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NSARB-2025-001-APP-005

EXB 005a

REPORT ON THE OUTCOMES OF CONSULTATION

Volume 1

AQ#0814x, AQ#1430, AQ#1431

Submission to the Nova Scotia Aquaculture Review Board

Nova Scotia Department of Fisheries and Aquaculture

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1.0 DESCRIPTION OF APPLICATIONS

In 2016, the province identified that infrastructure associated with aquaculture site AQ#0814 was outside the bounds of the issued lease space. This was deemed in contravention to section 55(2)(b) of the *Aquaculture Licence and Lease Regulations*. Nova Scotia Environment (now Nova Scotia Environment and Climate Change) provided two options to Waycobah First Nations Band Council, (currently WFN Fish Farm Limited Partnership (WFN)), to bring their operation into compliance regarding the said Regulation. The options included submission to the Nova Scotia Department of Fisheries and Aquaculture (DFA) by October 26, 2016 of either (1) a scheduled re-alignment plan to move all equipment and produce back within the lease boundaries or (2) an application for an adjudicative or administrative amendment.

On May 25, 2016, WFN submitted an application for an administrative boundary amendment for AQ#0814 to modify the site boundaries without increasing the size of the site. On March 14, 2017, WFN revised the amendment proposal to include an expansion of site boundaries, which was later modified in November 2017 to further expand the boundaries and incorporate existing sites AQ#0814, AQ#0845 and AQ#0600 into one larger site, known as AQ#0814x. As per the adjudicative licensing and leasing process, DFA required the submission of a Marine Finfish Development Plan and Scoping Report, including environmental baseline data collection.

On March 5, 2019, WFN submitted applications to DFA for an adjudicative boundary amendment (AQ#0814x) and two new marine finfish licences and leases (AQ#1430 and AQ#1431). The application packages were considered complete once application fees were received on April 8, 2019. AQ#0814x is located in Whycocomagh Bay in Inverness County and is currently licenced to culture Rainbow trout (*Oncorhynchus mykiss*) and Atlantic salmon (*Salmo salar*). The proposed boundary amendment application is for the cultivation of Rainbow trout only. The current leased space of AQ#0814, AQ#0845 and AQ#0600 is 4.37 hectares collectively, and the proposed amendment will increase the lease to 63.77 hectares. The original boundary amendment request was revised in 2024 to reduce the proposed size from its original request of 65.53 hectares (Figure 1a and Figure 1b) to 63.77 hectares (Figure 1c and Figure 1d). The proposed site will consist of ten (10) cages in a 2 x 5 array configuration in the production area.

The two new marine finfish licence and lease applications are known as AQ#1430 North Aberdeen (Figure 2a and Figure 2b) and AQ#1431 South Aberdeen (Figure 3a and Figure 3b), located in Whycocomagh Bay. Proposed site AQ#1430 is 31.90 hectares and AQ#1431 is 34.42 hectares, each with ten (10) cages in a 2 x 5 configuration for the cultivation of Rainbow trout. Stocking will alternate between two arrays at each site. These proposed sites have been in operation through experimental leased sites AQ#5010 and AQ#5013, located within the proposed boundaries of AQ#1430 and AQ#1431 since 2019 and 2021 respectively. Due to ice formation in Whycocomagh Bay during the winter months, cages from AQ#1430, AQ#1431 and AQ#0814x production area will be held in the sheltered over-wintering area located within AQ#0814x.

In September 2020, WFN submitted a revised development plan for the two new marine sites AQ#1430 and AQ#1431 to change the proposed production plan and cage configuration to implement larger (100 m polar circle cages), but fewer cages based on results at experimental site AQ#5010. Updated depositional modelling as required by Fisheries and Oceans Canada (DFO) to support this change and submitted by WFN in 2021. On March 29, 2021, the amended development plans for AQ#1430 and AQ#1431 were resent to network agencies to notify them and allow them to provide updated advice as required.

WFN submitted an updated narrative for AQ#0814x, AQ#1430 and AQ#1431 in July 2023, based on the experience gained since the applications were first prepared. Modifications to the plans were described, including the production plan and how each individual farms operations supports a broader farming model due to the unique characteristics of Whycocomagh Bay and Rainbow trout cultivation. In February 2024, an additional document outlining updates to aquaculture applications AQ#0814x, AQ1430 and AQ1431 was submitted to DFA. This update described minor changes to infrastructure and production plans, including standardizing the use of 100 m polar circle cages at all sites. In April 2024, WFN submitted a final consolidated version of the Development Plan for each application, which incorporated all updates into a final plan for review by DFA and to present to the NSARB. The updated plans submitted in 2023 and 2024 were not re-networked to network agencies as the proposed changes (as summarized in the Introduction of the respective Development Plans found in the Application Package, Volume 1, Sections 2.1, 2.2 and 2.3) could be adequately considered and addressed through DFA's regulatory programs as required.

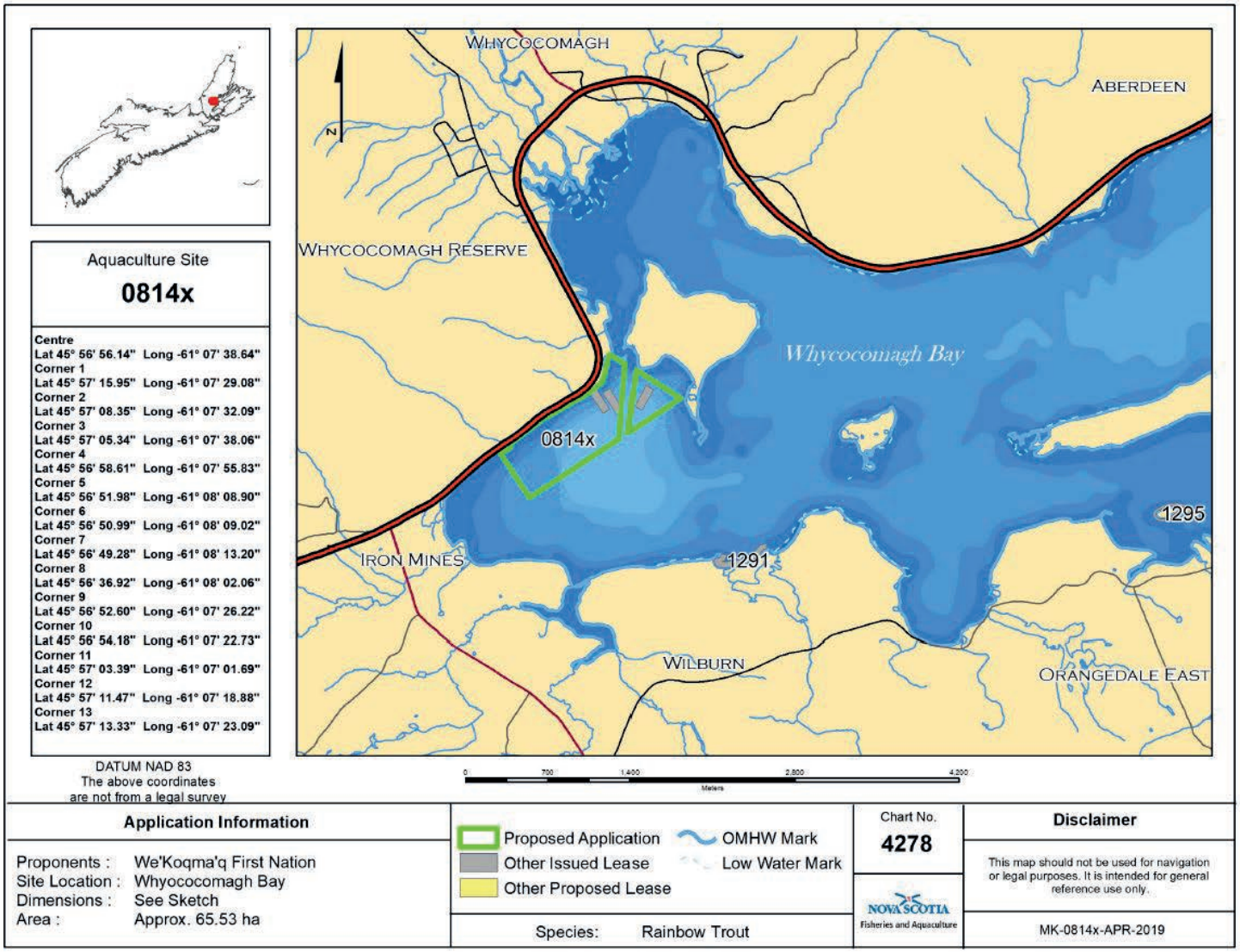


Figure 1a. Original request for proposed boundary amendment for AQ#0814x submitted in 2019.

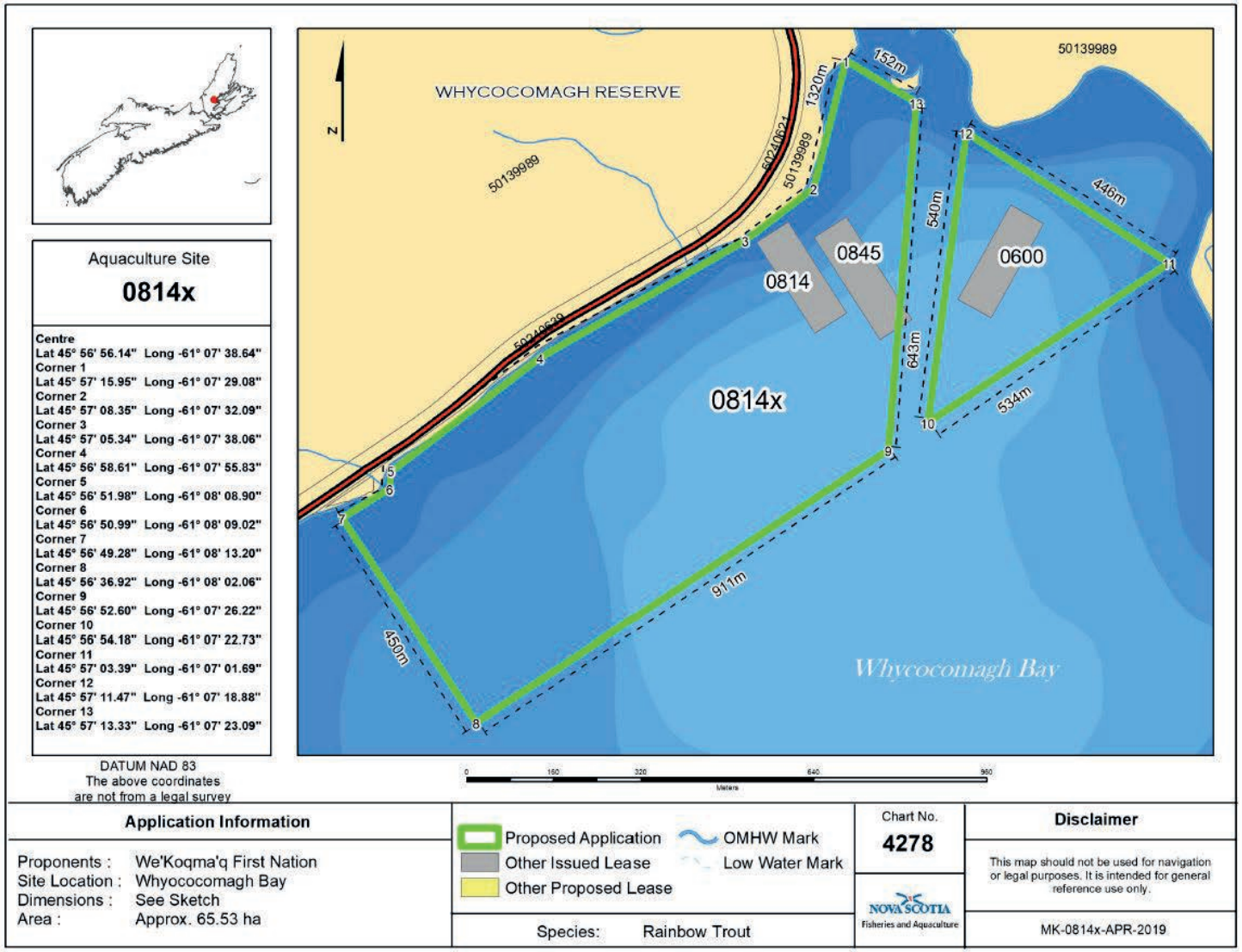


Figure 1b. Original request for proposed boundary amendment for AQ#0814x submitted in 2019.

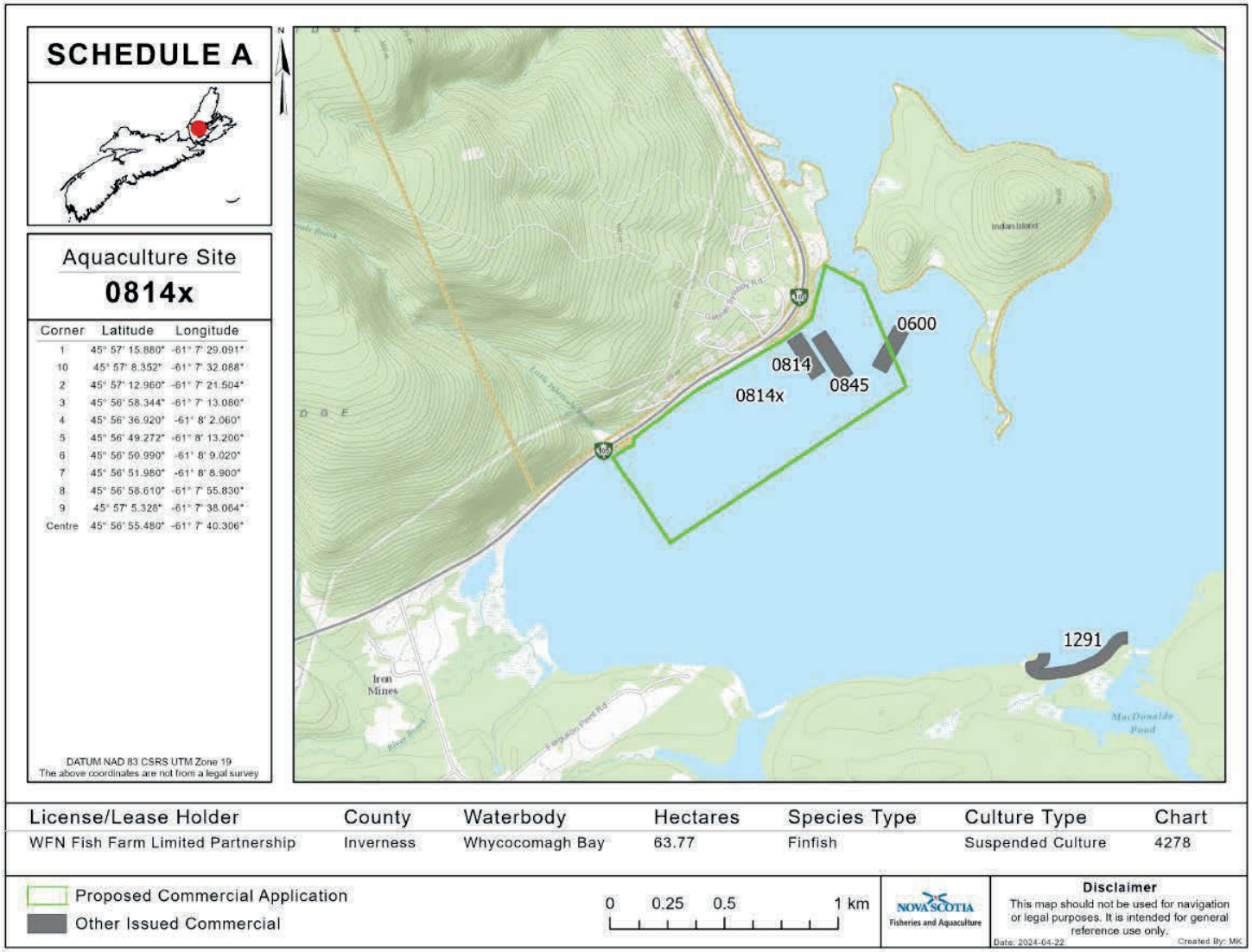


Figure 1c. Updated request for proposed boundary amendment for AQ#0814x submitted in 2024. Please refer to DFA's Site Mapping Tool at https://fishaqua.maps.arcgis.com/apps/instant/media/index.html?appid=a7c3520e73894539afadf8602ee57ef1 for an interactive map showing the proposed boundary amendment.

