



Responses to the Feb. 13th letter from the Region of Queens Municipality

March 6, 2019

- 1. Carrying capacity of Liverpool Bay is critical especially regarding nutrient loading levels. Please identify the expected wild fish contribution to nutrient loading in Liverpool Bay as well as the projected daily waste created by the existing fin fish pens and any proposed expansion or new locations. A chart providing this information from a juvenile fish size to adult market size held in pens on a quarterly projected basis from 2015 going forward to the present, would be a suitable minimum projection.**

In accordance to the federal regulations, site-specific oceanographic data and production data are inserted into an aquaculture waste deposition model to generate a map of the predicted depositional footprint of biochemical oxygen demanding matter (BOD). The model applied to the Liverpool Bay sites indicates that the footprint follows the boundary of the cages and does not disperse much beyond. The depositional modelling for each site will be presented in the baseline report to meet the requirements of the federal regulations.

Nova Scotia Department of Fisheries and Aquaculture's Environmental Monitoring Program requires annual environmental monitoring. The primary objective is to maintain Oxidic conditions in the marine environment where aquaculture is carried out. Monitoring at the Liverpool (#1205) site occurs close to the cages at the location of highest particulate input demonstrating an Oxidic rating, thus the sediment can assimilate the unused nutrients. Reference samples outside of the farm also show an Oxidic rating.

Please refer to the response provided to Question #3 for additional details.

- 2. Determination of the flushing rates of the bay in locations near existing and proposed pens, including providing tidal flows, speeds, and directions during 12-hour cycles throughout all months of the year would be expected.**

Hydrographic current meters were deployed at potential site locations in accordance with Provincial & Federal regulations.

The boundary amendment at Liverpool (#1205) and new site applications requires a submission of a development plan. Within this development plan, tides, current speeds and current directions are evaluated in accordance to Nova Scotia Department of Fisheries and Aquaculture's requirements. In addition, environmental parameters such as currents are components inserted into the depositional model as described in response to Question #1.

There is additional hydrographic information collected and analyzed by Dalhousie University researchers. They used the current data collected to construct a numerical circulation model for Liverpool Bay that was groundtruthed with their current meter records.

- 3. Uneaten food loss also is a contributor to oxygen depletion and sediment buildup. Please provide an historical record of projected uneaten food loss for the last 5 years, which will also cover the recent years when the electronic feeding system has been installed, which is expected to have reduced uneaten food loss. Any impact change experienced with the newer feeding delivery should also be clearly identified in the data.**

Benthic monitoring of the seafloor below the aquaculture site assess the direct impact from all biochemical oxygen demanding matter (BOD) which includes the small percentage of uneaten feed.

Nova Scotia Department of Fisheries and Aquaculture's Environmental Monitoring Program Framework focuses on benthic marine habitat in the immediate vicinity of the aquaculture site. Although sediment sulphide concentration is the key indicator for this environmental monitoring program, a suite of sediment variables are used to validate sulphide data. In addition, benthic video collected at each monitoring station is required and is used to evaluate a site's performance.

Kelly Cove Salmon follows the guidelines and procedures outlined in the Nova Scotia Department of Fisheries and Aquaculture's Environmental Monitoring Program Framework and Standard Operating Procedures for all aquaculture sites in Nova Scotia. Annual environmental monitoring occurs between July 1st to October 31st. In addition to the Provincial program, the site is also required to complete peak-feeding/production monitoring once per production cycle under the Federal Aquaculture Activities Regulation Monitoring Standard.

The current Liverpool #1205 site has returned Oxic classifications or passed under the hard/mixed bottom protocols since 2013, indicating this site is managed sustainably. The remote feeding system became operational on June 2018, the feeding and monitoring principles remain the same even though the equipment is modernized.

