhaver died shortly before the hearing of this matter.

certain conditions in order to get my crew and boat home safely. The ... proposed expansion would force me to take my boat further from shore and into waters that are dangerous” [para. 16].

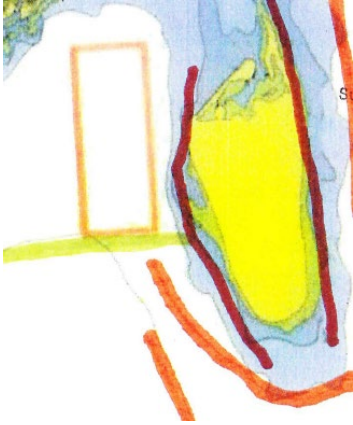
8. Mr. Westhaver attached fishing area maps on behalf of several fellow members of the intervenor group. One of these was for Bradford Crouse who indicated he fishes all around Coffin Island [Exhibit “D”]. The proposed Coffin Island expansion will directly displace some of his fishing area. A portion of this map is copied below (lobster fishing area indicated by red line):



9. Matthew Manthorne noted that he has fished lobster for 17 years and that he has incurred “significant debt (approximately \$600,000)” to buy his boat and lobster licence, and needs the lobster fishery to continue to be healthy in order to continue to make a living for his family. [Manthorne affidavit, [Exh. 024](#), p. 10, paras. 5 and 7]
10. Mr. Manthorne also noted that he worked at the trout farm site off of Coffin Island in 2009 [para. 8], and that one of his duties was to count sea lice on the trout, and that he sometimes counted more than 100 sea lice per fish [para. 9].
11. Mr. Manthorne noted that Liverpool Bay is a very productive area for lobster fishing based on his experience as a lobster fisher in and around Liverpool Bay [para. 10].
12. Mr. Manthorne also noted that he navigates his boat close to shore to avoid rough sea conditions in the middle of the channel through Liverpool Bay [para. 14].
13. Mr. Manthorne attached a map of his lobster fishing area to his affidavit [Exhibit “A”], which includes the area around the Coffin Island site. A portion of this map is copied below:



14. Justin Munroe notes in his affidavit that he has been fishing lobster in Liverpool Bay for twenty years, catches 25-35% of his Spring lobster catch from Liverpool Bay, and wishes for the lobster fishing in Liverpool Bay to remain strong so that his son can have the option to take over his fishing business [Munroe affidavit, [Exh. 024](#), p. 13, paras. 5, 10, and 15].
15. Mr. Munroe has seen a significant decline in the amount of Irish Moss at Coffin Island since KCS expanded their site to 14 pens. The decline has been to the extent that he no longer tries to harvest Irish Moss at Coffin Island [para. 14].
16. Mr. Munro notes that if he is displaced from his traditional fishing areas, there are no new areas or empty areas for me to move to. He states that [a]nywhere I move to will already be occupied by other fishermen. This will be true for anyone that is displaced. It means crowding into occupied areas and this can create conflicts” [para. 20].
17. Mr. Munroe described how the proposed cage sites will be an obstacle for him when taking his boat to and from his fishing area, and that certain weather conditions force him to take his boat along the shoreline because the middle of the channel gets too rough for small vessels such as his boat on these days [para. 21].
18. Mr. Munroe also noted that he worked at the trout aquaculture site at Coffin Island in 2009 and 2010 and that one of his duties was to count sea lice on the fish [para. 23].
19. Mr. Munroe attached a map of his fishing areas to his affidavit [Exhibit “A”], a portion of which is copied below; Irish moss harvest area is in red, lobster fishing area in orange, and mackerel fishing area in green.