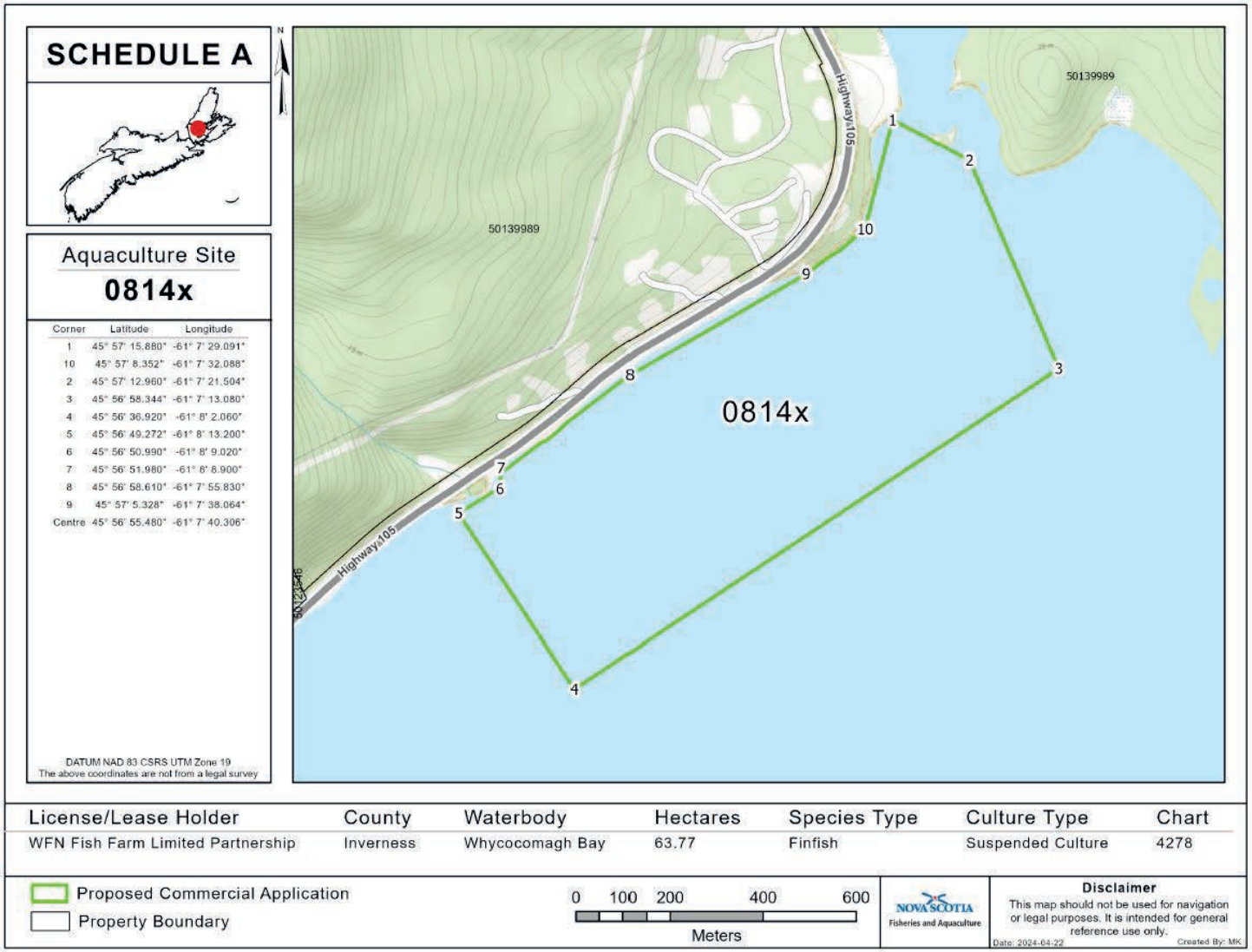


Figure 1d. Updated request for proposed boundary amendment for site AQ#0814x submitted in 2024. Please refer to DFA's Site Mapping Tool at https://fishaqua.maps.arcgis.com/apps/instant/media/index.html?appid=a7c3520e73894539afadf8602ee57ef1 for an interactive map showing the proposed boundary amendment.

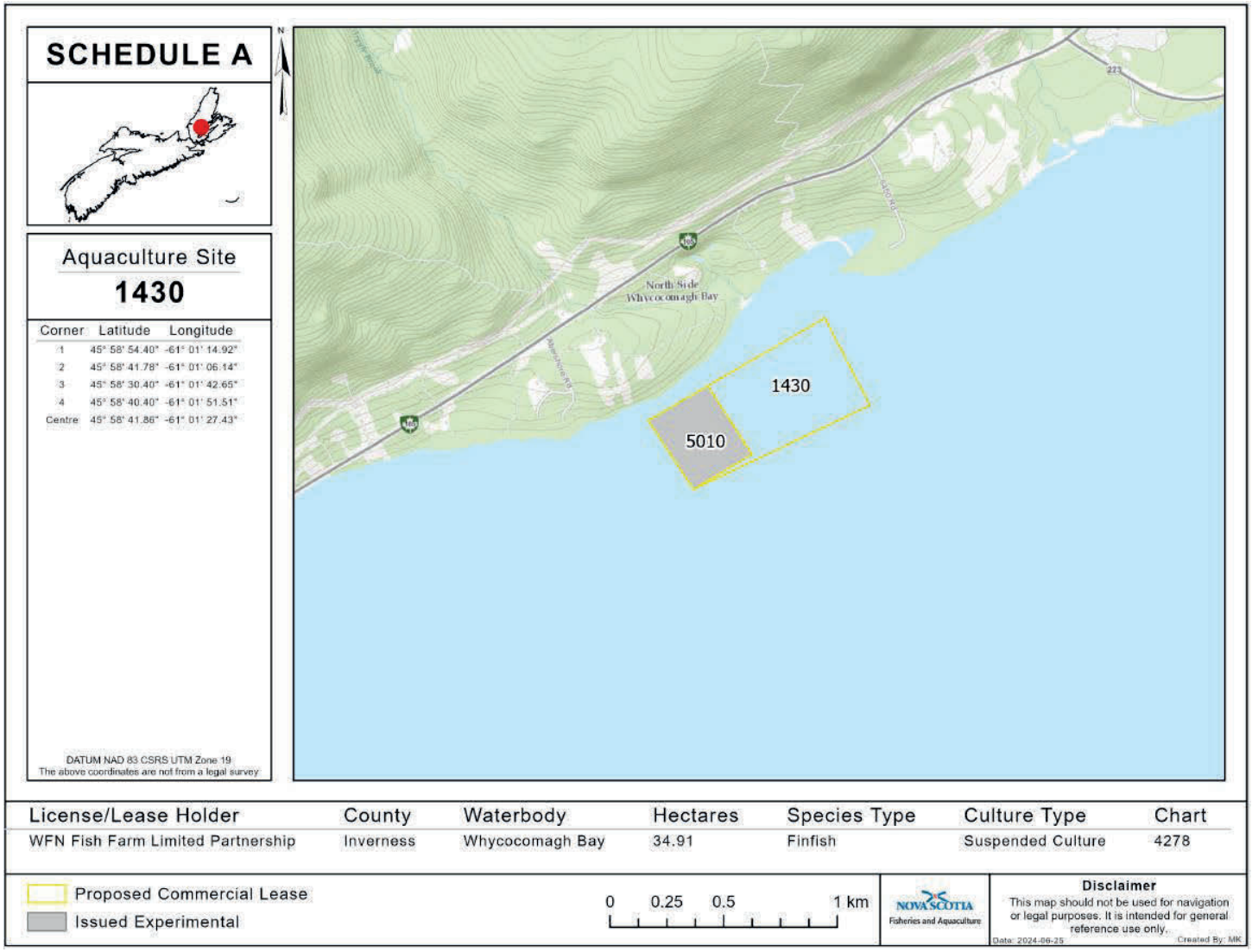


Figure 2a. Proposed site AQ#1430 in North Aberdeen, including special experimental site AQ#5010. Please refer to DFA's Site Mapping Tool at https://fishaqua.maps.arcgis.com/apps/instant/media/index.html?appid=a7c3520e73894539afadf8602ee57ef1 for an interactive map showing the proposed new marine site.

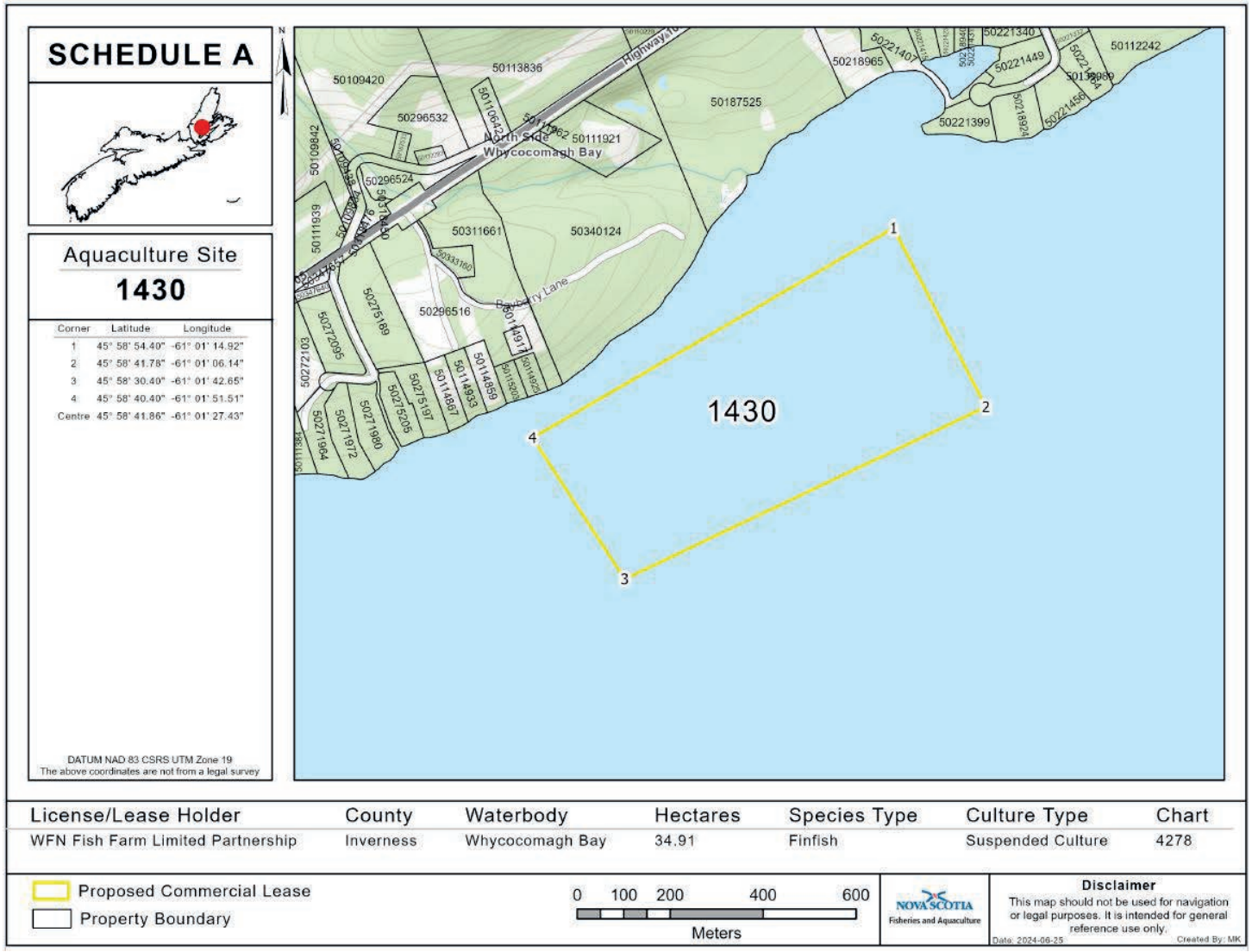


Figure 2b. Proposed site AQ#1430 in North Aberdeen. Please refer to DFA's Site Mapping Tool at https://fishaqua.maps.arcgis.com/apps/instant/media/index.html?appid=a7c3520e73894539afadf8602ee57ef1 for an interactive map showing the proposed new marine site.

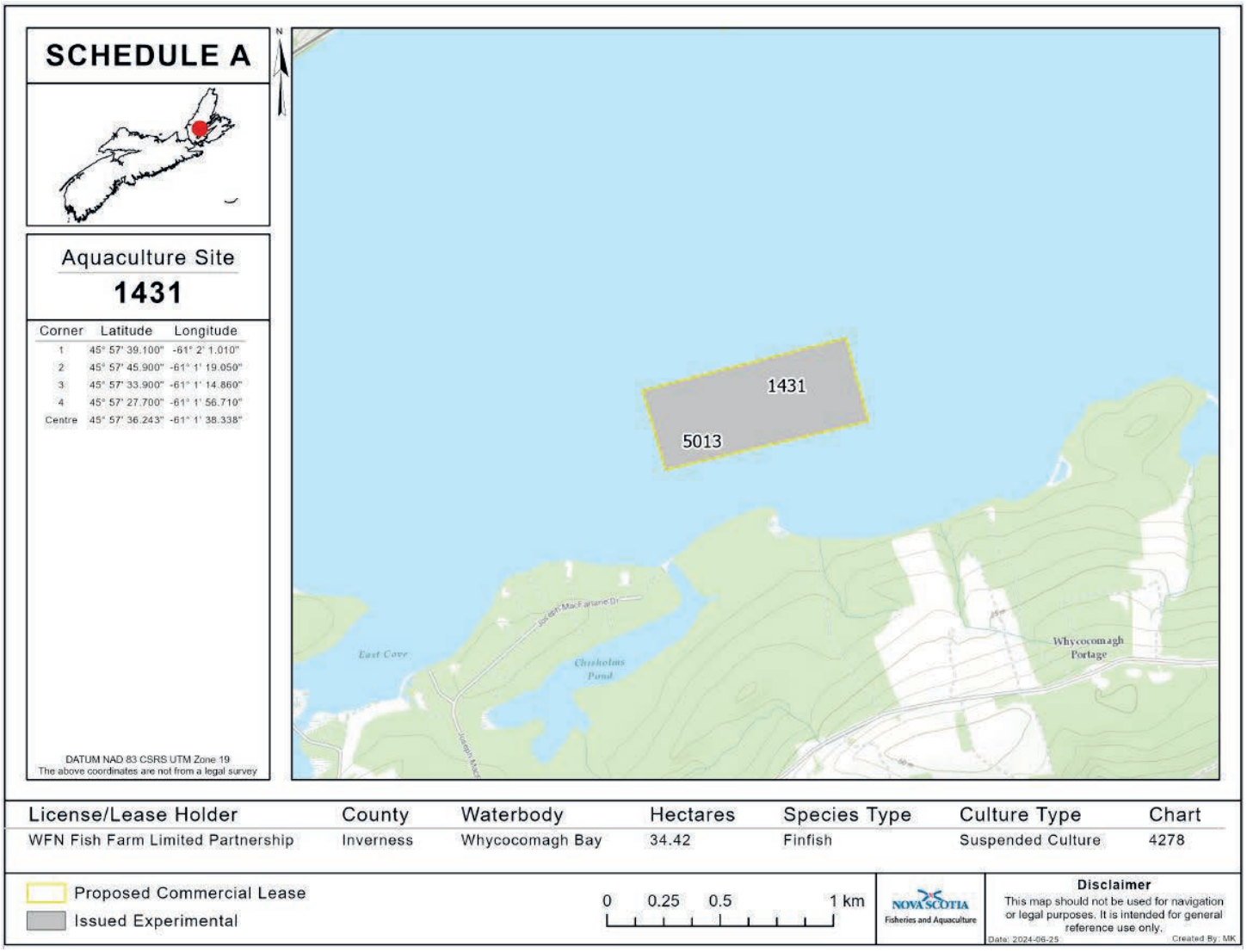


Figure 3a. Proposed site AQ#1431 in South Aberdeen, including special experimental site AQ#5013. Please refer to DFA's Site Mapping Tool at https://fishaqua.maps.arcgis.com/apps/instant/media/index.html?appid=a7c3520e73894539afadf8602ee57ef1 for an interactive map showing the proposed new marine site.