Year	EMP Sampling Date	Site Classification
2013	25-Jun	Oxic
2014	15-Jul	Oxic
2015	13-Jul	Oxic
2016	5-Jul	Pass
2017	11-Oct	Oxic
2018	10-Jul	Oxic

4. **Clarify and summarize the process and management of electronic feeding equipment and the controls in place for operation of the equipment. Identify the manpower utilized to deliver feed to the site and the frequency, as well as those numbers of employees necessary to maintain and repair the pens.**

Feeding systems are controlled and monitored by qualified personnel. Every cage has an underwater camera, which allows the feed operator to observe the fish behavior and ensures that only the correct amount of feed is delivered to each cage. Feed operators are trained in feeding practices which includes fish behavior observations using underwater camera technology, and other environmental sensors used to monitor water quality conditions (oxygen, temperature). These tools allow the feed operators to manage feeding rates to minimize waste and maximize fish growth. Feeding systems are routinely calibrated.

5. **Please identify the value of all purchases and expenditures in Queens County by the Proponent in 2018, which supported local business as well as the total number of company employees who work in Queens. Please also identify the projected future increases applicable to these two items should an expansion be proposed in Liverpool Bay.**

Cooke Aquaculture spent \$231 million for supplies and services with 1,269 small and medium size local suppliers from all over Atlantic Canada in 2017/18 and we purchase tens of millions of dollars worth of goods and services in Nova Scotia each year from hundreds of other local businesses.

Kelly Cove Salmon works with local suppliers whenever possible. Types of suppliers used by KCS in Nova Scotia include divers, mechanics, boat repair facilities, hardware providers, welders, heavy equipment operators, crane operators, marine supplies, fuel distribution companies, environmental consultants, electricians, boat brokers, boat builders, engine suppliers, hotels, restaurants, and ferries.

Increased production from the Liverpool area will proportionally increase this number in the future. We also pay significant taxes on vessel and transport truck fuel.

Our annual payroll is over \$10 million in Nova Scotia. We have 208 full time employees with benefits who live and work in NS – many of whom work in Queens and across the South Shore. Figures 1 and 2 illustrate the location of Cooke Aquaculture's suppliers in Atlantic Canada and Nova Scotia, respectively.