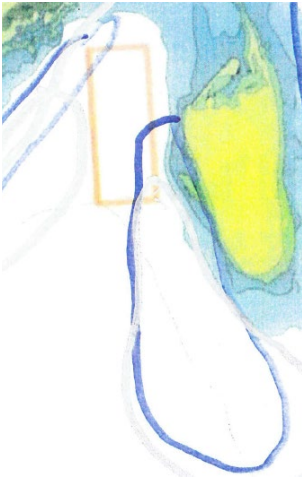


20. Peter Stewart is a retired fisherman who had fished commercially for 31 years in Liverpool Bay, primarily for lobster but also fished herring and mackerel and raked Irish Moss (para. 4); during cross examination Mr. Stewart noted that although retired, he still works as crew aboard lobster fishing boats from time to time [Stewart affidavit, [Exh. 024](#), p. 18, para. 4].
21. Mr. Stewart noted that from his experience as a lobster fisherman, as a representative of lobster fishers to DFO, and as President of the Harbour Authority of Moose Harbour, he knows that flexibility in where lobster fishers set their traps is “critical to safe and profitable fishing” and that “the proposed salmon cage sites reduce the area where lobster-fishing boats can operate and where fishers can set their traps within Liverpool Bay” [para. 10].
22. Mr. Stewart states that when there are strong north-east to south-east winds, he and other fishermen must “hug the shore along Eastern Head and the west side of Coffin Island. ... these locations will be lost to lobster fishermen if the Brooklyn cage site and Liverpool (Coffin Island) expansion are approved” [para 12].
23. Mr. Stewart noted that “I and other lobster fishermen stay in calm waters as we prepare for the day’s fishing by preparing bait and lines. ... It is for the crew’s safety that we do this work in calm waters. The proposed salmon cages and expansion are either in these calm water places or are obstacles that would interrupt our preferred routes to get to calm water areas... forcing fishermen into rougher waters to get to sheltered sites” [para. 13].
24. Mr. Stewart also described the “informal ‘territories’” on which lobster fishing is based. “... I had and other lobster fishermen have certain areas that we recognize as our individual fishing territory within Liverpool Bay. This is not a formal law or government-designated area, but a product of long tradition and custom in the lobster fishing industry” [para. 14].
25. Mr. Stewart observed that “when the Coffin Island site was created (and later when it was expanded), ... lobster fishermen that fish in the area directly impacted by the fish cages were forced to encroach on areas traditionally fished by others. This caused an increase in fishing pressure in the remaining available locations, and increased inter-personal friction among lobster fishers who encroached and were encroached upon. There are only so many catchable

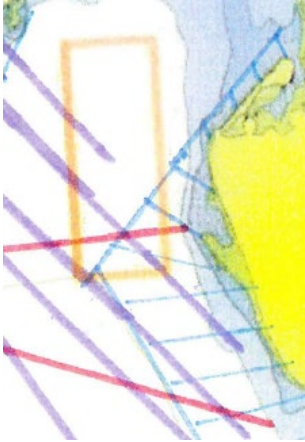
lobsters in a given location and therefore the catch had to be shared by more fishers when encroachment occurred” [para. 15].

26. Mr. Stewart also observed that “fishermen that are displaced by aquaculture sites are forced to make longer trips with their boats to reach new fishing area, which decreases their time available for fishing and increases their fuel costs. In other words, displacement of current fishing areas decreases profitability of lobster fishing” [para. 16].

27. Mr. Bobby Lohnes noted in his affidavit that his lobster fishing area includes the area immediately west of Coffin Island and south of the Coffin Island site. His “traditional lobster fishing territory includes part of the proposed ... Liverpool cage sites.” A portion of his Exhibit “A” is copied below; blue outline is his lobster fishing area; light grey is his mackerel fishing area [Lohnes affidavit, [Exh. 024](#), p. 23, para. 5, and Exhibit “A”].



28. Mr. Kevin Colp noted in an exhibit attached to his affidavit (a portion of which is copied below) where he fishes lobster and the location of his traditional lobster fishing territory, which includes part of the Liverpool (Coffin Island) cage site. He also noted here he fishes mackerel and where he navigates his boat to reach his fishing area, including through the southern area of the Liverpool (Coffin Island) site; lobster fishing area marked in blue, mackerel fishing area marked in purple, and navigation routes marked in red [Colp affidavit, [Exh. 024](#), p. 25, paras. 5 – 7, and Exhibit “A”].



Expert Evidence of Chris Milley: Lobster fishing is vital part of local economy and at risk from proposed salmon aquaculture expansion

29. Chris Milley is an expert in the field of marine coastal resources management and capable of providing expert opinion evidence on inshore fisheries and marine coastal resources management [Statements of Qualification, [Exhibit 024](#), p. 29].
30. Mr. Milley noted in this expert report that the Liverpool Bay lobster fishery is a “vital part of the community’s culture and economy. Lobster fishermen are an integral part of the social fabric of the communities in the area...”. “The lobster fishery, deeply rooted in local culture and economy, is a significant contributor to the province’s revenue...” [Milley affidavit, [Exh. 23](#), Exhibit “A”, pp. 1 and 5].
31. The total direct economic impact of lobster fishing and processing in lobster-fishing area 310 is reported to be \$8,353,000, with another \$5,054,000 of indirect impact [p. 1]. The direct economic impact of lobster harvesting alone for area 310 is reported to be \$4,220,000 [p. 10].
32. Furthermore, the lobster fishery generates significant induced economic benefits because incomes and profits are spent on local industries such as vessel construction and maintenance, gear manufacture and maintenance, fuel, storage and bait supply [p. 12].
33. The average landings for the 37 licence holders in the Liverpool Bay area generate approximately \$7.3 million within the local economy [p. 12], and lobster fishing provides above-average incomes for rural coastal communities [p. 1].
34. Lobster fishermen are actively involved with the development and adoption of regulations to ensure the long-term health of lobster populations, including changes in carapace size limits for retained lobster, review and adjustment of fishing seasons, and mandating the use of biodegradable elements in lobster traps to prevent ghost fishing [p. 5].
35. Mr. Milley notes that a healthy lobster fishery depends on the intergenerational transfer of licences and that “economic impacts resulting from changes in the use of marine spaces in the

Liverpool Bay area could further discourage new participants from joining the fishery in the area” [p. 2].