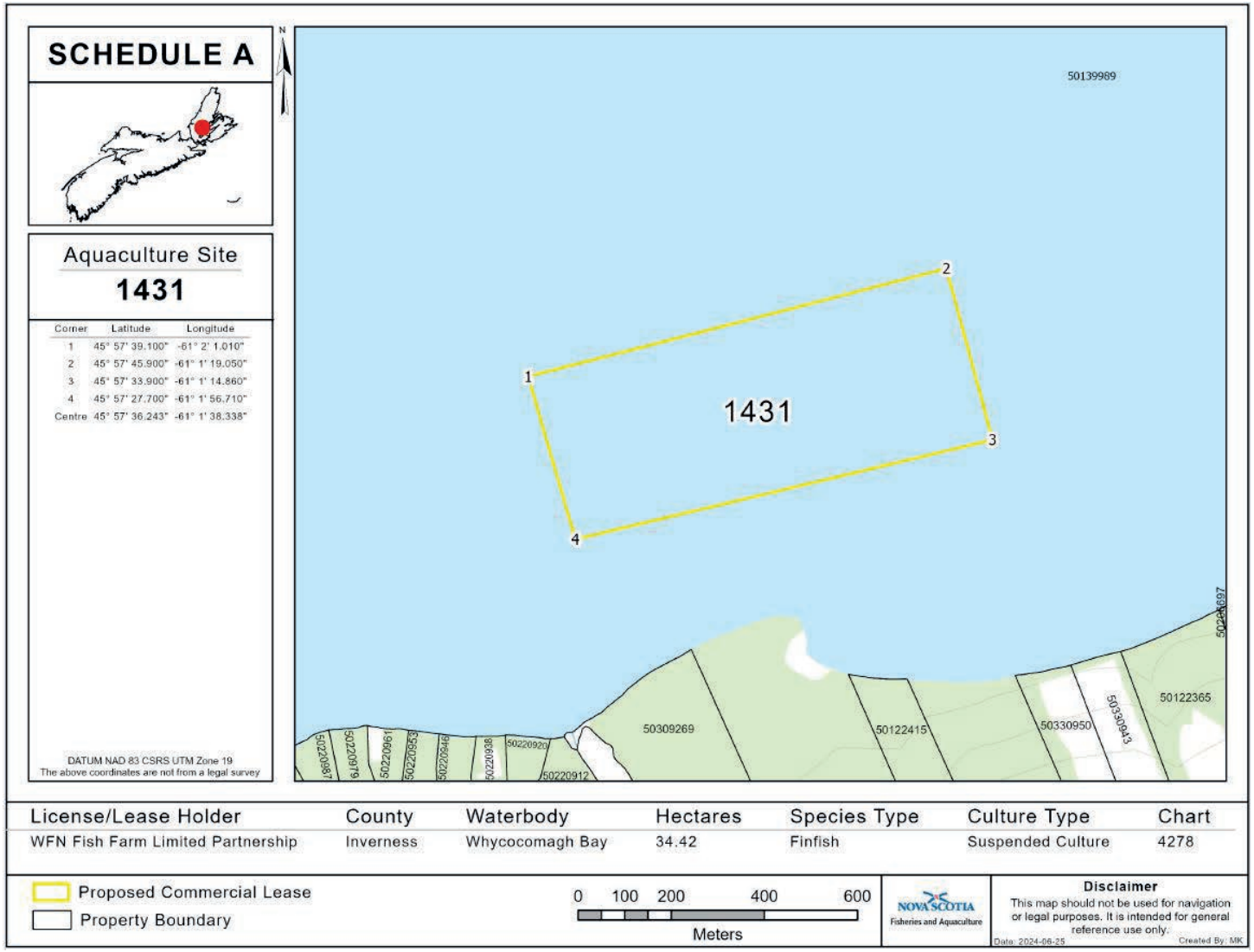


Figure 3b. Proposed site AQ#1431 in South Aberdeen. Please refer to DFA's Site Mapping Tool at https://fishaqua.maps.arcgis.com/apps/instant/media/index.html?appid=a7c3520e73894539afadf8602ee57ef1 for an interactive map showing the proposed new marine site.

2.0 CONSULTATION WITH MUNCIPAL, PROVINCIAL AND FEDERAL AGENCIES

DFA requested review of the applications by Municipal, Provincial and Federal agencies listed in Table 1 through a network memo (Appendix A).

These agencies provided advice to DFA on the proposed applications based on their respective mandates. All feedback from the network review were shared with the applicant for their consideration. DFA coordinated with the applicant and the network agencies to respond to questions or comments regarding the applications. Agencies were provided an opportunity to revise their advice, where appropriate. It is noted that some Department names have changed over the course of this application. Department name changes have been outlined in Table 1 and may be referenced interchangeably within this report.

Table 1: List of Appendices

Network Memo and Network Agency Review of an Aquaculture Application Form	**Appendix A**
Fisheries and Oceans Canada	**Appendix B**
Canadian Food Inspection Agency	**Appendix C**
Transport Canada	**Appendix D**
Environment and Climate Change Canada – Shellfish Water Classification Program	**Appendix E**
Environment and Climate Change Canada – Canadian Wildlife Service	**Appendix F**
NS Department of Environment and Climate Change (Previously Department of Environment)	**Appendix G**
NS Department of Agriculture	**Appendix H**
NS Department of Municipal Affairs (Previously Department of Municipal Affairs and Housing)	**Appendix I**
NS Department of Communities, Culture, Tourism and Heritage (Previously Department of Communities, Culture and Heritage)	**Appendix J**
NS Department of Natural Resources (Previously Department of Lands and Forestry and Department of Natural Resources and Renewables)	**Appendix K**
NS Department of Fisheries and Aquaculture – Inland Fisheries	**Appendix L**
Consultations with the Mi'kmaq of Nova Scotia	**Appendix M**
Compilation of Network Comments for AQ#0814x, AQ#1430 and AQ#1431	**Appendix N**

Summary of Network Consultations

Below are summaries of the individual network agency consultations undertaken by DFA for the adjudicative boundary amendment application for lease AQ#0814x and adjudicative applications for leases AQ#1430 and AQ#1431. Please see the appendices outlined in Table 1 to review the associated documents related to each of the following network agency summaries:

Fisheries and Oceans Canada (DFO) reviewed the applications according to their legislative mandate, which includes the *Fisheries Act*, *Species at Risk Act* (SARA), *Oceans Act* and applicable regulations. Questions were raised by DFO requiring clarification, which was provided by the applicant or DFA as applicable (see Appendix B).

DFO completed its review and submitted a Letter of Advice (LOA) for each application, and two Canadian Science Advisory Secretariat (CSAS) Science Responses (one for AQ#0814x and one for AQ#1430 and AQ#1431 combined). Each LOA provided a summary of the results of DFO's risk assessment to inform of risks posed to fish and fish habitat and identify where additional avoidance and mitigation measures could be applied.

The applications were reviewed by various DFO sectors/offices to assess the following: the deposit of deleterious substances; the death of fish by means other than fishing; the harmful alteration, disruption or destruction of fish habitat; the killing, harming of SARA-listed species and the destruction of their critical habitat; and the introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous. DFO conducted a risk assessment for each application using pathways of effects to establish cause-and-effect relationships by linking activities to stressors and stressors to effects on fish and fish habitat. These potential stressors included physical alteration of habitat structure, alteration in light, noise, deposit of nutrients and organic material, release of aquatic invasive species, deposit of chemicals, release of farmed fish, and the release of pathogens.

Each assessment by DFO was supported by a modelling exercise that described benthic and pelagic Predicted Exposure Zones (PEZs) associated with the range of aquaculture activities, and the predicted impacts on susceptible fish and fish habitat, including SARA listed species, susceptible fishery species, and the habitats that support them. DFO considered the proponent's avoidance and mitigation measures, and the regulatory requirements of DFO and other federal and provincial regulators while using the precautionary approach in determining the residual risk to fish and fish habitat.

DFO also assessed potential overlaps with fisheries that occur in the general vicinity and could potentially be displaced. These include gaspereau, trout, Striped Bass, groundfish, mussels, Softshell Clam, American Oyster, American Eel, American Smelt, Atlantic Salmon, Atlantic Herring, Atlantic Mackerel and American Lobster. DFO concluded that the lease area for proposed sites AQ#0184x, AQ#1430 and AQ#1431 are small relative to the fishing grounds for each of these fished species and recommended that the proponent engages with fishing industry rights holders and stakeholders on their proposal.

DFO provided the following recommendations if the sites are approved by the NSARB:

- Moorings and anchors be located to avoid eelgrass and minimize disturbance to all submerged aquatic vegetation when securing moorings to the bottom;
- Buoy lines, backlines and scope lines be kept taut at all times to reduce risk of entanglement by marine mammals;
- Take reasonable measures to minimize the deposit of waste feed and feces;
- Mooring system, grid system and cages be replaced or cleaned regularly;
- Monitoring of dissolved oxygen at multiple depths remains a priority;
- Equipment, ballast tanks, bilges and hulls be inspected and cleaned regularly;
- When depositing a pest control product or drug the proponent must take reasonable measures to minimize detriment to fish and fish habitat outside the facility;
- Not deposit pest control product at site AQ#1430 on the same day as at the other proposed site AQ#1431;
- Avoid accidental or intentional deposit of deleterious substances other than those regulated by the *Aquaculture Activities Regulations*; and
- Prioritize preventing Rainbow Trout escapees.

If the application(s) are approved, DFA will continue to work with the applicant to ensure the advice and recommendations provided by DFO are appropriately incorporated into the applicant's Farm Management Plan (FMP) for each licence/lease and/or considered under the appropriate regulatory program. Additionally, site biomass will be evaluated through DFA's Environmental Monitoring Program (EMP), where leases are assessed annually to ensure they do not exceed Provincial Regulatory thresholds. EMP performance is applied to stocking level application reviews and approvals by the Department.

Canadian Food Inspection Agency (CFIA) reviewed the applications and did not raise any questions or concerns with the proposed boundary amendment or proposed two new marine finfish sites (see Appendix C).

Transport Canada (TC) reviewed the applications and did not raise any questions or concerns with the proposed boundary amendment or proposed two new marine finfish sites (see Appendix D). This included the proponent's 2024 request to reduce the size of the proposed boundary amendment for AQ#0814x. These applications will be addressed under Transport Canada's *Canadian Navigable Waters Act* (CNWA) through the Navigation Protection Program (NPP) approval process, upon a decision from the board.

Environment and Climate Change Canada (ECCC) – Shellfish Water Classification Program (SWCP) reviewed the applications and did not raise any questions or concerns with the proposed boundary amendment or proposed two new marine finfish sites (see Appendix E).

Environment and Climate Change Canada (ECCC) - Canadian Wildlife Services Division (CWS) reviewed the applications and had comments requiring clarification. The additional information requested by CWS was provided by the applicant and DFA. In 2021, the amended development plans for AQ#1430 and AQ#1431 were re-networked and updated comments from Network Agencies, including CWS, were requested. CWS indicated that their previously submitted comments

for AQ#1430 and AQ#1431 remained applicable for the amended plans and requested additional information. The applicant's response was provided to CWS, including their Bird & Predator Deterrence Strategy and Pest Management Strategy. DFA also reminded CWS that they provided the same comments during their recent review of special experimental application AQ#5013 (located within the boundaries of proposed new marine site AQ#1431). This included a request for the same additional information, which was provided to CWS for AQ#5013. The information provided to and reviewed by CWS to finalize network review of AQ#5013 would also address AQ#1430 and AQ#1431. Upon review of the additional information submitted for AQ#0814x, CWS determined that there were no further comments. The applicant later provided updated excerpts from their FMP regarding previously submitted wildlife interaction plan strategies for review by CWS. No additional comments or concerns were brought to the department's attention (see Appendix F).

CWS provided advice applicable to their legislative mandate, including that the proponent must comply with the *Migratory Birds Convention Act* and *Species at Risk Act*. Specifically, the proponent should ensure no litter is left in coastal areas, manage the feed program in a manner that minimizes waste, use tarps to prevent bird access to fish feed, staff and vessels not approach concentrations of seabirds, waterfowl or shorebirds, use well-muffled vessels, do not use beaches and wetlands for construction, operational or decommissioning activities, ensure no oil spills occur, and grow lights should be shielded and aimed downwards. WFN provided excerpts of their FMP to address the advice provided by CWS and clarified that no grow lights would be used at their sites. If the application(s) are approved by the NSARB, DFA will work with the applicant to ensure that the advice, mitigations, and recommendations provided by CWS are appropriately incorporated into the applicant's FMP for each licence/lease and/or considered under the appropriate regulatory program.

Nova Scotia Department of Environment and Climate Change (NSECC) (previously Department of Environment) reviewed the applications and did not raise any questions or concerns with the proposed boundary amendment or proposed two new marine finfish sites (see Appendix G).

Nova Scotia Department of Agriculture (NS Ag) reviewed the applications and did not raise any questions or concerns with the proposed boundary amendment or proposed two new marine finfish sites (see Appendix H).

Nova Scotia Department of Municipal Affairs (previously Department of Municipal Affairs and Housing) was provided a memo that serves as a notification of the proposed developments only and no response was required (see Appendix I).

Nova Scotia Department of Communities, Culture, Tourism and Heritage (CCTH) (previously Department of Communities Culture and Heritage) reviewed the applications and did not have any significant archaeological concerns with the proposed boundary amendment or proposed new marine finfish sites. CCTH advised that if during construction or operation of the aquaculture sites, any archaeological artifacts are recovered, to immediately contact the Coordinator of the Special Places Program at CCTH (see Appendix J). If the application(s) are approved by the NSARB, DFA will work with the applicant to ensure that the advice provided by CCTH are incorporated into the

applicant's FMP for each licence/lease and/or considered under the appropriate regulatory program.

Nova Scotia Department of Natural Resources (DNR) (previously Department of Lands and Forestry and Department of Natural Resources and Renewables) reviewed the applications and provided several recommendations. Mitigation measures were recommended regarding wildlife attractants (e.g., storage of nets, fish food), entanglement of diving fish eating birds, waste pollution, predators such as seals, and potential human/wildlife conflicts. DNR also indicated that there is significant wood turtle habitat near AQ#0814x, as well as bald eagles in the general area.

DNR requested the proponent monitor impacts to the bald eagle and report all diving bird entanglements or mortalities to DNR, provide a copy of their Wildlife Interaction Plan (WIP), and report all wildlife mortalities to their Regional Biologist and any other appropriate agencies within five business days. The proponent provided a response to DNR, which included clarification and excerpts from their FMP and WIP (as applicable to AQ#0814x, AQ#5010 and AQ#5013). DNR indicated they were satisfied with the information provided and had no further concerns (see Appendix K). If the applications are approved by the NSARB, DFA will work with the applicant to ensure wildlife monitoring, interactions and mitigations are appropriately incorporated into the applicant's FMP for each licence/lease and/or considered under the appropriate regulatory program.

Nova Scotia Department of Fisheries and Aquaculture - Inland Fisheries Division (DFA Inland) reviewed the applications and provided corrections to fishing seasons and presence of fish species in Bras d'Or Lake. DFA Inland expressed concerns that angler access may be limited by the increased scale of the aquaculture operations in Whycocomagh Bay and by an angling closure put in place for a portion of the bay by DFO in April 2020. DFA Inland also noted that the proposed boundary amendment and proposed two new marine finfish sites would have no impact on current enhancement programs in terms of cage size and configuration, location and placement.

The proponent provided additional information to DFA Inland clarifying that the closure was implemented by DFO during the COVID-19 pandemic to prevent health and safety and road safety risks, that the sites will be marked according to Transport Canada requirements, the proposed leased areas represent a small portion of Whycocomagh Bay, and recreational fishing has co-existed with the existing site(s) for decades (see Appendix L). It is noted that the DFO Variation Order that closed angling for any species in Whycocomagh Bay expired December 31, 2022, and is no longer in effect.

Nova Scotia Office of L'nu Affairs (OLA) (previously Office of Aboriginal Affairs) reviewed the network memo containing information relating to the applications and screened the applications in order to provide advice on the duty to consult with the Mi'kmaq of Nova Scotia (see Appendix M).

3.0 SUMMARY OF CONSULTATIONS WITH THE MI'KMAQ OF NOVA SCOTIA

Summary of Consultations with the Mi'kmaq of Nova Scotia

Level of Consultation and the First Nations Communities Offered Consultation

The application was sent to the Nova Scotia Office of L'nu Affairs (OLA) to screen the applications for Aboriginal consultation purposes. OLA found the applications to potentially involve impacts to Mi'kmaw Aboriginal and Treaty rights at the moderate end of the Haida spectrum.

The criteria used to assess the potential for intrusion on asserted or established Aboriginal or Treaty rights is further described in the initial offer to consult letter. These criteria included:

- The scope and scale of physical works required for the project;
- The proximity to Mi'kmaw communities;
- Regulatory requirements associated with the project (which estimate potential environmental impacts to waterways); and
- The potential for the existence of – and impacts to – heritage resources of Mi'kmaw origin within the project area.