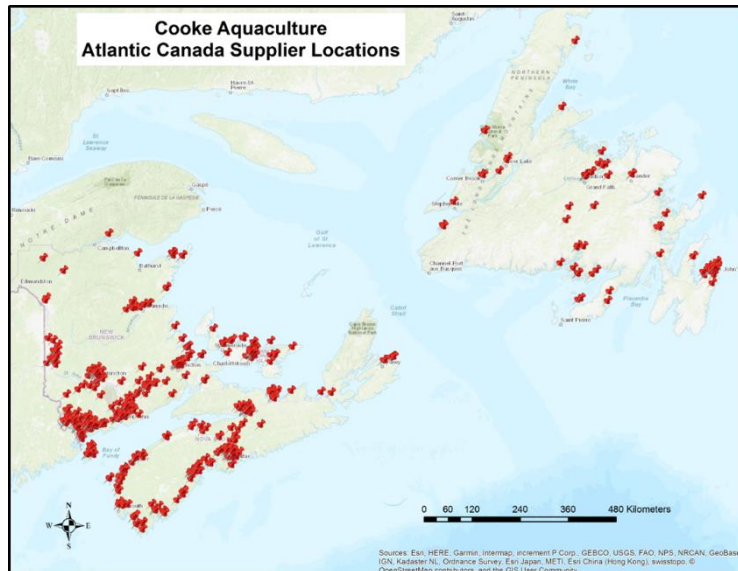


Figure 1. Cooke Aquaculture Inc. Atlantic Canada Supplier Locations

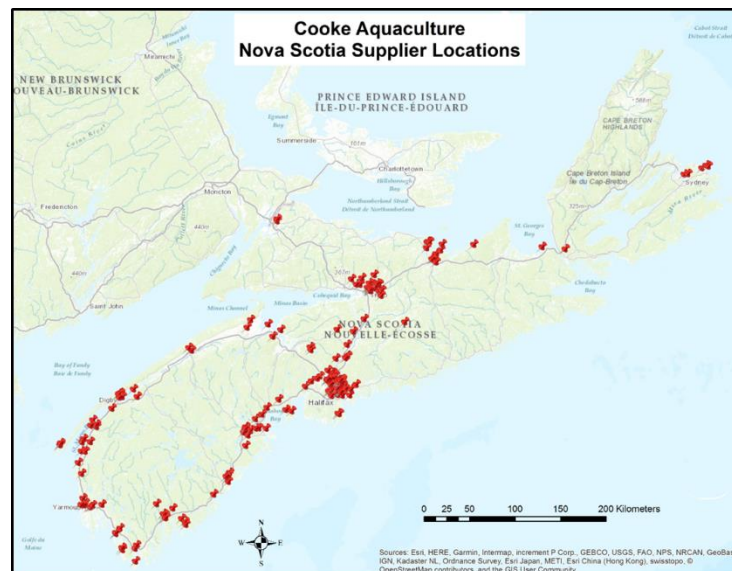


Figure 2. Cooke Aquaculture Inc. Nova Scotia Supplier Locations

6. Identify the component ingredients of the fish feed to be utilized at fin fish pens in Liverpool Bay.

All our salmon are reared using feeds that are manufactured in compliance with the Canadian Feeds Act and the Canadian Feed Regulations. Our fish feeds are sourced from approved suppliers and are produced using high quality manufacturing procedures and ingredients as specified and reviewed by our nutrition experts. These ingredients include marine, plant, and animal proteins and fats, grains, minerals and vitamins, as well as carotenoids. All ingredients used are safe, Canadian Food Inspection Agency approved, processed fresh, and are of excellent quality.

7. Identify the history and future probability of a sea lice infestation to be anticipated at pens in Liverpool Bay, and the future methods to be utilized to mitigate any future sea lice impacts.

There has never been a sea lice infestation at farms in Southern Nova Scotia, which includes Liverpool Bay. Monitoring results are sent to NSDFA as per regulations.

If there was ever the need to treat for sea lice, Kelly Cove Salmon has the infrastructure and expertise to administer approved treatments. These treatments include green technologies (no active substances).

8. Identify the current and potential future usage of all chemicals, pesticides, hormones, antibiotics, or other compounds to be utilized in Liverpool Bay which are not naturally occurring in Liverpool Bay.

Kelly Cove Salmon does not use hormones in our farming operations. Any therapeutants to be utilized in Liverpool Bay would have to be government approved and prescribed by a veterinarian. To date, no chemicals or pesticides have been used in Liverpool Bay by Kelly Cove Salmon.

9. Provide a Policy or Plan which states the procedure to be followed to help prevent fish loss and to identify any diseased or dead fish in pens, the inspection frequency, removal of those fish, as well as their disposal location.

The Farm Management Plans has specific policies and procedures related to disease surveillance that operators must adhere to. Under this program each stocked site must have six provincial surveillance veterinary visits per calendar year with at least two of these visits performed by the Chief Aquatic Animal Health Veterinarian or Veterinary Designate from the Provincial Fish Health Service.

As per regulations each salmon aquaculture site must complete a weekly subsurface inspection and removal of mortalities. Mortalities are sent to a certified rendering and/or composting facility.

- 10. Clarify the frequency, purpose, and testing criteria for all water quality sampling and testing conducted presently, as well as testing expected to occur in the future, at fin fish pens and adjacent areas, both present and planned, in Liverpool Bay.**

Good water quality is essential to ensure a successful farming operation. Kelly Cove Salmon monitors water quality daily, and parameters include oxygen, temperature and turbidity. As well, seasonal sampling for algae (identification and counts) is conducted weekly around the farm.

Water quality monitoring requirements and mitigation strategies are contained in the site-specific Farm Management Plan (FMP) which is reviewed annually by Kelly Cove Salmon and approved by Nova Scotia's Department of Fisheries and Aquaculture (NSDFA).