36. Mr. Milley noted that “during public consultation sessions, comments offered from stakeholders regarding their concern about the potential adverse economic and social effects of the Project on the lobster fishery were dismissed without evidence, except with reference to anecdotal information that negative impacts did not occur in other sites in the Atlantic Region” [p. 15].
37. Mr. Milley also noted that “there is no evidence in the Applicant package that due diligence was taken to determine the potential economic impacts of the Project on the local lobster fishery or any other marine use activities in the area” [p. 15].
38. Mr. Milley concludes that “expansion of the aquaculture operations may have significant risks of detrimental effects on the economic condition of the Liverpool Bay lobster fishery. These effects are both short-term, due to loss of lobster harvest revenue (potential loss of harvest area and increased transit costs) and long-term, as a result of undermining public confidence in the lobster fishery that can lead to the decreased intergenerational transfer of employment in the fishery” [p. 2].
39. KCS submitted a report by Mr. Peter Norsworthy [Norsworthy affidavit, [Exhibit #063](#), Exhibit “A”], which purports to conclude that Mr. Milley was incorrect in his assessment that the KCS proposal could harm the lobster fishery. Mr. Norsworthy’s conclusions were based on there being “adequate real estate” [Norseworthy affidavit, para. 4] for lobster fishers to move into if they are displaced by the expanded aquaculture site. Mr. Norseworthy acknowledged on cross examination that the basis of his assertion was not realistic – that is, that (a) the square footage of an individual lobster trap does not represent the ocean floor area needed by a fisherman to fish a lobster trap, (b) lobster habitat is not uniformly distributed over LFA 33 thus fishermen cannot simply fish anywhere within LFA 33 (regardless of the depth limit used by Mr. Norseworthy), and (c) lobster fishermen have traditional fishing areas and cannot move into another fisher’s traditional area without potential conflict.
40. Mr. Norseworthy also suggested that Mr. Milley’s figure of \$4.2 million in lobster landing value for area 310 should be \$2.2 million [para. 7]; yet during cross examination Mr. Norseworthy agreed that data provided by DFO results in a calculation of \$4.2 million in lobster landings for area 310.
41. Mr. Norseworthy acknowledged on cross examination that he does not hold a degree in any field related to economics, business, or fisheries and his CV does not include any publications in these fields (or any other field). With respect, Mr. Norseworthy is not properly qualified to put forward expert opinion evidence regarding Mr. Milley’s report.
42. KCS’s closing submissions erroneously state that “Mr. Milley acknowledged that many data points relied upon in his report ... were not correct” [KCS closing submissions, para. 45]. Mr. Milley in fact acknowledged no such thing. Rather, he maintained the strength of his conclusions

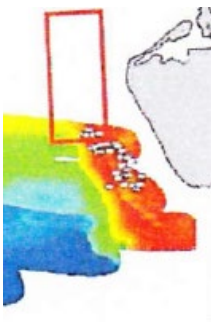
regarding the risk of salmon aquaculture to the Liverpool lobster fishery in the face of cross-examination. During cross-examination Mr. Milley also warned against assuming that a small increase in the salmon aquaculture footprint will not have a significant effect on the lobster fishery.

Expert Evidence of Inka Milewski: Risks to lobster fishery posed by salmon aquaculture expansion

43. Inka Milewski is an expert in the field of marine biology and ecology, capable of giving expert opinion evidence on the biology and ecology of Liverpool Bay, the biology and ecology aspect of the inshore lobster fishery, and marine water quality [Statements of Qualification, [Exh 024](#), p. 29].
44. Ms. Milewski concluded that the proposed expansion of salmon aquaculture in Liverpool Bay would negatively impact the lobster fishery and public water quality [Milewski affidavit, [Exh 024](#), Exhibit “A”, p. 33]. Ms. Milewski confirmed on cross examination that this conclusion stands regardless that the scope of the proposal was reduced to include only an expansion of the Coffin Island site.
45. Ms. Milewski’s key findings, in part, are as follows [Milewski affidavit, Exhibit “A”, p. 33]:
 - a. The proposed lease sites will occupy areas of known lobster fishing activity and result in restricted access to fishing areas;
 - b. 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;
 - c. Benthic areas (3.8 – 4.3 km from the site) 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; and
 - d. The proposed farm lease will discharge an estimated 847 to 974 metric tonnes of fecal and feed waste and 114.3 metric tonnes of nitrogen waste during each 22-month production period, leading to potential harm to the health and functioning of the local ecosystem.³
46. Ms. Milewski also found that certain data and information were missing from both the proponent’s application and the Department of Fisheries and Ocean’s assessment of the proposal [Milewski affidavit, Exhibit “A”, pp. 33 – 34]:
 - a. Data on the spatial distribution of key habitat for larval, juvenile and adult lobster in Liverpool Bay;

³ Ms. Milewski’s report was based on KCS’s original proposal for 3 cages sites of equal size; the numbers presented here have been reduced by 2/3rds to account for the reduced scope of KCS’s proposal.