On balance, DFA offered to consult the Mi'kmaq of Nova Scotia at a moderate level and reached out via letters on April 20, 2020 and April 27, 2021, to Chiefs and Councils in the form of community-level and collectively held knowledge of potential adverse impacts to Aboriginal rights practiced within the project area, which could be used to inform the results of the screening and open the consultation dialogue.

Consultation was initiated with the following groups:

- The 10 Chiefs and Councils of the Assembly of Nova Scotia Mi'kmaw Chiefs, including Membertou First Nation (under the August 31, 2020, Mi'kmaq-Nova Scotia-Canada Consultation Terms of Reference)
- Millbrook First Nation
- Sipekne'katik First Nation

Issues Raised by the Mi'kmaq of Nova Scotia During Consultation

There were no issues raised by the Mi'kmaq of Nova Scotia in relation to this application.

NSDFA Assessment

There were no issues to assess in relation to this application.

Accommodation

The DFA decided to proceed with processing this application. The 10 Chiefs and Councils of the Assembly of Nova Scotia Mi'kmaw Chiefs, KMKNO (the executive body that leads consultation efforts on behalf of the Assembly of Nova Scotia Mi'kmaw Chiefs), Membertou First Nation, Sipekne'katik First Nation and Millbrook First Nation have been informed of this decision.

APPENDIX A – NETWORK MEMO AND NETWORK AGENCY REVIEW OF AN AQUACULTURE APPLICATION FORM

Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
novascotia.ca

MEMORANDUM

To: Aquaculture Network Agencies

From: Lynn Winfield, Licensing Coordinator, Aquaculture Division
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: July 15, 2019

RE: **Boundary Amendment Aquaculture Application No. 0814 Whycocomagh Bay, Inverness County - Aquaculture Network Review**

Attention network agencies, We'koqma'q First Nation has submitted a boundary amendment aquaculture application (AQ#0814) for the Marine Finfish cage cultivation of Rainbow trout and Atlantic salmon. The site is located in Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture boundary amendment application:

Licence/Lease No.:	AQ#0814
Applicant:	We'koqma'q First Nation
Application Type:	Boundary Amendment Marine Aquaculture Site
Current Species:	Rainbow trout and Atlantic salmon
Cultivation Type:	Marine cage cultivation
Current Size:	1.39HA
Proposed Size:	65.53HA
Location:	Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
2. The applicant is making application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;
3. This application is part of an ongoing effort within the province to correct historical discrepancies between approved site locations and the actual footprint of farming

activities. Since 2016, the Department has been working with the applicant to address this issue to ensure regulatory compliance and operational viability.

We request that you review and submit all components that pertain to this application by September 16, 2019.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application. You may contact me at by phone at 902-875-7440 or email Lynn.Winfield@novascotia.ca if you have any questions.

Sincerely,

Lynn

Lynn Winfield,
Licensing Coordinator

M E M O R A N D U M

To: Aquaculture Network Agencies

From: Lynn Winfield, Licensing Coordinator, Aquaculture Division
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: October 28, 2019

RE: New Aquaculture Licence and Lease Application No. 1430 – Inverness County Aquaculture Network Review

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Attention network agencies, We'koqma'q First Nation has submitted a new aquaculture application #1430 for the marine finfish cage cultivation of Rainbow Trout. The site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture Marine Finfish application:

Application No.:	1430
Proponent:	We'koqma'q First Nation
Application Type:	Application for Marine Cage Cultivation of Rainbow Trout
Location:	North Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
2. The applicant is making application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;
3. Experimental Aquaculture Licence and Lease No. 5010 is currently issued for a portion of the area associated with application No. 1430, should AQ#1430 be approved, AQ#5010 will be discontinued.

We request that you review and submit all components that pertain to this application by December 28, 2019

Note: We require a written (mail/email) response from each of our review agencies in order to process this application. You may contact me at by phone at 902-875-7440 or email Lynn.Winfield@novascotia.ca if you have any questions.

Sincerely,

Lynn

Lynn Winfield,
Licensing Coordinator

M E M O R A N D U M

To: Aquaculture Network Agencies

From: Lynn Winfield, Licensing Coordinator, Aquaculture Division
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: October 28, 2019

RE: New Aquaculture Licence and Lease Application No. 1431 – Inverness County Aquaculture Network Review

---

Attention network agencies, We'koqma'q First Nation has submitted a new aquaculture application #1431 for the marine finfish cage cultivation of Rainbow Trout. The site is located in South Aberdeen, Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture Marine Finfish application:

Application No.:	1431
Proponent:	We'koqma'q First Nation
Application Type:	Application for Marine Cage Cultivation of Rainbow Trout
Location:	South Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
2. The applicant is making application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;
3. Experimental Aquaculture Licence and Lease No. 5010 is currently issued for a portion of the area associated with application No. 1431, should AQ#1431 be approved, AQ#5010 will be discontinued.

We request that you review and submit all components that pertain to this application by December 28, 2019

Note: We require a written (mail/email) response from each of our review agencies in order to process this application. You may contact me at by phone at 902-875-7440 or email Lynn.Winfield@novascotia.ca if you have any questions.

Sincerely,

Lynn

Lynn Winfield,
Licensing Coordinator

MEMORANDUM

To: Aquaculture Network Agencies

From: Robert Ceschiutti, Aquaculture Administrator
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: March 29, 2021

RE: Amended Information for New Aquaculture Licence and Lease Application No. 1430 – Inverness County - Aquaculture Network Review

---

Attention network agencies, We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1430 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture Marine Finfish application:

Application No.:	1430
Proponent:	We'koqma'q First Nation
Application Type:	Application for Marine Cage Cultivation of Rainbow Trout
Location:	North Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. The complete application package is available online at: https://novascotia.ca/fish/aquaculture/Application_Package_AQ0814_AQ1430_AQ1431_-_2021.03.22.pdf
2. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
3. The amended development plan represents an increase in production amounts and change in cage configuration (i.e. larger cages, but fewer cages and arrays);
4. The amended plan does not include a change in boundaries;

5. In reference to the September 9, 2020 letter accompanying the amended Development Plan, depositional modelling is required under Fisheries and Ocean Canada's Aquaculture Activities Regulations and has been submitted to the respective department;
6. The applicant is making a revised application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;
7. Experimental Aquaculture Licence and Lease No. 5010 is currently issued for a portion of the area associated with application No. 1430, should AQ#1430 be approved, AQ#5010 will be discontinued.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application.

You may contact me at by phone at 902-875-7443 or email Megan.Greenwood@novascotia.ca if you have any questions.

MEMORANDUM

To: Aquaculture Network Agencies

From: Robert Ceschiutti, Aquaculture Administrator
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: March 29, 2021

RE: Amended Information for New Aquaculture Licence and Lease Application No. 1431 – Inverness County - Aquaculture Network Review

---

Attention network agencies, We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1431 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in South Aberdeen, Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture Marine Finfish application:

Application No.:	1431
Proponent:	We'koqma'q First Nation
Application Type:	Application for Marine Cage Cultivation of Rainbow Trout
Location:	South Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. The complete application package is available online at: https://novascotia.ca/fish/aquaculture/Application_Package_AQ0814_AQ1430_AQ1431_-_2021.03.22.pdf
2. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
3. The amended development plan represents an increase in production amounts and change in cage configuration (i.e. larger cages, but fewer cages and arrays);
4. The amended plan does not include a change in boundaries;

5. In reference to the September 9, 2020 letter accompanying the amended Development Plan, depositional modelling is required under Fisheries and Ocean Canada's Aquaculture Activities Regulations and has been submitted to the respective department;
6. The applicant is making a revised application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application.

You may contact me at by phone at 902-875-7443 or email Megan.Greenwood@novascotia.ca if you have any questions.

Network Agency Review of an Aquaculture Application

Agency	
Division (if applicable)	
Date	
File No.	
Type of application	
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☐ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☐ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

APPENDIX B – FISHERIES AND OCEANS CANADA

From: Winfield, Lynn
Sent: July 15, 2019 10:56 AM
To: Rose-Quinn, Tammy <Tammy.Rose-Quinn@dfo-mpo.gc.ca>
Subject: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good Morning Tammy,

Please see the attached information on a boundary amendment application No. 0814, in Whycocomagh Bay, Inverness County, along with the Network Agency Review Form.

I will send the NPP Notice of Works and Schedule "A" in a separate email.

Please respond with your feedback by September 16, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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AQ0814 Network Memo.pdf
AQ0814 - Boundary Amenement Dev. Pla
AQ0814 Network Agency Review Form

NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.2.1 – AQ#0814x Development Plan (2019) and Section 4.2.4 – Development Plan Appendices (2019), for the documents sent to and reviewed by DFO.

From: Winfield, Lynn

Sent: July 15, 2019 10:57 AM
To: 'Rose-Quinn, Tammy' <Tammy.Rose-Quinn@dfo-mpo.gc.ca>
Subject: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Tammy,

Email #2 for the Boundary Amendment.

If you have any questions please let me know.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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Schedule_A_0814x.pdf

Whycocomagh Amendment NPA No

NOTE: Please refer to the Application Package, Volume 2, Section 4.1.1 – AQ#0814x Application Form (2019) and Section 4.2.4 – Development Plan Appendices (2019) (see Notice of Works Form), for documents sent to and reviewed by DFO.

From: Winfield, Lynn
Sent: August 30, 2019 12:44 PM
To: Rose-Quinn, Tammy <Tammy.Rose-Quinn@dfo-mpo.gc.ca>; Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Subject: FW: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good Afternoon

Please be reminded that our office has not received comments from your Department for the proposed aquaculture site in Whycocomagh Bay, Inverness Co. AQ0814. Your comments are due on or before **September 16, 2019**.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

AQ0814 Network Memo.pdf
AQ0814 - Boundary Amenement Dev. Pla
AQ0814 Network Agency Review Form

NOTE: Please refer to correspondence above (see July 15, 2019) for the attachments in this email.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: September 20, 2019 4:33 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Laking, Erin <Erin.Laking@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Lynn,

DFO has reviewed the application and supporting information received July 15, 2019 from your department. As a result of our comparison of the application against our "DRAFT Checklist of Information Submitted by Proponent" and feedback from our internal reviewers, DFO requests the following additional information to continue our review:

Contact information:

- Primary mailing address for the proponent
- Full legal registered name of the company (if applicable)
- Contact information of the duly authorized representative of the proponent (if applicable)

Location of the project:

- Description of the location of the point of access for the proposed site (i.e., wharf, slipway) and locate it on the topographic map or nautical chart
    - Note: Where will the construction of the cages take place; and where is the wharf at which service vessels will tie up?

Description of the project

- Labelled, scale drawings of the proposed culture facility in two dimensions (plan view and cross sectional view) including all equipment such as cages (include length, width and depth) walkways, mooring system, anchors, feed sheds, mortality storage, net washing and feed barges, etc.
    - Note: a diagram is provided in the NPA application, but does not include equipment other than cages, lines and anchors/moorings. If there is other equipment, please include it.

- Drawings of alternate siting configurations if it is anticipated that the infrastructure will be moved within the tenure boundaries
    - Note: it is stated that the cages may be moved around to enable fallowing of areas.
- Description of the construction materials to be used and the name of the cage system manufacturer.
- Description of the anchoring / mooring system (e.g. screwed in, non-attached, etc.), dimensions of all materials, and placement and installation procedures to be employed. This should include a description of plans, if any, to uninstall and reinstall anchors and weights (or any equipment associated physically attached to the benthic substrate) in different locations as they rotate equipment.

Production

- Details on the use and storage of both medicated and non-medicated feeds
- For boundary amendments, details of provincial EMP data for the existing site spanning the previous 2 production cycles
- Description of harvesting procedures and schedule, including transportation of product from the production site to the processing plant and the disposal of bloodwater and offal
    - Procedures to mitigate any potentially harmful effects resulting from harvesting and transportation activities
- Will there be introduced artificial light?

Anti-fouling

- Details for any anti-fouling materials that may be used and description of how each may be applied, including the location, method and frequency of application and other water/material will be disposed.

Decommissioning

- Description of the decommissioning process, including measures to restore the area to its pre-development state.

Socio-Economic Environment

- List of contact names and comments received from fishers and fishing that have been contacted to discuss the proposed development.

Description of the Aquatic Environment

- Confirmation on whether or not the site lies within the migratory route of any fish species and if so, identification of species and the predicted time(s) of migration.

Predator Control

- Will there be any use of acoustic predator deterrents?

Should you or the proponents have any questions regarding these additional information requirements, please feel free to contact me.

Thanks,
Ed

Edward Parker
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-1489
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P500, Dartmouth, NS B2Y 4A2
CP 1006, P500, Dartmouth, N-É B2Y 4A2
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From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: September 23, 2019 11:13 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: FW: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good Morning Ed,

Rob has requested that I forward you the emails that were sent to Tammy on July 15, 2019 to ensure that you received all the info, this is Email #1 and I will forward #2 separately.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: September 23, 2019 11:13 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: FW: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi,

Email #2

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: September 23, 2019 11:14 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: Map Info

Hi,

Please see attached Map.

Thanks,
Lynn

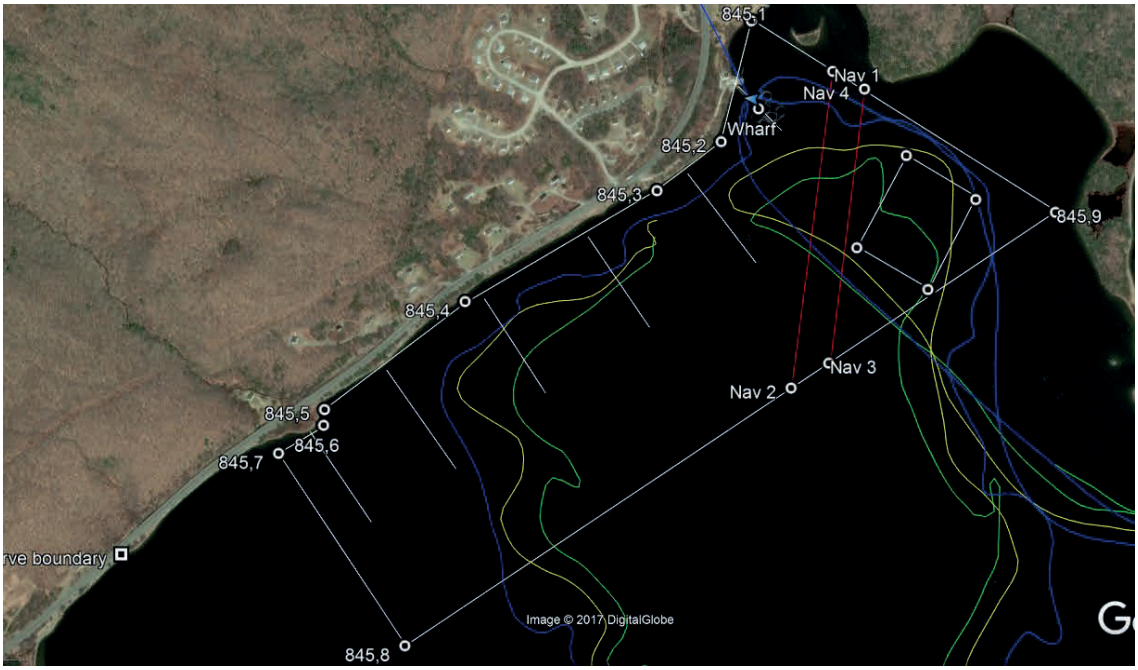
E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

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Map for Boundary Amendment - 18091



From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: September 30, 2019 1:40 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Thank you Lynn,

Yes, we've seen these documents and after review of them, we have requested the additional information. We are hereby still requesting the information, except for that provided by the map and application form you sent me in response to the request.

Thanks,
Ed

Edward Parker
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-1489
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P500, Dartmouth, NS B2Y 4A2
CP 1006, P500, Dartmouth, N-É B2Y 4A2
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From: Winfield, Lynn
Sent: October 29, 2019 4:03 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1430, in Whycocomagh Bay (North Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield

Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.2 – AQ#1430 Application Form (2019), Section 4.2.2 – AQ#1430 Development Plan (2019), Section 4.2.4 – Development Plan Appendices (2019) and Section 4.3 – Additional Information Requests and Responses (2019), for the documents sent to and reviewed by Network.