- 11. Provide storm impact modeling to predict the destructive impacts to any current pens, or new pens to be situated within Liverpool Bay, resulting from all potential storms from all directions, at all wind speeds and wave heights, during all periods of the year. Predictions should also exist as to where destroyed or damaged gear would be expected to end up within the Bay after all potential storms.**

Kelly Cove Salmon has spent 30 years researching all mooring, grid and cage components that will be used on these aquaculture sites. Kelly Cove Salmon has also contracted experts for modeling and engineering analysis of these components to ensure that they can withstand the conditions within Liverpool Bay.

- 12. Provide a Policy, Plan or Procedure that clearly identifies and ensures how all lost aquaculture related materials, fish mortalities or escapees will be located by the proponent and recovered in a timely manner.**

As per the Farm Management Plan, we have NSDFA approved policies and procedures related to breach of containment. We have a Fish Containment plan which focuses on the control of escapes under the BAP (Best Aquaculture Practices) certification. Please see <https://www.bapcertification.org/Standards> for standards.

As part of our certification programs, Farm Management Plans, and as part of being a good neighbor, we are required to ensure proper storage and handling of any waste created at the farm. We are also involved in the communities in which we operate and in the rare event aquaculture debris is dislodged from the site, this can be communicated to us and we will ensure prompt removal and disposal.

- 13. Please create and maintain an ongoing log book system, if one does not presently exist, to record the times of each visit to the fin fish pen site, employees or others present, the purpose of the visit, and any items of interest which were observed by those present.**

Employee hours are managed by the site manager. All visitors to each site are required to sign a site-specific visitor log book which records the date, name, and the purpose of visit as well as other sites recently visited.

14. Please clarify the process and locations to be utilized to repair, maintain and store local aquaculture equipment in Queens.

Kelly Cove Salmon has acquired warehouse capacity at Port Mersey (the former Bowater facility) for storage of equipment and maintenance repairs.

15. Provide a Policy, Plan or Procedure that clearly identifies the ability to predict and/or monitor an extreme thermocline occurrence prior to it actually occurring, and the mitigating procedures which will be followed, as well as the applicable timeframes.

Please refer to Question #10.

16. Provide a Policy, Plan or Procedure that clearly identifies and ensures that any aquaculture caused negative beach impact to Beach Meadows Beach or the shoreline in the Bay will be immediately rectified.

We have several approved plans and procedures in our Farm Management Plan. However, we have not seen a negative impact to the beach since we started farming in the area in 2011. We will continue to monitor the beach and be an active participant in mitigating any potential negative impact aquaculture related or not.

17. Coastal lands of Coffin Island and Beach Meadows Beach area have both been previously identified by the Province of Nova Scotia as being Environmentally Significant Wetlands, during their Provincial coastal mapping efforts. We would ask that all due consideration be given to this fact when completing aquaculture research and related planning efforts.

Kelly Cove Salmon will take this into consideration during the scoping process as well as during the routine operations of our aquaculture sites.