- b. Historic and current data on the area of suitable lobster habitat at the existing Liverpool lease site;
 - c. Ecological implications of displacing larval, juvenile or adult lobster from their preferred habitat on current and future local lobster populations;
 - d. Historic and current data on catch rates around the existing lease site;
 - e. Cumulative effects of long-term (potentially the life of the lease, 20 years) organic waste loading on suitable lobster habitat and the local ecosystem;
 - f. Resuspension and dispersion of organic waste to determine far-field effects;
 - g. Assessment of current and cumulative nutrient waste loading on the local ecosystem;
 - h. Toxic or behavioural effects of dissolved sulphides and hypoxic conditions created from farm organic waste on lobster abundance, distribution, and catch;
 - i. Complete accounting of the type of human stressors in Liverpool Bay; and
 - j. Intensity of human stressors on the Liverpool Bay ecosystem.
47. Ms. Milewski notes that filling these gaps in data and information are necessary to “provide a more thorough assessment of the current impacts and future risks of aquaculture expansion on lobster fishing activity and public waters in Liverpool Bay. The absence of local-level, quality environmental data should not be viewed as evidence of no environmental impacts from the proposed aquaculture expansion in Liverpool Bay” [Milewski affidavit, Exhibit “A”, p. 34].
48. Maps provided in Milewski’s report [Milewski affidavit, Exhibit “A”, p. 37] show that the area within the lower bounds of the proposed lease expansion for Coffin Island contains habitat that is highly suitable for lobster, and that lobster fishing occurs within the southern bounds of the proposed lease expansion and immediately south of the site. The lobster habitat study did not extend further north into the Coffin Island lease site. A portion of this map is copied below; the proposed lease boundary is marked by the red rectangle and lobster habitat suitability increases from blue to green to yellow to red (i.e., red areas have the most suitable lobster habitat):



49. Ms. Milewski draws attention to the DFO assessment of the proposal: “Areas of bottom habitat at the proposed aquaculture sites may ... be highly suitable for settlement of larval lobster given the preferential selection for hard-bottom substrates. Increased sedimentation associated with the proposed aquaculture activities may preclude the settlement of larval lobster. DFO 2022 CSAS, page 15” [Milewski affidavit, Exhibit “A”, p. 38].
50. Ms. Milewski notes that the “ecological implications ... of displacing juvenile or adult lobster from their preferred habitat on current and future lobster populations or the socio-economic implications of displacing lobster fishers from their fishing areas in Liverpool Bay were not considered or discussed in DFO (2022) or KCS (2019) documents” [Milewski affidavit, Exhibit “A”, p. 38].
51. Ms. Milewski also points out that recent studies “have found that current regulatory and scientific monitoring/sampling requirements are inadequate to assess the state of benthic and pelagic environments under and around net pens (Armstrong et al., 2020; Keeley et al., 2019; Broch et al., 2017; Hamoutene et al., 2016)” [Milewski affidavit, Exhibit “A”, p. 41].
52. KCS has stated that there “has been aquaculture in Liverpool Bay since 2002 and it doesn’t appear to have hurt catches. There are also many scientific papers on lobster/aquaculture interactions” [KCS Application Package, Vol. 2, p 862, [Exhibit 006](#)].
53. Ms. Milewski points out, however, that there have been only two studies on catch rates around salmon farms in Canada and neither of these were conducted in Liverpool Bay. The two catch-rate studies in Port Mouton Bay found significantly lower catch rates of market lobsters and lower counts of berried lobsters during periods when the farm was stocked (feed periods) compared to periods with no fish (fallow periods) [Milewski affidavit, Exhibit “A”, p. 40].
54. Ms. Milewski notes that pesticides, although not used at the Coffin Island site since 2015, tend to increase in use with increasing fish production (based on DFO’s 2023 National Aquaculture Production Statistics showing generally higher drug and pesticide use in regions with higher numbers of aquaculture salmon), and that warmer waters predicted due to climate change are predicted to result in increases in disease and sea lice occurrence, which may in turn require more drug and pesticide treatments [Milewski affidavit, Exhibit “A”, p. 43].
55. Ms. Milewski further notes that “[l]ethal effects of a range of pesticides used on net pen fish farms have been reported on all lobster life stages with larval stages being the most sensitive... Sub-lethal effects include increased neuromuscular dysfunction, hypoxia and metabolic disturbances in adult males ..., reduction in survival and spawning of adult females..., premature moulting in adults and ovigerous (berried) lobsters... reduced growth and delayed moulting in juveniles..., and reduction in shelter use by juveniles... Depending on life stage, lobster food sources such as copepods, crabs, amphipods, sea urchins, and polychaetes ... are also impacted by aquaculture pesticides ...” [Milewski affidavit, Exhibit “A”, p. 43; references omitted throughout].