From: Winfield, Lynn
Sent: October 29, 2019 4:03 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca
Subject: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon Ed,

Please see the attached Transport Canada NPP application for the New Aquaculture Marine Finfish Site application No. 1430, in Whycocomagh Bay (North Aberdeen), Inverness County, along with the Network Agency Review Form.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website
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North Aberdeen
NPA Notice of Work

NOTE: Please refer to the Application Package, Volume 2, Section 4.2.4 – Development Plan Appendices (2019), for original Notice of Works application sent to and reviewed by DFO.

From: Winfield, Lynn
Sent: October 29, 2019 4:14 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: South Aberdeen, Whycobah Bay - AQ1431 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1431, in Whycocomagh Bay (South Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

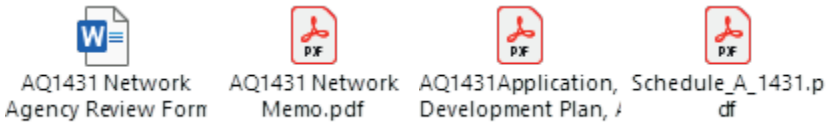
Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.3 – AQ#1431 Application Form (2019), Section 4.2.3 – AQ#1431 Development Plan (2019) and Section 4.2.4 – Development Plan Appendices (2019), for the documents sent to and reviewed by Network.

From: Winfield, Lynn
Sent: October 29, 2019 4:18 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca
Subject: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

Good Afternoon Ed,

Please see the attached Transport Canada NPP application for the New Aquaculture Marine Finfish Site application No. 1431, in Whycocomagh Bay (South Aberdeen), Inverness County.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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North Aberdeen
NPA Notice of Work

NOTE: Please refer to the Application Package, Volume 2, Section 4.2.4 – Development Plan Appendices (2019), for original Notice of Works application sent to and reviewed by DFO.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: December 13, 2019 1:04 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Williams, Wendy <Wendy.Williams@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,

May we please have the following questions answered and issues explained for the application for site 0814:

- Is the plan to have a maximum of 1,000,000 fish on site 0814? There is a lack of clarity how the number of fish referenced in the application differentiates between site 0814 and the other two sites proposed.
- The production plan speaks to 6 arrays of 8 cages with a maximum of 15,000 fish per cage. This can be interpreted as a total of 48 cages. But, in the ORGANIX model setup Excel file, the number of cages shows only 8 cages. Can this be explained?
- Will there be any use of acoustic predator deterrents?
- Will there be artificial illumination of cages?

Thanks,
Ed

Edward Parker
Senior Advisor, Aquaculture Management
Telephone | Téléphone 902-402-0298

Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P500, Dartmouth, NS B2Y 4A2
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From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: December 18, 2019 12:34 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: RE: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Attn: Network Review Agencies:

Please be reminded that our office has not received comments from your Department for the proposed new aquaculture marine finfish Licence and Lease #1430 for We'koqma'q First Nations in Whycocomagh Bay (North Aberdeen), Inverness County. Your comments are requested on or before December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Winfield, Lynn
Sent: December 18, 2019 12:36 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

Attn: Network Review Agencies:

Please be reminded that our office has not received comments from your Department for the proposed new aquaculture marine finfish Licence and Lease #1431 for We'koqma'q First Nations in Whycocomagh Bay (South Aberdeen), Inverness County. Your comments are requested on or before December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: January 3, 2020 9:08 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: MacDougall, Robert <Robert.MacDougall@dfo-mpo.gc.ca>
Subject: RE: Sites AQ1430 and AQ1431 We'koqma'q First Nation - New Marine Finfish Applications

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Hi Lynn,
Can you please confirm with the applicant that they do not plan to use Small Craft Harbour infrastructure in the construction and operation of their proposed farms (1430 and 1431)?

Thanks!
Ed

Edward Parker
Senior Advisor, Aquaculture Management
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: February 3, 2020 9:58 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,

I understood from our January 7, 2020 routine 'aquaculture file update' meeting that DFA was waiting on further discussions between our two departments to address questions we asked below. However, information pertaining to the first two questions would allow our department to progress further with our review and I don't think that they are actually related to ongoing discussions our two departments have been having. These two questions that we would hereby like to receive a response for are as follows:

- Is the plan to have a maximum of 1,000,000 fish on site 0814? There is a lack of clarity how the number of fish referenced in the application differentiates between site 0814 and the other two sites proposed.
- The production plan speaks to 6 arrays of 8 cages with a maximum of 15,000 fish per cage. This can be interpreted as a total of 48 cages. But, in the ORGANIX model setup Excel file, the number of cages shows only 8 cages. Can this be explained?

Thanks,
Ed

Edward Parker
Senior Advisor, Aquaculture Management
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
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From: Feehan, Jennifer
Sent: March 4, 2020 2:02 PM
To: [redacted]' <[redacted]>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: AQ#0814, 1430, 1431 - DFO Network Partner Questions

Hello Donald and Melissa,

I am contacting you regarding your aquaculture applications for AQ#0814, AQ#1430 and AQ#1431. Your applications are in the internal review and Network Review stage of the application process.

We have received questions from our network partner at DFO that require clarification before they can proceed with their review. Please see DFO's questions below:

1. For AQ#0814, is the plan to have a maximum of 1,000,000 fish on this site? It is unclear based on how the number of fish referenced in the application differentiates between site 0814 and the other two proposed sites.

2. For AQ#0814, the production plan speaks to 6 arrays of 8 cages with a maximum of 15,000 fish per cage. This can be interpreted as a total of 48 cages; however, in the ORGANIX model setup Excel file, the number of cages shows only 8 cages. Can this be explained?
3. For AQ#1430 and AQ#1431, can you please confirm if you plan to use Small Craft Harbour infrastructure in the construction and operation of these proposed farms?

You may respond to these questions by replying to this email, and we will share your responses to DFO. Please do not hesitate to reach out if you have any questions or would like to discuss.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: March 10, 2020 3:03 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: donald <[redacted]>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: FW: AQ#0814, 1430, 1431 - DFO Network Partner Questions

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Hi Jennifer:

Please see the responses below in red.

Be sure to contact Donald and myself if you have other questions.

Kind regards,
Melissa

> **From:** Feehan, Jennifer [mailto:Jennifer.Feehan@novascotia.ca]
> **Sent:** Wednesday, March 4, 2020 2:02 PM
> **To:** [redacted]'; Melissa Rommens
> **Cc:** Winfield, Lynn
> **Subject:** AQ#0814, 1430, 1431 - DFO Network Partner Questions
>
> Hello Donald and Melissa,
>
> I am contacting you regarding your aquaculture applications for AQ#0814, AQ#1430 and AQ#1431. Your applications are in the internal review and Network Review stage of the application process.
>
> We have received questions from our network partner at DFO that require clarification before they can

proceed with their review. Please see DFO's questions below:

1. For AQ#0814, is the plan to have a maximum of 1,000,000 fish on this site? It is unclear based on how the number of fish referenced in the application differentiates between site 0814 and the other two proposed sites.
   The intent is to harvest 1,000,000 total from Whycocomagh Bay annually, all sites combined (west end of Whycocomagh Bay plus Aberdeen).
   The intended capacity of the sites is shown below:

Site #	Location	Total fish/ site	Total biomass/ site (tons)*	Notes
0814 amended	West end Whycocomagh Bay	720000	1500	The intent is to use this bay on a consistent basis, moving cages around within the bay for fallowing purposes.
1430	Aberdeen North	360000	750	The intent is to use either the north side or the south side of the bay at any one time. This would allow a rotation of fallowing to be used.
1431	Aberdeen South	360000	750	
Production capacity in Whycocomagh Bay:		**1080000 fish**	**2250 tons**	**Only one of Aberdeen North OR Aberdeen South is used in this production capacity calculation because of the intent to use regular fallowing in these areas, as described above.**

   * Assumes growth of fish to 4.5 lbs

2. For AQ#0814, the production plan speaks to 6 arrays of 8 cages with a maximum of 15,000 fish per cage. This can be interpreted as a total of 48 cages; however, in the ORGANIX model setup Excel file, the number of cages shows only 8 cages. Can this be explained?
   The ORGANIX model is only shown for one array because the intent is to move the arrays around within the lease to allow fallowing. The site configuration is not intended to be static but adjusted to allow fallowing.

3. For AQ#1430 and AQ#1431, can you please confirm if you plan to use Small Craft Harbour infrastructure in the construction and operation of these proposed farms?
   The intent for 1430 and 1431 is to use We'koqma'q's existing wharf in the west end of Whycocomagh Bay. Not a Small Craft Harbour wharf.

You may respond to these questions by replying to this email, and we will share your responses to DFO. Please do not hesitate to reach out if you have any questions or would like to discuss.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Wednesday, March 11, 2020 12:09 PM

To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: AQ#0814, 1430, 1431 - DFO Network Partner Response

Hi Ed,

In response to your request for more information regarding aquaculture applications AQ#0814, 1430 and 1431, please find below (in red) the responses from We'koqma'q First Nation.

For reference, this information is in response to your emails sent to NSDFA on February 3, 2020 (AQ#0814) and January 3, 2020 (AQ#1430 & 1431).

Please do not hesitate to reach out if you have any additional comments or questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: March 11, 2020 12:38 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ#0814, 1430, 1431 - DFO Network Partner Response

Thank you!

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>

Sent: May 4, 2020 4:58 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,

In order for DFO to continue its review, we are requesting the following information for site 0814 and the other 2 sites it is replacing:

- date site was first licensed by the province
- date (month/year) of every historical stocking event, including the species and number of fish stocked for each stocking event
- all historical provincial environmental monitoring results
- historical mass mortality events, disease outbreaks, and sea lice infestations and details surrounding them
- historical fish escape events and the details surrounding them
- historical entanglements and the details surrounding them

Regarding the current meter data:

- was the default Teledyne RDI QC criteria used?
- was the pitch within specifications?
- how was the current meter deployed (i.e. any pictures/diagrams of the deployment configuration)?
- were any data screening checks used, and if so, what?
- what were the data processing settings?

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: July 3, 2020 1:30 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>

Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,

Our review of the proposed boundary amendment of site 0814 is progressing well. We've reached a point in DFO Science's review where the information listed directly below would be especially timely for DFO Science's components of the review. For site 0814 and the other 2 sites it is replacing:

- date (month/year) of every historical stocking event, including the species and number of fish stocked for each stocking event
- all historical provincial environmental monitoring results
    - Note: We've accessed historical EMP data on the provincial open data portal, is this complete? There are a number of years with no data.
- historical mass mortality events, disease outbreaks, and sea lice infestations and details surrounding them
    - Note: Basically, is there a history of pathogen, disease or pest outbreaks? If so, what are some basic details regarding these outbreaks?
- historical fish escape events and the details surrounding them
- historical entanglements and the details surrounding them

The other information requested below is still needed, but the list above is priority from a timeline perspective for DFO.

Regards,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
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> **From:** Parker, Edward V
> **Sent:** Monday, May 4, 2020 4:58 PM
> **To:** 'Winfield, Lynn' <Lynn.Winfield@novascotia.ca>
> **Cc:** Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
> **Subject:** RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation
>
> Hi Lynn,

In order for DFO to continue its review, we are requesting the following information for site 0814 and the other 2 sites it is replacing:

- date site was first licensed by the province
- date (month/year) of every historical stocking event, including the species and number of fish stocked for each stocking event
- all historical provincial environmental monitoring results We've accessed historical EMP data on the open data portal, is this complete? There are a number of years with no data.
- historical mass mortality events, disease outbreaks, and sea lice infestations and details surrounding them Basically, is there a history of disease, pest or pathogen outbreaks?
- historical fish escape events and the details surrounding them
- historical entanglements and the details surrounding them

Regarding the current meter data:

- was the default Teledyne RDI QC criteria used?
- was the pitch within specifications?
- how was the current meter deployed (i.e. any pictures/diagrams of the deployment configuration)?
- were any data screening checks used, and if so, what?
- what were the data processing settings?

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
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From: Feehan, Jennifer
Sent: July 9, 2020 3:05 PM
To: donald <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: AQ#0814 - Request for Information from Network

Hi Donald and Melissa,

This email is regarding your Boundary Amendment Application for AQ#0814. We have received a request from our Network Partner at Fisheries and Oceans Canada for additional historical information on AQ#0814 along with the other two sites it is replacing, AQ#0600 and AQ#0845.

NSDFA is compiling information that we have on file to provide to DFO, but require input from you on the following:

- Date (month/year) of every historical stocking event, including the species and number of fish stocked for each stocking event

Would you be able to provide this information to us by July 17th? Let me know if you need more time or have any questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Melissa Rommens <melissa@aquaculture-solutions.com>
Sent: July 10, 2020 10:15 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: donald [redacted]>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: FW: AQ#0814 - Request for Information from Network

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Hi Jennifer:

Can you please clarify how far back you are looking for?

Kind regards,

Melissa

From: Feehan, Jennifer [mailto:Jennifer.Feehan@novascotia.ca]
Sent: Friday, July 10, 2020 10:34 AM
To: Melissa Rommens
Cc: donald; Winfield, Lynn
Subject: RE: AQ#0814 - Request for Information from Network

Hi Melissa,

Stocking information back to 2015 should be sufficient for the request and will correspond with what our team is putting together as well.

Let me know if you have any other questions.

Cheers,
Jennifer

From: Melissa Rommens <melissa@aquaculture-solutions.com>
Sent: July 10, 2020 10:35 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: AQ#0814 - Request for Information from Network

Ok. Thanks Jennifer. I'll get started and you know if I need more time.
Melissa

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 10:24 AM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; donald [redacted]>
Subject: Discussion regarding AQ 1430, 1431

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Hello Robert:
I am wondering if we can arrange a call to discuss the lease applications for AQ 1430, 1431. We'koqma'q has learned some things in the past year of working the experimental site (AQ 5010) and we'd like to apply that knowledge to the lease applications.

Please let me know if/when this would be possible.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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From: Ceschiutti, Robert [mailto:Robert.Ceschiutti@novascotia.ca]
Sent: Monday, July 13, 2020 12:02 PM
To: Melissa Rommens
Cc: Feehan, Jennifer; Winfield, Lynn; donald
Subject: RE: Discussion regarding AQ 1430, 1431

Hi Melissa, sounds good. I'll find out who else on our team would like to join the call, which will help determine when we can arrange the meeting. I should have a reply for you by tomorrow afternoon.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
Phone: 902-875-7430
Cell: 902-874-0996
Robert.Ceschiutti@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 12:31 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; 'donald' <[redacted]>
Subject: RE: Discussion regarding AQ 1430, 1431

Thank you Robert.
Melissa

Feehan, Jennifer

Subject: Discussion regarding AQ 1430, 1431
Location: Phone

Start: Thu 2020-07-23 11:00 AM
End: Thu 2020-07-23 12:00 PM

Recurrence: (none)

Meeting Status: Accepted

Organizer: Ceschiutti, Robert
Required Attendees Melissa Rommens; Feehan, Jennifer; Winfield, Lynn; 'donald'; St.Louis, Danielle; Cusack, Roland R; Hancock, Bruce H; Feindel, Nathaniel J

Please note that the date has been moved out a week due to availability of NSDFA staff

Phone Meeting to discuss the applications for AQ#1430 and AQ#1431

Phone # 1-855-453-6963
Conference ID# 7311430

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 12:31 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; 'donald' <[redacted]>
Subject: RE: Discussion regarding AQ 1430, 1431

Thank you Robert.
Melissa

From: Ceschiutti, Robert [mailto:Robert.Ceschiutti@novascotia.ca]
Sent: Monday, July 13, 2020 12:02 PM
To: Melissa Rommens
Cc: Feehan, Jennifer; Winfield, Lynn; donald
Subject: RE: Discussion regarding AQ 1430, 1431

Hi Melissa, sounds good. I'll find out who else on our team would like to join the call, which will help determine when we can arrange the meeting. I should have a reply for you by tomorrow afternoon.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0

Phone: 902-875-7430
Cell: 902-874-0996
Robert.Ceschiutti@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 10:24 AM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; donald [redacted]>
Subject: Discussion regarding AQ 1430, 1431

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Hello Robert:
I am wondering if we can arrange a call to discuss the lease applications for AQ 1430, 1431. We'koqma'q has learned some things in the past year of working the experimental site (AQ 5010) and we'd like to apply that knowledge to the lease applications.