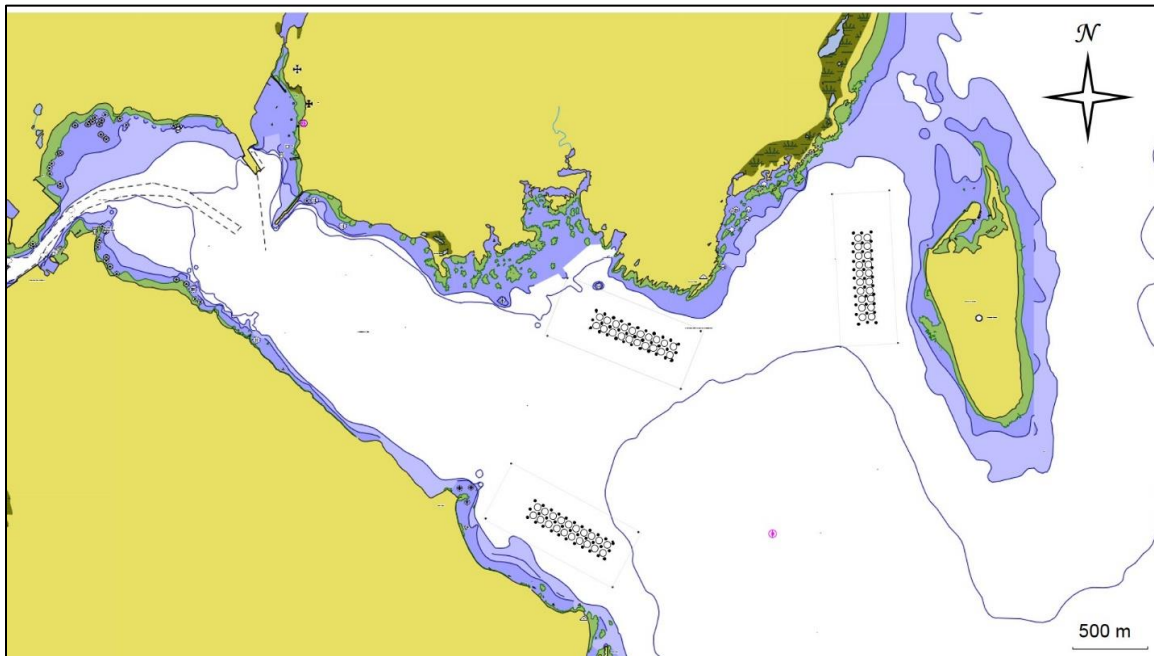
18. Identify the area in square meters of the bottom area occupied by the current fin fish farm lease, and the size of any new proposed lease application space, which has been or will be removed from access to commercial, recreational, divers or Indigenous users pertaining to fishing, boating or other usage.

The lease areas of the amended Liverpool (#1205) and proposed sites (Mersey Point and Brooklyn) identified below does not preclude access by other water users. Depending on the nature of the activity, the majority of the lease area is accessible, with the exception of the grid area. The grid area, both above and below the water, may not be accessed especially to above water users due to concerns relating to damage to the user's vessel and the farm's containment system.

The existing Liverpool (#1205) grid area is 52,025.7 m². The proposed grid area is 74,322.4 m², therefore the addition of six (6) cages will expand the grid area by 22,296.7 m². The grid area for the proposed Brooklyn and Mersey Point sites are the same as the proposed Liverpool (#1205) site. KCS provides detailed maps and diagrams of their sites to fishermen when requested.

The following maps and diagrams show the location of all above and underwater infrastructure, thus aiding in fishing efforts in and around the lease.

Site	Existing Grid Dimensions (m)	Existing Grid Area (m ²)	Proposed Grid Dimensions (m)	Proposed Grid Area (m ²)
Liverpool (#1205)	426.72 x 121.92	52,025.7024	609.6 x 121.92	74,322.432
Brooklyn (Proposed)	N/A	N/A	609.6 x 121.92	74,322.432
Mersey Point (Proposed)	N/A	N/A	609.6 x 121.92	74,322.432



19. Please identify the projected commercial fishing value of the size of the area which is no longer accessible to commercial fishers, as well as that of any proposed expansion.

The Department of Fisheries and Oceans provided landing quantities for Fisheries Statistical District 38, which encompasses the waters between the Queens County boundary lines. Fishing effort and associated value in Liverpool Bay is unavailable and cannot be reported. Since Kelly Cove Salmon has operated in Liverpool Bay, lobster catches in Nova Scotia have increased significantly.

Kelly Cove Salmon encourages fishermen to fish within the lease area, provided they stay outside of the grid area to avoid entanglement. Kelly Cove Salmon provides detailed maps and diagrams of their sites when requested. These maps and diagrams show the location of all above and underwater infrastructure, thus aiding in fishing efforts in and around the lease.