56. DFO noted that the seabed up to approximately 3.8 kilometres from the proposed sites may be exposed to in-feed drugs present in feces, if used, and that pesticide levels that are toxic to susceptible species may travel up to approximately 4.3 kilometres from the proposed sites, if used [p. 44].
57. The long-term, cumulative effects of continuous waste loading around the Coffin Island site due to salmon aquaculture is not known [Milewski affidavit, Exhibit "A", p. 47].
58. Milewski concludes that the proposed aquaculture expansion would be a "large experiment" where "most of the risks have not been identified and quantified" [Milewski affidavit, Exhibit "A", p. 50].
59. KCS asserts that the 23 Fishermen of Liverpool Bay intervenor has not put forward any objective evidence that their catches have decreased in the 14 years that KSC has operated the farm [KCS Closing Submissions, para. 38].
60. While technically correct, this assertion ignores the fact that there have been no studies done to date on the catch rates of lobster in Liverpool Bay. The fact that lobster catch rates in Liverpool Bay have not been studied does not mean that there is no impact on lobster catch rates. At best, it is only possible to say that the impacts of salmon aquaculture in Liverpool Bay are unknown at present, and that the available science indicates that lobster tend to move away from the Coffin Island site [Lavoie et al, draft MS. Impact of finfish farms in eastern Canada (Nova Scotia) on American lobster and rock crab distribution. [Exh 112](#)].
61. In closing submissions, KCS asserts that Ms. Milewski relies in part on her studies in Port Mouton in support of her opinion that the aquaculture site may impact the lobster population [KCS Closing Submissions, para. 39].
62. In fact, Ms. Milewski relied on more information than the Port Mouton study. Ms. Milewski outlined the nature and volume of untreated organic and nutrient waste released from fish farms, the potential negative impacts on lobster behaviour, settlement and distribution, and catch rates, and the potential impacts of drug and pesticide use, if used, on juvenile and adult lobster survival, behaviour, maturation, moulting, spawning, and/or reproduction. None of these issues have been studied in Liverpool Bay despite their potential risk to lobster [Milewski affidavit, Exhibit "A", pp. 49 – 50].
63. The one study conducted in Liverpool Bay regarding aquaculture/lobster interactions [Lavoie et al., [Exh 112](#)] indicates that lobster tend to move away from the Coffin Island site.
64. KCS's expert Dr. Ramon Filgueira criticized Ms. Milewski's Port Mouton studies (2014 and 2018), [KCS's closing submissions para. 40]. Dr. Filgueira acknowledged during cross examination, however, that both Port Mouton studies had been peer-reviewed, and that while he and others submitted critical comments to the publisher of the 2014 paper, neither he nor his colleagues

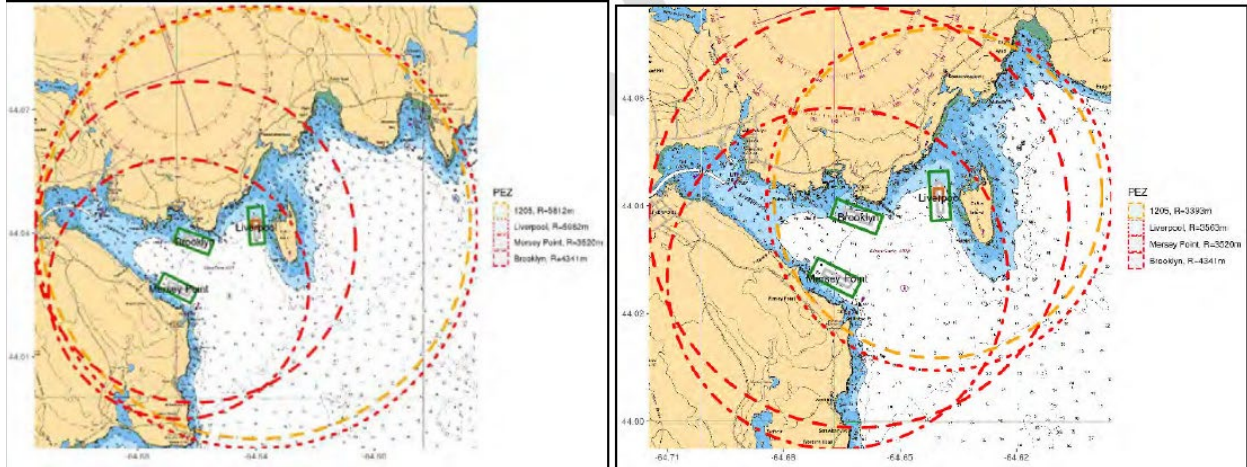
sent criticisms of the 2018 study to the publisher. Ms. Milewski noted that critiques of the 2014 study were addressed in the 2018 study [Milewski affidavit, Exhibit “A”, p. 9].