Please let me know if/when this would be possible.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 17, 2020 11:14 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: 'donald' [redacted]>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ#0814 - Request for Information from Network

Hello Jennifer:
See attached, as requested. If you need more information, please let us know.
Kind regards,
Melissa

Historical stocking
0814 0845 0600 for s

Date (month/year) of every historical stocking event on 0814, 0845, 0600, back to 2015, including the species and number of fish stocked for each stocking event

Date	Species	Fish Number
Aug-15	Rainbow trout	53,673
Dec-15	Rainbow trout	129,822
Jun-16	Rainbow trout	133,446
Jul-16	Rainbow trout	138,449
Mar-17	Rainbow trout	145,364
Jun-17	Rainbow trout	151,068
Oct-17	Rainbow trout	148,534
Nov-17	Rainbow trout	96,880
Dec-17	Rainbow trout	60,711
May-18	Rainbow trout	144,780
Sep-18	Rainbow trout	353,100
Oct-18	Rainbow trout	12,000
May-19	Rainbow trout	384,500
Sep-19	Rainbow trout	461,400
Dec-19	Rainbow trout	125,600

From: Feehan, Jennifer
Sent: July 17, 2020 1:28 PM
To: Melissa Rommens <melissa@sustainaqua.ca>
Cc: 'donald' <[redacted]>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ#0814 - Request for Information from Network

Hi Melissa,

Many thanks for putting this information together. We will be sure to reach out if additional information is required.

Kind regards,
Jennifer

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Wednesday, August 12, 2020 10:52 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good morning Ed,

This email is in response to DFO's request for additional information regarding the boundary amendment application for AQ#0814.

Please find attached the response to the requested information, including supporting documents, for sites AQ#0814, 0845 and 0600.

Should you have any questions or require additional information, please do not hesitate to contact me.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



NOTE: This email included seven attachments in total, found below labelled A-G.

Attachment A: "AQ#0814 Response to DFO Information Request 2020.08.12.docx"

AQ#0814 Boundary Amendment: Response to Information Request by DFO (May 4, 2020 and July 3, 2020)

	Requested Information	Response
1	Date (month/year) of every historical stocking event, including the species and number of fish stocked for each stocking event	**See attachment provided by We'koqma'q First Nation:** • **1. Historical stocking 0814 0845 06000 for submission to NSDFA**
2	All historical provincial environmental monitoring results Note: We've accessed historical EMP data on the provincial open data portal, is this complete? There are a number of years with no data.	**Information provided by NSDFA Aquaculture Operations. See also attachment:** • **2. 20200721 DFO Information Request – 2016 Data.xlsx** It has been identified that historical AQ#0600, 0814, 0845 EMP data from 2016 is not available for download from the provincial open data portal. Please see the attached historical EMP data from 2016. EMP monitoring events were not conducted on AQ#0845 during 2015 and 2018, which is why historical data for those years is not available for download. In addition, data collected within the proposed AQ#0814 boundaries during May 2020 is also not available for download from the provincial data portal. Danielle St. Louis, Acting Manager of Aquaculture Operations, provided this data to Ed Parker on June 15, 2020 as part of a Nova Scotia Aquaculture Environmental Site Management Committee (NSAESMC) meeting. As part of this sampling event, NSDFA also received video footage from each station. If DFO would like a copy of the video footage to assist with their review, this can be provided by NSDFA.
3	Historical mass mortality events, disease outbreaks, and sea lice infestations and details surrounding them Note: Basically, is there a history of pathogen, disease or pest outbreaks? If so, what are some basic details regarding these outbreaks?	**Information provided by NSDFA Aquatic Animal Health.** **Historical Mass Mortality Event** Since the inception of the Aquaculture Management Regulations in 2015 there have been no reportable mortality occurrences at the Whycocomagh Bay Finfish Aquaculture sites. **Disease Outbreaks** Similarly, since the inception of the Aquaculture Management Regulations in 2015 there have been no reportable disease events at the Whycocomagh Bay Finfish Aquaculture sites.

		Sea Lice Infestations Due to the brackish and freshwater levels at these sites' sea lice can rarely be detected. Consequently, there has never been treatment at the Whycocomagh Bay Finfish Aquaculture sites.
4	Historical fish escape events and the details surrounding them	**Information provided by NSDFA Aquatic Animal Health and Aquaculture Operations.** The record of yearly escapes recorded and released on the DFO public website can be found here: https://www.dfo-mpo.gc.ca/aquaculture/protect-protege/escape-prevention-evasions-eng.html. **August 16, 2017** - An escape is noted in 2017 for site AQ#0600, expected to be less than 600 fish. **Record of the following Breach Notifications were made to NSDFA:** **May 5th, 2018** (date of breach) – AQ#0600 • Estimated number of fish released is 29,000. • Suspected cause of breach is a windstorm combined with an operational error. • Average size of fish in holding unit(s) where breach occurred was 60 g. **September 8, 2019** (date of breach) – AQ#0814 • Estimated number of fish released is unknown and will be determined during harvest. • Suspected cause of breach is the collapse of cages during Hurricane Dorian. • Size of fish on-site ranged from 100-2000 g. **October 22, 2019** (date of breach) – AQ#0814 • Estimated number of fish released is 600 dead/harvested fish. • Suspected cause of breach is operational error (detached pump hose). • Size of fish on-site ranged from 100-2100 g. **November 28, 2019** (date of breach is unknown - suspected date is provided) – AQ#0814 • Estimated number of fish released is unknown and will be determined during harvest. • Suspected cause of breach is operational error (hole found in net due to prop). • Estimated number of fish in holding unit(s) where breach occurred was 14,900 at 1720 g.

		December 18, 2019 (date of reporting - date of breach is unknown) – AQ#0814 • Estimated number of fish released is unknown and will be determined during harvest. • Suspected cause of breach is operational error (hole found in two nets either from prop or chafing). • Size of fish on-site ranged from 100-2100 g. As per the Aquaculture Management Regulations, all procedures and processes have been followed as required by NSDFA to address and mitigate for the causes of the outlined breach events in order to minimize the likelihood of breach events occurring in the future.
5	Historical entanglements and the details surrounding them	**Information provided by NSDFA Aquaculture Development.** **See also attachments:** • **5.a Update Aquaculture Written Responses_MMPA 2019_Nova Scotia** • **5.b Update MMPA Reporting 2019_Nova Scotia** There have been no reported entanglements at this site to date as per NSDFA's report submitted to Fisheries and Oceans Canada's Marine Mammal Protection Act group (see attached).
6	Date site was first licensed by the province	**Information provided by NSDFA Aquaculture Licensing and Leasing.** **File History AQ#0814:** Site was first issued on July 28, 1994. Licence and Lease issued to Waycobah First Nations Band Council on February 16, 2011. **File History AQ#0600**: Site was first issued on July 28, 1994. Licence and Lease issued to Waycobah First Nations Band Council on February 16, 2011. **File History AQ#0845:** Site was first issued on February 20, 1995. Licence and Lease issued to Waycobah First Nations Band Council on February 16, 2011.
7	Regarding the current meter data: • was the default Teledyne RDI QC criteria used?	**Information provided by NSDFA Aquaculture Operations.** **See also attachments:** • **7.a SUBS**

	• was the pitch within specifications? • how was the current meter deployed (i.e. any pictures/diagrams of the deployment configuration)? • were any data screening checks used, and if so, what? • what were the data processing settings?	• **7.b SUBS2** This ADCP was deployed in SUBS buoy, suspended within the water column. Attached are a picture of the SUBS frame and a generalized diagram of the deployment configuration. In this case, I believe the meter would have been at an altitude of 5-6m off bottom. The profiling setup was for 200 pings, averaged over 5 minutes, once every 15 minutes. Cell size was 1m. Pitch and roll values were <1° for the duration of the deployment. Data were provided to the proponent as a raw export of speed and direction values from the Teledyne file. No additional processing was performed. This includes no adjustment to the current direction data to correct for magnetic declination. CMAR contracted FORCE to do a long term ADCP deployment at 0814 as well. It was from December 14, 2019 to April 30, 2020.

Attachment B: "1. Historical stocking 0814 0845 0600 for submission to NSDFA"

Date (month/year) of every historical stocking event on 0814, 0845, 0600, back to 2015, including the species and number of fish stocked for each stocking event

Date	Species	Fish Number
Aug-15	Rainbow trout	53,673
Dec-15	Rainbow trout	129,822
Jun-16	Rainbow trout	133,446
Jul-16	Rainbow trout	138,449
Mar-17	Rainbow trout	145,364
Jun-17	Rainbow trout	151,068
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Sep-18	Rainbow trout	353,100
Oct-18	Rainbow trout	12,000
May-19	Rainbow trout	384,500
Sep-19	Rainbow trout	461,400
Dec-19	Rainbow trout	125,600

Attachment C: "2. 20200721 DFO Information Request – 2016 Data"

Day	Month	Year	Data type	Fin/Shell	Soft or Hard Bot	Old Station ID	NSDFA ID	Lat	Long	Location	Lease	Redox (mVNHE)	Sulphide (µM)	Porosity (%)	Organic Matter (%)	Collected/Analyzed by:
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 10	WYB10	45.951508	61.126457	Whycocomagh Basin	814	51.1	290	80.76424631	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 10	WYB10	45.951508	61.126457	Whycocomagh Basin	814	-154.3	2280	87.7124491	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 10	WYB10	45.951508	61.126457	Whycocomagh Basin	814	83.1	423	76.93206213	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 28	WYB28	45.951385	61.126045	Whycocomagh Basin	814	-141.1	1330	85.07232789	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 28	WYB28	45.951385	61.126045	Whycocomagh Basin	814	-83.9	625	77.76127546	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 28	WYB28	45.951385	61.126045	Whycocomagh Basin	814	-145	2960	84.42736754	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 30	WYB30	45.95108	61.126183	Whycocomagh Basin	814	-141.1	2350	87.48139126	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 30	WYB30	45.95108	61.126183	Whycocomagh Basin	814	-83.9	2310	84.33783242	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 30	WYB30	45.95108	61.126183	Whycocomagh Basin	814	-145	823	88.09382733	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 23	WYB23	45.951255	61.12558	Whycocomagh Basin	814	-155.7	2090	87.91437772	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 23	WYB23	45.951255	61.12558	Whycocomagh Basin	814	-152.4	828	89.23839152	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 23	WYB23	45.951255	61.12558	Whycocomagh Basin	814	-144.2	2240	86.94572416	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 32	WYB32	45.950825	61.12579	Whycocomagh Basin	814	-157.6	2760	88.43907351	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 32	WYB32	45.950825	61.12579	Whycocomagh Basin	814	-135.5	1710	87.08257386	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 32	WYB32	45.950825	61.12579	Whycocomagh Basin	814	-151.1	1960	87.00169779	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 31	WYB31	45.950764	61.125599	Whycocomagh Basin	814	-149.4	2310	85.72148366	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 31	WYB31	45.950764	61.125599	Whycocomagh Basin	814	-125.8	1640	88.65309172	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 31	WYB31	45.950764	61.125599	Whycocomagh Basin	814	-153.6	1960	88.29532824	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 27	WYB27	45.950481	61.12532	Whycocomagh Basin	814	-152.3	6160	87.25682808	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 27	WYB27	45.950481	61.12532	Whycocomagh Basin	814	-144	1230	85.43520166	Not available	EFWC
17	NOV	2016	EMP - Level I	Fin	Soft	WYB 27	WYB27	45.950481	61.12532	Whycocomagh Basin	814	-146.1	1520	85.22167488	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 29	WYB29	45.949974	61.125206	Whycocomagh Basin	814	-153.2	2240	89.9768207	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 29	WYB29	45.949974	61.125206	Whycocomagh Basin	814	-132.5	2860	87.60129351	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 29	WYB29	45.949974	61.125206	Whycocomagh Basin	814	-152.4	2000	85.18067243	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 24	WYB24	45.9503	61.12512	Whycocomagh Basin	814	-143.4	2150	88.63337205	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 24	WYB24	45.9503	61.12512	Whycocomagh Basin	814	-145.9	2640	88.53207684	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 24	WYB24	45.9503	61.12512	Whycocomagh Basin	814	-145.7	2740	87.04024573	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 814a		45.95068	61.126297	Whycocomagh Basin	814	-180.7	3760	83.26672376	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 814a		45.95068	61.126297	Whycocomagh Basin	814	-166.7	5500	85.55670614	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 814a		45.95068	61.126297	Whycocomagh Basin	814	-169.3	3400	78.05623472	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 814b		45.950726	61.127476	Whycocomagh Basin	814	-149.4	4340	78.43574336	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 814b		45.950726	61.127476	Whycocomagh Basin	814	-120.5	4260	81.45775814	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 814b		45.950726	61.127476	Whycocomagh Basin	814	-139.3	3420	78.49526066	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 34	WYB34	45.950859	61.120945	Whycocomagh Basin	600	-148.9	4950	86.74045545	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 34	WYB34	45.950859	61.120945	Whycocomagh Basin	600	-161.1	4170	85.54590571	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 34	WYB34	45.950859	61.120945	Whycocomagh Basin	600	-168.5	4920	85.82237616	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 35	WYB35	45.951092	61.12162	Whycocomagh Basin	600	-161.8	1730	84.31980391	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 35	WYB35	45.951092	61.12162	Whycocomagh Basin	600	-137.7	4170	85.21466379	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 35	WYB35	45.951092	61.12162	Whycocomagh Basin	600	-162.7	4560	85.19581946	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 21	WYB21	45.951645	61.121143	Whycocomagh Basin	600	-145.9	1730	87.74710472	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 21	WYB21	45.951645	61.121143	Whycocomagh Basin	600	-154	1390	88.4253524	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 21	WYB21	45.951645	61.121143	Whycocomagh Basin	600	-130.5	1930	85.71428571	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 20	WYB20	45.951794	61.120651	Whycocomagh Basin	600	-152.6	1840	84.80124708	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 20	WYB20	45.951794	61.120651	Whycocomagh Basin	600	-143.9	1910	87.18486672	Not available	EFWC
18	NOV	2016	EMP - Level I	Fin	Soft	WYB 20	WYB20	45.951794	61.120651	Whycocomagh Basin	600	-150.2	1860	86.27164268	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 600a		45.9508167	61.1214833	Whycocomagh Basin	600	-215.3	7360	87.92249627	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 600a		45.9508167	61.1214833	Whycocomagh Basin	600	-177	6300	85.18127758	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 600a		45.9508167	61.1214833	Whycocomagh Basin	600	-173.2	3400	83.992373	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 845a		45.951527	61.125416	Whycocomagh Basin	845	-146.1	1500	79.88966008	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 845a		45.951527	61.125416	Whycocomagh Basin	845	-164.5	2640	73.9703598	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 845a		45.951527	61.125416	Whycocomagh Basin	845	-167	3400	84.74929395	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 845b		45.95088	61.12716	Whycocomagh Basin	845	-93.6	1410	86.48473335	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 845b		45.95088	61.12716	Whycocomagh Basin	845	-136.4	1350	81.45212718	Not available	EFWC
21	NOV	2016	EMP - Level I	Fin	Soft	WYB 845b		45.95088	61.12716	Whycocomagh Basin	845	-134.1	1040	82.48284936	Not available	EFWC

Attachment D: "5.a Update Aquaculture Written Responses_MMPA 2019_Nova Scotia"

Nova Scotia
Aquaculture Response for the U.S. MMPA Progress Report

Section 2: Regulatory - Fishery-Specific Questions

1) **Do you have a monitoring program for marine mammal bycatch in place for this fishery? If Yes, please specify the monitoring program (logbook, ASOP, electronic, dockside monitoring, interviews) and provide information on the percent coverage or time that the fishery is observed. If No, please indicate future plans to implement a monitoring program (if any), and percent coverage. Include documentation.**

Marine Finfish Aquaculture

- Yes, a monitoring program is operational.
- Two program types: "Vessel Logbooks", "Dockside Inspection Report" and the "Marine Mammal Response Program".
- 100% monitoring coverage of all operations in the Province.

Details on "Vessel Log Books" and "Dockside Inspection Report" programs– In Nova Scotia, these types of reports would be considered what is known as a Marine Finfish Farm Management Plan (FMP), as required under the Nova Scotia *Aquaculture Management Regulations* (AMRs).

- As of 2015, all active aquaculture lease holders in Nova Scotia are required to have an FMP, which includes the operator's deterrent strategy for wildlife interactions, including marine mammal predators.
- The deterrent strategy in the FMP must be approved by the Nova Scotia Department of Fisheries and Aquaculture (NSDFA).
- Any issues/deficiencies with the deterrent strategy at/for a site or changes to its operations require documentation or amendment and are to be documented in the FMP.
- The deterrent strategy includes continuous monitoring (100%) by operators for interactions with marine mammals, although this is not explicitly stated within the FMP. The FMP is a physical document that stays with the operator and can be audited by the Province upon visitation or as required by the Minster.
- The FMP requires farm operators to undertake weekly above water infrastructure inspections. Any irregularities, damage, or points of wear to gear must be investigated as soon as possible and recorded on the surface inspection record. Informal above-water inspections are continuous because staff work on-site on a daily basis. Formal inspections must occur on a weekly basis for surface components.
- The FMP requires operators to undertake formal below-water net inspections at a maximum of every 60 days and documented on an underwater inspection checklist record. Mortality dives are also required at a minimum of once per week, which includes inspection of nets.
- No marine mammal deaths have been reported from marine finfish farms in Nova Scotia. Any interactions are recorded by the operator in the Marine Finfish FMP.