- 20. The Brooklyn Marina is home to many recreational boaters of all types including sailboats and kayaks. Significant surface area removed from their recreational usage may become more prominent, impact membership, and eventually cause fundraising to become a problematic issue. How can this concern be successfully mitigated and incorporated into future planning to maintain suitable recreational boating space to continue for the benefit of Marina members?**

Kelly Cove Salmon has successfully been operating in areas in Atlantic Canada with intensive recreational usage. Sites will be marked as per the Transport Canada (TC) Navigation Protection Program (NPP).

Kelly Cove Salmon looks forward to continuing our close relationship with the Brooklyn Marina. In the past, Kelly Cove Salmon has helped to install and remove floating docks and has leased a land lot close to the Brooklyn Government Wharf. Brooklyn Government Wharf and the Port Mersey wharf are the only wharves utilized by our operations in the Liverpool area, Kelly Cove Salmon does not use the recreational marina.

- 21. Shipping lanes in Liverpool Bay are important to Port Mersey and all users of Liverpool Bay, and would be expected to become critically important in the future should new tenants at Port Mersey require increased ocean access and transportation of goods. In view of the storm potential in the main harbor, cages are not anticipated to become a conflicting issue, however this future need is identified for your planning consideration.**

We recognize Port Mersey is a critically important port for the Region of Queens. We will follow all Transport Canada requirements for any potential new farms in the area.

The Navigation Protection Act protects the public right of navigation in the waters of Canada. Transport Canada requires a Notice of Works form in order to notify the Navigation Protection Program (NPP) regarding a proposed or existing work, such as an aquaculture site, in navigable waters. Transport Canada's mandate is to maintain public right of navigation, including shipping lanes in an area of proposed or expanded sites. A registered surveyor and professional engineer generate site development plans for each site which are also submitted to Transport Canada with the signed Notice of Works. The plans will include:

- A. Proposed navigation aid limits to demonstrate the extent of the marine aquaculture site as well as adjacent parcels of land. Property identification number (P.I.D. #) with corresponding owner names and addresses are also outlined in the plans;
- B. Depiction of the basic seafloor topography within the proposed lease boundaries;
- C. Demonstration of anchors, cages, and grid/mooring configuration location within the proposed lease boundaries;
- D. Lateral and longitudinal cross sections demonstrating cage infrastructure, anchor blocks, mooring lines and seafloor profile; and
- E. Proposed navigational and marking plan.

- 22. The location of the existing fish pens site and any new pens should be marked with buoys to identify the outer boundaries and be clearly visible to all marine users both night and day. A shipping lane must remain open to ensure that safe and easy travel access to Coffin Island remains.**

Transport Canada evaluates each aquaculture site to maintain public right of navigation. If the site placement is approved, Transport Canada provides instruction on placement and type of navigational and marking aids to ensure the boundaries are clearly indicated day and night. Kelly Cove Salmon will follow the Transport Canada approved marking plan.

Please see the response to Question #22 for additional details regarding the NPP program and required submission package.

- 23. Bear Cove Resources operates in East Berlin, Queens County, N.S. harvesting local washed up seaweeds under a license issued by the Nova Scotia Department of Lands and Forestry. That material is then composted, processed and packaged at their site. It is marketed as a soil amendment or seaweed fertilizer, under the trade name Storm-cast. Organic growers are primary customers and demand clean, chemical free products. Please address the potential of an increased aquaculture operation negatively impacting that commercial operation, and if so, what those potential impacts may be, and what steps Kelly Cove Salmon would be able to implement to mitigate potential impacts.**

A clean environment is essential for successful salmon growing operations free from commercial residential and industrial pollution.

Both Scotia Garden Seafood and Bear Cove Resources have co-existed with the existing Liverpool (#1205) site without any known negative interactions. Scotia Garden Seafoods sells and markets their product as organic certified.

- 24. This correspondence is not intended to limit the ability of Region of Queens Municipality, or its citizens, to participate at any stage of the formal Provincial Aquaculture process in the future.**

We welcome the opportunity to respond to the input and questions from the municipality and area residents and look forward to building upon our working relationship through continued dialog.