65. Furthermore, Dr. Filgueira acknowledged on cross examination that he is not an expert in lobster behaviour, biology, or lobster fisheries management. For these reasons, Dr. Filgueira’s criticisms of the 2018 Port Mouton study cannot be relied upon.
66. KCS states that Dr. Shawn Robinson opines that the proposed farm will have little negative effect on the behaviour and distribution of lobsters that could affect the local fishery [KSC closing submission, paras. 41, 42]. This is inaccurate based on Dr. Robinson’s own research in Liverpool Bay [Lavoie et al. Exhibit 112]: the 3-year lobster tagging study in Port Mouton Bay in which he participated found that lobsters moved away from the farm site during the fallow year and that this effect increased during production years. Furthermore, this lobster-tagging study did not examine catch rates.
67. Furthermore, Ms. Milewski offered insights into the potentially high levels of dissolved sulphides and ammonium and low oxygen conditions that can result from fish farm waste discharges and the high sensitivity of lobsters to these conditions. Ms. Milewski’s evidence described common behavioural responses by lobsters to these conditions which include a reduction in movement and movement to less noxious areas, both of which may be reflected in decreased catch rates (Milewski reply affidavit, Exhibit “A”, p. 1, [Exh 059](#); and Milewski et al, 2018, p 92 – 93, [Exh 115](#)).
68. Dr. Robinson stated in his affidavit (Robinson affidavit, Exhibit “A”, para. 32, [Exh 043](#)) that his “overall conclusion from a review of the literature on field-based studies on lobsters and the recently collected data from the lobster acoustic tracking and microbiome projects is that salmon farms in Liverpool Bay will have little negative effect on the behaviours and distribution of lobsters that could affect the local fishery.”
69. Yet, during cross examination, Dr. Robinson acknowledged that he did not calculate catch per unit effort at the Coffin Island site during his Liverpool Bay study. The impact of the Coffin Island site on lobster catch rates per unit effort remains unknown.
70. Dr. Robinson also acknowledged that his tagging research found “a noted decrease in occupation of the farm site by lobster over time...” (Lavoie et al., lines 248 and 249, [Exh 112](#)).
71. Dr. Robinson also acknowledged that this research found that “Atlantic salmon aquaculture in Liverpool Bay was observed to affect the abundance and movement of both American lobster and rock crabs” (Lavoie et al., lines 333 – 335, [Exh 112](#)).
72. Dr. Robinson also acknowledged that this research found that “a marked decrease in the abundance of lobster from the fallow year relative to the year when the farm contained two-year-old fish...” (Lavoie et al., lines 365 – 368, [Exh 112](#)).

73. Furthermore, Dr. Robinson acknowledged on cross examination that there has been no study of the impacts of salmon aquaculture on larvae or juvenile lobster in Liverpool Bay.

Threat of sea lice infestation and potential harm to lobster fishery

74. Michael Szemerda noted during cross examination that Cooke's battle with sea lice in New Brunswick began in the early 2000s, and that salmon aquaculture has been operating in New Brunswick since the 1980s. There was a period of time, thus, pre-2000s, when sea lice were not a significant concern to the Cooke Aquaculture's New Brunswick operations.
75. Dr. Robinson acknowledged during cross examination that a rationale for one of his studies on sea lice was that there are signs on the east coast of Canada that resistance of sea lice to the current suite of therapeutic treatments is developing, resulting in more intense infection pressures on farmed salmon.
76. During cross, Mr. Szemerda acknowledged that the in-feed treatment known as SLICE was once effective but that its effectiveness is now somewhat compromised due to sea lice developing resistance to the treatment.
77. Mr. Szemerda acknowledged that Cooke Aquaculture does not have a policy that prohibits the use of the insecticide azamethiphos, and that the insecticide would be a tool in their tool box if sea lice were to become an issue in south-west Nova Scotia.
78. Warming waters due to climate change have been predicted to lead to an increase in sea lice occurrence [Milewski affidavit, Exhibit "A", p. 43].
79. The Department of Fisheries and Oceans' assessment of the proposal noted that pesticide levels that are toxic to susceptible species may travel up to approximately 4.3 kilometres from the proposed sites, if used. DFO also noted that that adult lobster may be exposed to in-feed drugs and toxic concentrations of pesticide in shallower areas around the site, and that larval lobster may also be exposed to toxic concentrations of pesticides [Report on the Outcomes of Consultation, p. 206, [Exh 004](#)].
80. DFO's map of the predicted exposure zone for pesticides is copied below. The left map PEZ includes allowance for impacts of storms, while the right map does not. Either with or without a storm, the DFO maps indicate that the predicted exposure zone for pesticides from the Coffin Island site encompasses a significant portion of Liverpool Bay [Report on the Outcomes of Consultation, p. 206].