Shellfish & Marine Plants

- Yes, a monitoring program is operational.
- Two program types: "Vessel Logbooks" and "Marine Mammal Response Program"
- These monitoring programs cover 100% of all shellfish and marine plant operations in the Province.

Details on "Vessel Log Books" and "Dockside Inspection Report" programs – In Nova Scotia, these types of reports would be included in what is known as a Marine Shellfish or Marine Plant FMPs, as required under the Nova Scotia *Aquaculture Management Regulations (*AMRs).

- No marine mammal deaths have been reported from shellfish and marine plant farms in Nova Scotia. Any interactions are recorded by the operator in the Shellfish FMP.

2) **A. Which marine mammals are known to interact with this fishery (from historical bycatch data, sightings, literature, reports in analogous fisheries)?**

Marine Finfish

- For finfish operations in Nova Scotia, operator logbooks, FMPs, and reports to Fisheries and Oceans Canada (DFO), indicate that gray seals and harbour seals interact with aquaculture operations on occasion.
- Production records (which include stock losses) submitted to NSDFA, indicate that the only recorded interaction with marine mammals in the past seven (7) years was salmon loss, due to seals in 2013 at one site. Losses due to predator were also indicated at this site in 2014. This may also have been due to seal interaction, however there are no specific details.
- There have been no other interactions with aquaculture in Nova Scotia as detailed in the Marine Mammal Response Program reports, the past five (5) years.

Shellfish & Marine Plants

- For shellfish and marine plant operations in Nova Scotia, operator logbooks, FMPs, and reports to DFO, indicate that no records of marine mammal interaction with aquaculture shellfish or plant operations.

B. Are marine mammals present in the area at another time? Indicate dates or times of the year that marine mammals are present in the fishing area, exclusive of when the fishery is active.

Marine Finfish, Shellfish, and Marine Plants

- With the exception of regulated fallow periods, aquaculture operations are conducted year-round.
- As indicated above, seal species are present year-round for aquaculture operations
- Other marine mammal species are present in all waters throughout Nova Scotia, however, there have been no reported cases of other marine mammals interacting with aquaculture operations.

3) **For each marine mammal listed in Q2, what is the marine mammal Incidental Mortality and Serious Injury (IMSI) for the past five (5) fishing seasons (number of incidents per marine mammal species, and condition of the animal).**

Marine Finfish, Shellfish, and Marine Plants

- 2019 – 0

- 2018 – 0
- 2017 – 0
- 2016 – 0
- 2015 – 0

4) **What fishery management or mitigation measures are <u>currently</u> in place for your fishery, for the purpose of reducing marine mammal Incidental Mortality and Serious Injury? (Example: gear modification, deterrent devices, time/area closures, fishery best practices, etc.) Include documentation.**

   A. **When did this mitigation go into effect (date)?**
   B. **What % reduction in marine mammal bycatch has been achieved since implementing?**

Marine Finfish, Shellfish, and Marine Plants

A.

- The Farm Management Plan (FMP) went into regulation under the AMRs in 2015. The FMP includes the operator's deterrent strategy for wildlife interactions, including marine mammal predators. The deterrent strategy is approved by the Province. Typically, predator netting is the most comment deterrent and has proven to be effective. If an incident occurs, it is a requirement for operators to propose a mitigation strategy to the Province for approval, which is then implemented to ensure the incident does not occur in the future.
- Most finfish farms have personnel or security 24/7 and notification of marine mammal interaction can occur quickly, and appropriate action(s) taken, if necessary.
- (not applicable) There is no calculated reduction in bycatch as there is no by-catch associated with these aquaculture operations.

B.

- 100%

5) **What fishery management or mitigation measures are being <u>planned</u> to be implemented for your fishery, between now and 2021, for the purpose of reducing marine mammal Incidental Mortality and Serious Injury? (Example: gear modification, deterrent devices, time/area closures, fishery best practices, etc.) Include documentation.**

Marine Finfish, Shellfish, and Marine Plants

- Explicit requirements in the FMP to document marine mammal interactions are being explored but would like to see what other jurisdictions are considering nationally and internationally and determine what will work for the Nova Scotia industry and the various growing environments.

6) **How are bycatch estimates calculated for this fishery? (harvester logbook or At-Sea Observer; observed minimum counts or extrapolated estimates for the whole fishery)**

Marine Finfish, Shellfish, and Marine Plants

- Farm Management Plan / "harvester logbook"

7) **Do you have any certification programs for this fishery? (Example: Marine Stewardship Council (MSC), Shrimp-turtle, Affirmative finding, Certificate of Admissibility)**

Marine Finfish, Shellfish, and Marine Plants

- Operators participate in external aquaculture best practices certification programs, such as Best Aquaculture Practices (BAP) and Aquaculture Stewardship Council (ASC).

8) **What other measures is this fishery is taking to reduce marine mammal Incidental Mortality and Serious Injury? (Example: meetings with government officials, meetings with other industry groups, research projects, gear innovation, etc.) Include documentation.**

Marine Finfish, Shellfish, and Plants

- In 2019, DFO undertook a review of existing research on the kinds of marine mammal deterrence methods that are used at aquaculture operations in Canada and around the world. Using the report outcomes, DFO is currently considering which non-lethal marine mammal deterrence methods may be required in the future.

9. **Does this cultivation occur only in freshwater or an inland aquaculture facility?**
    - There are some freshwater hatcheries and a few onshore facilities. There is no net pen culture in freshwater in Nova Scotia
10. **Does farming this product occur year-round? If not, please indicate the seasons (months/precise dates).**
    - Typically, production can occur all year round. Although there is a minimum of a three (3) months fallow period between production cycles. Some shellfish sites are seasonal to hold produce for depuration, prior to market. Seasons vary.

11. **Are there any marine mammals present in waters around the operation(s)? Please list.**
    - Grey and harbour seals are common around marine aquaculture sites.
    - Other marine mammal species are present in all waters throughout Nova Scotia, however, there have been no reported cases of other marine mammals interacting with aquaculture operations
    - Operators are not required to document marine mammal sightings however they are required to document interactions, and report interactions when requested.

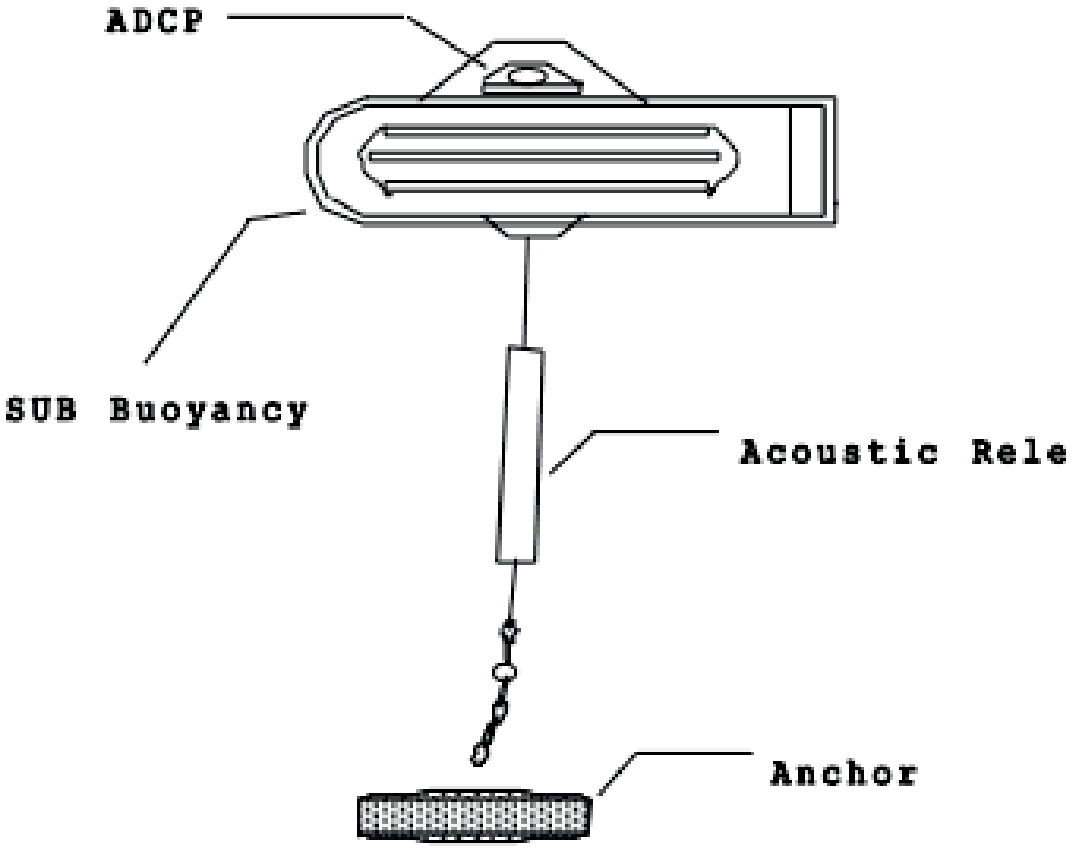
12. **Are there any marine mammals that have been seen interacting directly with the aquaculture operations? Please list.**
    - Production records (which include stock losses) submitted to the department, indicate that the only recorded interaction with marine mammals in the past seven (7) years was salmon loss, due to seals in 2013 at one site. Losses due to predator were also indicated at this site in 2014. This may have been due to seal interaction, however there are no specific details. There have been no other recorded interactions with aquaculture in Nova Scotia as detailed in the Marine Mammal Response Program reports, the past five (5) years.

Attachment E: "5.b Update MMPA Reporting 2019_Nova Scotia"

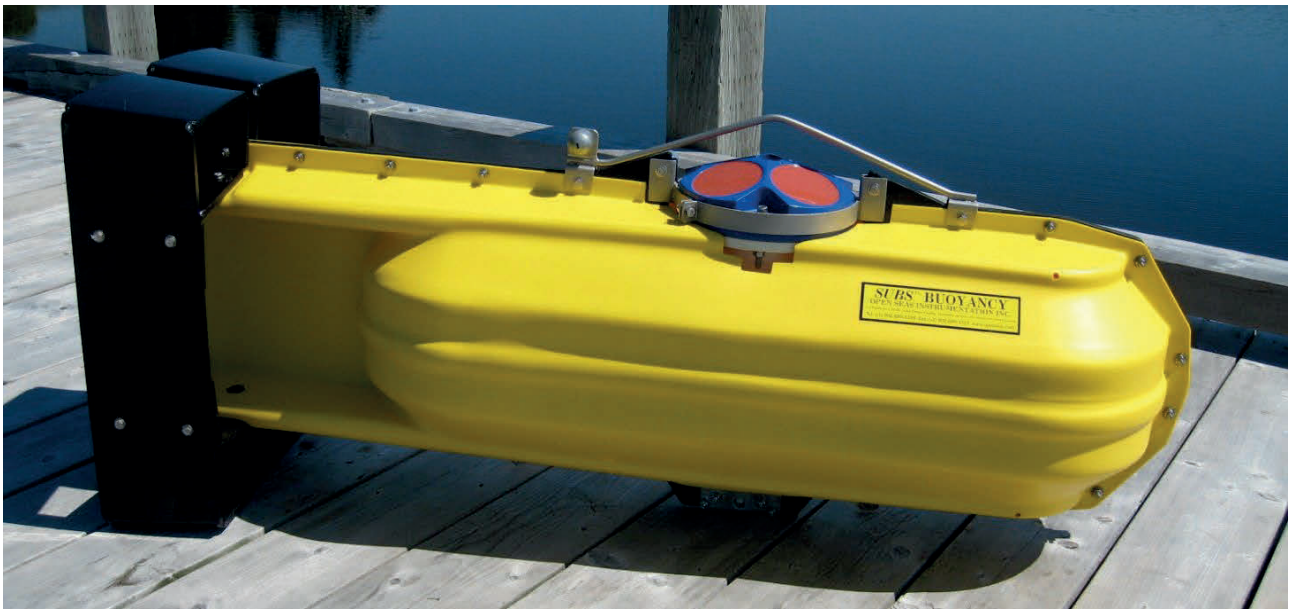
| | | |

| | | |

Attachment F: "7.a SUBS"



Attachment G: "7.b SUBS2"



From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: August 12, 2020 1:48 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Thank you!

Edward Parker
Regional Senior Aquaculture Management Officer
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Facsimile | Télécopieur 902-426-7967
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Government of Canada | Gouvernement du Canada

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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: August 24, 2020 3:18 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Jennifer,

After review of the information, we have some follow up questions for clarification purposes:

- To assist us in understanding whether or not the habitat data we have is representative of pre- or post-aquaculture conditions, can confirmation be provided of the year the three sites first had fish on them? We have 2007 eel grass surveys and want to understand the co-existence of aquaculture and the eel grass beds.
- Is there pre-2015 stocking data available for the three sites? Because we have EMP data from 2012 onwards, having stocking data back to the same year would be useful in interpreting the two data sets. For example, in 2014 site 0814 was anoxic but we have no stocking data.
- Regarding 2018 EMP data, can it be confirmed that no sampling was done at any of the three sites?

Thanks,
Ed

Edward Parker
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From: Feindel, Jessica A <Jessica.Feindel@novascotia.ca>
Sent: August 25, 2020 11:29 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

The 2018 EMP data for Whycocomagh Bay is attached. This should take care of the request outlined in the last bullet below.