81. DFO notes that “[w]hile in the environment, azamethiphos is toxic to non-target crustaceans, including all life stages of lobster [Report on the Outcomes of Consultation, p. 207].

Dr. Ramon Filgueira not qualified to opine on lobster-catch studies

82. Dr. Filgueira acknowledged during cross-examination that the Marine Pollution Bulletin published a response (Loucks response, 2016, [Exh 114](#)) to the concerns that he had raised about the Port Mouton lobster study.

83. Dr. Filgueira also acknowledged that the 2014 Loucks et al study, which he had criticized, had been peer-reviewed and that the Marine Pollution Bulletin journal had not taken any action against the Loucks article as a result of his comments.

84. Dr. Filgueira acknowledged that the 2018 Port Mouton lobster catch study published by Milewski et al was peer-reviewed and that he did not submit a critique of this study to the journal in which it was published, and that the Journal has not retracted the 2018 Milewski et al study.

85. Dr. Filgueira acknowledged that he has not published any studies on lobster behaviour, lobster biology or the lobster fishery. Dr. Filgueira acknowledged that he is not an expert on lobster biology or lobster behaviour, and that he was not put forward as an expert on lobster or the impacts of salmon aquaculture on lobster.

86. With respect, Dr. Filgueira is not properly qualified to provide expert opinion on lobster biology, lobster behaviour, or impact of salmon aquaculture on lobster and thus his testimony regarding Ms. Milewski’s evidence on lobster biology, lobster behaviour and impact of salmon aquaculture on lobster catchability must be disregarded, or alternatively given little weight.

Dr. Robinson has an overriding obligation to the proponent

87. As acknowledged during cross examination, Dr. Robinson has been a member of the Aquaculture Association of Canada since 1996, and was a director of the Association from 1996 to 2004,

including a stint as treasurer from 1997 to 2001 and President of the Association from 2002 to 2003.

88. Dr. Robinson also acknowledged during cross examination that he has had a professional collaboration with Cooke Aquaculture for two decades.
89. Dr. Robinson's collaborations with Cooke Aquaculture (or Heritage Salmon as it was previously known) include the following (all acknowledged during cross examination):
- a. In 2000, Dr. Robinson helped create a team to investigate aspects of his multi-trophic aquaculture concept and Heritage Salmon (former name of Cooke Aquaculture) was Dr. Robinson's industrial partner in this team;
 - b. In 2006, Dr. Robinson began to pursue the commercialization of his multi-trophic aquaculture concept and Cooke Aquaculture was again the industrial partner in this endeavour;
 - c. In 2008 Dr. Robinson was awarded a multi-year NSERC grant and Cooke Aquaculture was his industrial partner throughout the 7 years of this grant;
 - d. In 2009 Dr. Robinson received an award from the Aquaculture Association of Canada for his Multi-trophic Aquaculture work, and the Association noted that his accomplishment was helped by industry partners, including Cooke Aquaculture;
 - e. In 2010 Dr. Robinson helped create the national Multi-trophic Aquaculture Network, and Cooke Aquaculture was the industrial member of this network;
 - f. In 2016, Dr. Robinson collaborated with Cooke Aquaculture to test de-lousing systems as part of Cooke's battle against sea lice;
 - g. Also in 2016, Dr. Robinson collaborated with Cooke Aquaculture to experiment with growing sea urchins and sea cucumbers near Cooke's aquaculture sites; and
 - h. From 2017 to 2020, Dr. Robinson was the principal investigator for a project titled "Defining the risk of sea lice infection", and Cooke Aquaculture was his industrial collaborator for this project.
90. Dr. Robinson acknowledged that he has dedicated a significant part of his career to the development of multi-trophic aquaculture, and that he has been publicly recognized for these efforts.
91. Dr. Robinson acknowledged that the success he has achieved during his career with multi-trophic aquaculture has been thanks, in part, to Cooke Aquaculture's collaboration.
92. As described in an article co-authored by Dr. Robinson entitled "What's Cooke-ing" (published in Cooke Aquaculture's 2006 newsletter, [Exh 107](#)) multi-trophic aquaculture consists of three critical cultured components: shellfish, seaweed, and salmon.
93. The concept of multi-trophic aquaculture as promoted (and acknowledged) by Dr. Robinson is that cultured shellfish and seaweeds benefit from the excess nutrients from the salmon farm,

and that this creates a win-win-win scenario wherein the shellfish and seaweeds benefit from the excess salmon waste, and in so doing reduce the detrimental impacts of salmon farming.

94. Dr. Robinson has dedicated much of his career to a concept of aquaculture that includes salmon farms. He has collaborated with Cooke Aquaculture to develop and commercialize his concept.
95. Dr. Robinson's long relationship with Cooke Aquaculture and the aquaculture industry generally calls into question whether Dr. Robinson is best defined as an independent expert in marine biology, or as an advocate for aquaculture generally and for Cooke Aquaculture specifically.
96. In *White Burgess Langille Inman v Abbott and Haliburton Co.* (2015 SCC 23) [*White Burgess*]⁴ the SCC agreed with the comment that "expert witnesses have a duty to assist the court that overrides their obligation to the party calling them" [para. 46]. The depth and length of Dr. Robinson's relationship with Cooke Aquaculture creates a "realistic concern" that Dr. Robinson is "unable and/or unwilling to comply with that duty. ..." [para. 48].
97. Furthermore, Dr. Robinson was a co-author of a survey published in 2021 examining the impacts of fish farms on bacteria in sediments under and away from net pens [Fürhe et al. 2021, [Exh 113](#)]. Dr. Robinson acknowledged during cross-examination that one of the study's conclusions was that "with increased aquaculture impact, the benthic ecosystem is increasingly disturbed" [Fürhe et al., p. 6]. Yet, Dr. Robinson made no mention of this information in his expert report on the impacts of aquaculture in Liverpool Bay. This selective disclosure of relevant information further calls into question Dr. Robinson's willingness to be an independent witness for the benefit of the Board.
98. With respect, the evidence before the Board indicates that there is realistic concern that Dr. Robinson is more an advocate for aquaculture than an independent marine biologist and thus his evidence must be excluded. Alternatively, should the Board find that Dr. Robinson's evidence can be admitted, the Intervenor asks the Board to give little weight to Dr. Robinson's evidence given his long collaboration with Cooke Aquaculture, his promotion of aquaculture generally, and his failure to share all relevant information with the Board regarding the potential impact of salmon aquaculture on the benthic ecosystem [per *White Burgess*, para. 54].

Conclusion: Evidence of negative impacts and potential negative impacts on lobster fishery outweigh possible benefits of KCS's proposed expansion

99. Some lobster fishermen have been displaced from their traditional fishing territory by the previously expanded (but not authorized) Coffin Island site, and some will be displaced by the proposed expansion, both of which are the subject of this application.
100. Displaced lobster fishermen cannot easily fish in a different area in part because they would be infringing on fishermen already fishing that area. Any loss of lobster fishing area will have a negative impact on the livelihoods of lobster fishermen in Liverpool Bay given that they

⁴ Intervenor's Book of Authorities, Tab 1.

may have to travel further to new fishing areas and / or infringe on and share fishing space and catchable lobsters with other fishers.

101. The proposed expansion will also force some lobster fishermen into more dangerous waters during rough weather because they will not be able to take their boats as close to shore along the west side of Coffin Island as they do now. The proposal is an unacceptable infringement on the public's (and specifically fishermen's) navigation rights through the public waters around Coffin Island.

102. As demonstrated in Ms. Milewski's expert evidence, salmon aquaculture has a negative impact on lobster behaviour and possibly on lobster catch rates. Ms. Milewski's 2018 Port Mouton study found a significant decrease in adult lobster (42% decrease) and berried lobster (56% decrease) catch rates between years when salmon aquaculture sites were active versus when they were fallow. While the influence of salmon aquaculture on lobster catch rates has not been studied in Liverpool Bay, the negative impacts demonstrated in Port Mouton Bay are reason to pause further salmon aquaculture expansion in Liverpool Bay until the impacts are known.

103. Furthermore, Dr. Robinson's research found that lobsters tend to move away from the Coffin Island site when it is active relative to when it is fallow.

104. Increasing the number of farmed salmon in Liverpool Bay by 64 to 73% also increases the risk the sea lice infestation, as well as the risk that lobster in Liverpool Bay will be exposed to toxic levels of the pesticide azamethiphos. The potential predicted exposure zone if azamethiphos were used would cover most of Liverpool Bay according to the Department of Fisheries and Oceans' modelling.

105. Finally, the breadth of missing information and data on the impacts of salmon aquaculture on the fisheries and public waters of Liverpool Bay identified by Ms. Milewski calls for a pause on additional salmon aquaculture in Liverpool Bay until the necessary information is at hand to make a scientifically-credible decision.

106. For these reasons, the intervening fishermen request the Board not to approve KCS's proposed expansion of salmon aquaculture on the public waters of Liverpool Bay. The known and potential harms and risks to lobster fishermen and the lobster fishery outweigh KCS's potential economic gain.

ALL OF WHICH IS RESPECTFULLY SUBMITTED



Jamie Simpson

Counsel on behalf of the 23 Fishermen of Liverpool Bay intervenor