Cheers,
Jessica



2018 EMP Data
Whycocomagh Bay (

Date	Day	Month	Year	Data type	Fin/Shell or Ref	Soft or Hard Bottom Station	Old Station ID	NSDFA ID	Lat	Long	Location	Lease/Reference	Redox (mVNHE)	Sulphide (µM)	Porosity (%)	Organic Matter (%)	Collected/Analyzed by:	Grab
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB A	WYB54	45.9484	-61.1297	Whycocomagh Bay	0814	-195	2130	82.52	18.65	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB A	WYB54	45.9484	-61.1297	Whycocomagh Bay	0814	-199	1340	82.60	17.24	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB A	WYB54	45.9484	-61.1297	Whycocomagh Bay	0814	-197	1670	83.59	17.91	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB B	WYB55	45.9489	-61.1305	Whycocomagh Bay	0814	-195	1240	79.59	17.91	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB B	WYB55	45.9489	-61.1305	Whycocomagh Bay	0814	-201	1340	82.17	18.09	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB B	WYB55	45.9489	-61.1305	Whycocomagh Bay	0814	-199	1020	78.23	17.47	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB C	WYB56	45.9492	-61.1277	Whycocomagh Bay	0814	-202	5740	85.70	17.36	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB C	WYB56	45.9492	-61.1277	Whycocomagh Bay	0814	-204	2720	81.14	17.05	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB C	WYB56	45.9492	-61.1277	Whycocomagh Bay	0814	-206	4020	81.87	17.57	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB D	WYB57	45.9497	-61.1276	Whycocomagh Bay	0814	-195	1720	84.56	17.06	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB D	WYB57	45.9497	-61.1276	Whycocomagh Bay	0814	-204	1880	81.67	16.73	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB D	WYB57	45.9497	-61.1276	Whycocomagh Bay	0814	-204	2300	83.52	17.96	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 10	WYB10	45.9514	-61.1264	Whycocomagh Bay	0814	-198	2010	72.72	18.30	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 10	WYB10	45.9514	-61.1264	Whycocomagh Bay	0814	-203	3340	83.33	22.18	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 10	WYB10	45.9514	-61.1264	Whycocomagh Bay	0814	-203	18	69.84	16.06	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 28	WYB28	45.9513	-61.1261	Whycocomagh Bay	0814	-202	3180	82.56	22.37	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 28	WYB28	45.9513	-61.1261	Whycocomagh Bay	0814	-201	3080	83.31	21.03	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 28	WYB28	45.9513	-61.1261	Whycocomagh Bay	0814	-203	2970	82.98	21.96	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 23	WYB23	45.9511	-61.1255	Whycocomagh Bay	0814	-201	2260	90.45	25.70	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 23	WYB23	45.9511	-61.1255	Whycocomagh Bay	0814	-203	2860	86.80	28.00	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 23	WYB23	45.9511	-61.1255	Whycocomagh Bay	0814	-215	2300	88.02	29.54	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 32	WYB32	45.9509	-61.1258	Whycocomagh Bay	0814	-198	2360	81.49	16.48	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 32	WYB32	45.9509	-61.1258	Whycocomagh Bay	0814	-200	2580	88.66	29.07	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 32	WYB32	45.9509	-61.1258	Whycocomagh Bay	0814	-205	2240	87.06	19.04	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 27	WYB27	45.9505	-61.1250	Whycocomagh Bay	0814	-201	2880	88.85	30.71	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 27	WYB27	45.9505	-61.1250	Whycocomagh Bay	0814	-203	1930	86.91	25.83	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 27	WYB27	45.9505	-61.1250	Whycocomagh Bay	0814	-208	2480	86.72	35.04	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 24	WYB24	45.9504	-61.1252	Whycocomagh Bay	0814	-201	220	86.62	31.27	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 24	WYB24	45.9504	-61.1252	Whycocomagh Bay	0814	-206	2050	87.68	31.32	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 24	WYB24	45.9504	-61.1252	Whycocomagh Bay	0814	-210	2150	87.91	28.20	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 30	WYB30	45.9511	-61.1263	Whycocomagh Bay	0814	-200	3180	84.49	17.60	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 30	WYB30	45.9511	-61.1263	Whycocomagh Bay	0814	-202	2060	79.67	17.65	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 30	WYB30	45.9511	-61.1263	Whycocomagh Bay	0814	-199	2650	84.35	18.14	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB E	WYB58	45.9502	-61.1263	Whycocomagh Bay	0814	-188	3080	90.84	45.52	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB E	WYB58	45.9502	-61.1263	Whycocomagh Bay	0814	-199	2560	81.91	17.47	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB E	WYB58	45.9502	-61.1263	Whycocomagh Bay	0814	-207	2580	82.71	18.22	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB F	WYB59	45.9508	-61.1266	Whycocomagh Bay	0814	-193	2280	86.69	44.06	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB F	WYB59	45.9508	-61.1266	Whycocomagh Bay	0814	-186	1750	89.76	48.83	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB F	WYB59	45.9508	-61.1266	Whycocomagh Bay	0814	-198	1980	89.40	45.20	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	REF A	WYB61	45.9456	-61.1349	Whycocomagh Bay	0600/0814	-189	37	76.44	12.84	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	REF A	WYB61	45.9456	-61.1349	Whycocomagh Bay	0600/0814	-195	84	77.08	14.76	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	REF A	WYB61	45.9456	-61.1349	Whycocomagh Bay	0600/0814	-200	19	76.34	13.91	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	WYB 13	WYB13	45.9488	-61.1220	Whycocomagh Bay	0600/0814	-138	1220	85.46	16.88	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	WYB 13	WYB13	45.9488	-61.1220	Whycocomagh Bay	0600/0814	-141	693	85.20	17.74	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	WYB 13	WYB13	45.9488	-61.1220	Whycocomagh Bay	0600/0814	-137	1020	83.73	18.40	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	WYB 7	WYB07	45.9502	-61.1194	Whycocomagh Bay	0600/0814	22	1	73.67	17.05	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	WYB 7	WYB07	45.9502	-61.1194	Whycocomagh Bay	0600/0814	-3	355	75.26	17.23	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Ref	Soft	WYB 7	WYB07	45.9502	-61.1194	Whycocomagh Bay	0600/0814	-56	158	74.64	18.07	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 35	WYB35	45.9511	-61.1216	Whycocomagh Bay	0600	-146	2780	86.85	26.15	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 35	WYB35	45.9511	-61.1216	Whycocomagh Bay	0600	-138	2190	86.89	28.27	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 35	WYB35	45.9511	-61.1216	Whycocomagh Bay	0600	-146	2740	87.13	26.70	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 20	WYB20	45.9518	-61.1206	Whycocomagh Bay	0600	-112	270	86.10	18.81	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 20	WYB20	45.9518	-61.1206	Whycocomagh Bay	0600	-161	2330	86.00	20.20	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 20	WYB20	45.9518	-61.1206	Whycocomagh Bay	0600	-163	1760	81.99	18.73	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 21	WYB21	45.9516	-61.1211	Whycocomagh Bay	0600	-176	11	87.89	24.11	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 21	WYB21	45.9516	-61.1211	Whycocomagh Bay	0600	-166	2410	87.48	22.63	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 21	WYB21	45.9516	-61.1211	Whycocomagh Bay	0600	-163	2740	86.47	26.19	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 34	WYB34	45.9510	-61.1211	Whycocomagh Bay	0600	-139	2920	88.20	48.45	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 34	WYB34	45.9510	-61.1211	Whycocomagh Bay	0600	-132	1850	84.33	28.48	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB 34	WYB34	45.9510	-61.1211	Whycocomagh Bay	0600	-130	1840	88.79	36.29	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB G	WYB60	45.9513	-61.1211	Whycocomagh Bay	0600	-154	5600	86.90	23.13	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB G	WYB60	45.9513	-61.1211	Whycocomagh Bay	0600	-149	2300	87.61	59.12	EWFC	Petit Ponar
27-Sep-18	27	SEP	2018	EMP Level I	Fin	Soft	WYB G	WYB60	45.9513	-61.1211	Whycocomagh Bay	0600	-154	198	89.59	47.60	EWFC	Petit Ponar

---

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: August 25, 2020 3:12 PM
To: Feindel, Jessica A <Jessica.Feindel@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Thank you Jessica!

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
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From: Feehan, Jennifer
Sent: September 4, 2020 4:00 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

To address the first bullet, please find the summary of industry reported production statistics for the three sites (see below), as well as the corresponding file history summary (see attached). We have a number of different means of gaining information, so please let me know if this production data satisfies your request.

Note that we previously reported that the sites were first licenced in 1994 and 1995; however, we found records that pre-date this from another producer at the sites. We can inquire with our Records Centre should you require more information on this.

Summary of Industry Reported Production

AQ#0600

- 1992: 61,168 kg Atlantic salmon produced.
- 1993: report not available in digital file.
- 1994-2001: no production reported.
- 2002: 2,000 kg rainbow trout produced (same at all three sites).
- 2003-2012: no production reported.

AQ#0814

- 1993-1994: no production reported.
- 1995: 72,535 kg Atlantic salmon produced.
- 1996-2001: no production reported.
- 2002: 2,000 kg rainbow trout produced (same at all three sites).
- 2003-2011: no production reported.

AQ#0845

- 1993: 67,014 kg Atlantic salmon produced.
- 1994: no production reported.
- 1995: 67,062 kg steelhead trout produced.
- 1996: 42,270 kg steelhead trout produced.
- 1997-2001: no production reported.
- 2002: 2,000 kg rainbow trout produced (same at all three sites).
- 2003-2010: no production reported.

In response to your second bullet, please find attached the EMP data for AQ#0600, 0814 and 0845 from 2012 onward.

Please let me know if you have any questions or require clarification.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

AQ#0814 0845 0600 File History.docx

2012-2015 Stocking Info Waycobah Sites

AQ#0814 Boundary Amendment:
Response to Information Request by DFO on August 24, 2020

File History Summary

AQ#0600:

- 1992 Annual Production Report submitted by Golden Eagle Fisheries Ltd., received April 20, 1993.
- AQ#0600 Licence and Lease issued to Eskasoni Fisheries Limited on July 28, 1994 for a ten-year term from August 2, 1994 to August 2, 2004;
- Assignment of Licence and Lease to 3057289 Nova Scotia Limited on June 20, 2001;
- AQ#0600 Licence and Lease issued on February 16, 2011 to Waycobah First Nations Band Council for a ten-year term from February 2, 2011 to February 1, 2021.

AQ#0814:

- 1993 Annual Production Report submitted by Golden Eagle Fisheries Ltd., received February 7, 1994.
- AQ#0814 Licence and Lease issued to Eskasoni Fisheries Limited on July 28, 1994 for a ten-year term from August 2, 1994 to August 2nd, 2004;
- Assignment of Licence and Lease to 3057289 Nova Scotia Limited on June 20, 2001;
- AQ#0814 Licence and Lease issued on February 16, 2011 to Waycobah First Nations Band Council for a ten-year term from February 2, 2011 to February 1, 2021.

AQ#0845:

- 1993 Annual Production Report submitted by Golden Eagle Fisheries Ltd., received February 7, 1994.
- AQ#0845 Licence and Lease issued to Eskasoni Fisheries Limited on February 20, 1995 for a ten-year term from February 27, 1995 to February 27, 2005;
- Assignment of Licence and Lease to 3057289 Nova Scotia Limited on June 20, 2001;
- AQ#0845 Licence and Lease issued on February 16, 2011 to Waycobah First Nations Band Council for a ten-year term from February 2, 2011 to February 1, 2021.

Note: There is a gap from 2001 to 2011 for all three sites. The sites were previously issued to Eskasoni Fisheries Ltd. and were assigned to 3057289 Nova Scotia Limited in June 2001. The sites became inactive and were therefore cancelled in November 2004. They were then reissued to Waycobah in 2011.

0814 *INFORMATION PROVIDED IN THIS WORKSHEET ORIGINATES FROM THE LICENCE HOLDER AS PART OF A STOCKING LEVEL APPROVAL APPLICATION

2015 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	NO STOCKING DATA			Jul-15	Hypoxic B	0	NO STOCKING DATA				01-Nov-14	365
SPRING													
FALL													

2014 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	289314	Jan-14	419	Jul-14	Anoxic	187200	205370	Aug-14	254855	1.04	Nov-14	45
SPRING		53107	May-14	55									
		31978	Jun-14	55									
		13400	Jul-14	45									

2013 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	310881	Jan-13	299	Jul-13	Oxic B	106995	106995	Nov-13	225380	0.98	0	0
SPRING		110211	Jun-13	70									
		12000	Jul-13	60									
		34000	Jul-13	45									
FALL		129000	Oct-13	53									
		55600		45									

2012 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	178198	Jan-12	396	Jul-12	Hypoxic A	185486	198977	Dec-12	142835	0.994	0	0
SPRING		166000	May-12	45									
		50000	Jun-12	103									
FALL		108767	Oct-12	44									
		166113	Nov-12	45									

0600 *INFORMATION PROVIDED IN THIS WORKSHEET ORIGINATES FROM THE LICENCE HOLDER AS PART OF A STOCKING LEVEL APPROVAL APPLICATION

2015 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
SPRING	Rainbow trout	53673	Aug-15	83	Jul-15	Hypoxic A	0	39745	Dec-15	0	0	Jan-May-15	169
		29559	Dec-15	31									
		84963	Dec-15	70								01-Dec-15	
		15000	Dec-15	500									

2014 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	28850	Jun-14	62	Jul-14	Hypoxic B	4269	20800	Dec-14	0	0	Jan-May-14 Dec-14	171

2013 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	200964	Sep-13	426	NO EMP DATA			143445	Dec-13	21836 95564	1.04 0.97	0	0

2012 PRODUCTION

	Species and Strain	Total Number of Fish Introduced	Date of Stocking (mo/yr)	Average Weight of Fish Introduced (g)	EMP Results Summary			Maximum Biomass (kg)	Date of Highest Biomass (mo/yy)	Total Number of Fish Harvested	Average Harvest Weight (kg)	Fallow Period Start Date (mo/yy)	Length of Fallow Period (days)
					Date of EMP Sampling (mo/yy)	Site Classification	Biomass (kg)						
On-site inventory	Rainbow trout	NO STOCKING DATA											
SPRING													
FALL													

0845 *INFORMATION PROVIDED IN THIS WORKSHEET ORIGINATES FROM THE LICENCE HOLDER AS PART OF A STOCKING LEVEL APPROVAL APPLICATION

2016 PRODUCTION													
	Species and Strain	**Total Number of Fish Introduced**	**Date of Stocking (mo/yr)**	**Average Weight of Fish Introduced (g)**	**EMP Results Summary**			**Maximum Biomass (kg)**	**Date of Highest Biomass (mo/yy)**	**Total Number of Fish Harvested**	**Average Harvest Weight (kg)**	**Fallow Period Start Date (mo/yy)**	**Length of Fallow Period (days)**
					Date of EMP Sampling (mo/yy)	**Site Classification**	**Biomass (kg)**						
On-site inventory	Rainbow trout	50,000	May-16	55	NO EMP DATA			90,000					
2015 PRODUCTION													
	Species and Strain	**Total Number of Fish Introduced**	**Date of Stocking (mo/yr)**	**Average Weight of Fish Introduced (g)**	**EMP Results Summary**			**Maximum Biomass (kg)**	**Date of Highest Biomass (mo/yy)**	**Total Number of Fish Harvested**	**Average Harvest Weight (kg)**	**Fallow Period Start Date (mo/yy)**	**Length of Fallow Period (days)**
					Date of EMP Sampling (mo/yy)	**Site Classification**	**Biomass (kg)**						
On-site inventory	Rainbow trout	118,889	Jan-15	561	NO EMP DATA			72,496	Jun-15	62099	1.1	May to December 2015	165
2014 PRODUCTION													
	Species and Strain	**Total Number of Fish Introduced**	**Date of Stocking (mo/yr)**	**Average Weight of Fish Introduced (g)**	**EMP Results Summary**			**Maximum Biomass (kg)**	**Date of Highest Biomass (mo/yy)**	**Total Number of Fish Harvested**	**Average Harvest Weight (kg)**	**Fallow Period Start Date (mo/yy)**	**Length of Fallow Period (days)**
					Date of EMP Sampling (mo/yy)	**Site Classification**	**Biomass (kg)**						
On-site inventory	Rainbow trout				NO EMP DATA							01-Jan-14	365
2013 PRODUCTION													
	Species and Strain	**Total Number of Fish Introduced**	**Date of Stocking (mo/yr)**	**Average Weight of Fish Introduced (g)**	**EMP Results Summary**			**Maximum Biomass (kg)**	**Date of Highest Biomass (mo/yy)**	**Total Number of Fish Harvested**	**Average Harvest Weight (kg)**	**Fallow Period Start Date (mo/yy)**	**Length of Fallow Period (days)**
					Date of EMP Sampling (mo/yy)	**Site Classification**	**Biomass (kg)**						
On-site inventory	Rainbow trout	507,306	Dec-13	192	NO EMP DATA			214,117	May-13			May to December 2013	210

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: September 8, 2020 2:22 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>
Subject: RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Jennifer, 'Thank You' to you and the DFA team for pulling this information together to assist us in our review.

Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
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From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: September 9, 2020 12:07 PM
To: Aquaculture <Aquaculture@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: donald [redacted] >
Subject: Changes to applications for AQ 1430 and 1431

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Please find attached a formal request for production plan changes to the applications for AQ 1430 and 1431. Please be sure to reach out with questions or concerns.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Revisions to 1430 1431.pdf

NOTE: Please refer to the Application Package, Volume 2, Section 4.4 – Development Plan Revisions AQ#1430 and AQ#1431 (2020), for the attachment in this email.

From: Feehan, Jennifer
Sent: September 23, 2020 3:46 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

I am following up on the AQ#0814 Boundary Amendment Application regarding possible outstanding information as per your email dated September 20, 2019 (see below).

Do you still require the information requested based on DFO's checklist, or has the subsequent information provided on this application and the aquaculture application review process information sessions between our departments satisfied DFO's review of this file?

I have added notes to the list below that state if the request has since been resolved (in green), if information from the proponent has been provided (in purple), or that information may be outstanding (in red).

Please let me know if any additional information is required at your earliest convenience.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: September 20, 2019 4:33 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Laking, Erin <Erin.Laking@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Lynn,

DFO has reviewed the application and supporting information received July 15, 2019 from your department. As a result of our comparison of the application against our "DRAFT Checklist of Information Submitted by Proponent" and feedback from our internal reviewers, DFO requests the following additional information to continue our review:

Contact information: Resolved – information provided to DFO on September 23, 2019 by Lynn Winfield.

- Primary mailing address for the proponent
- Full legal registered name of the company (if applicable)
- Contact information of the duly authorized representative of the proponent (if applicable)

Location of the project:

- Description of the location of the point of access for the proposed site (i.e., wharf, slipway) and locate it on the topographic map or nautical chart **Resolved – map provided to DFO on September 23, 2019 by Lynn Winfield.**
  - Note: Where will the construction of the cages take place; and where is the wharf at which service vessels will tie up? **Note: Identification of wharf in map submitted Sept 23, 2019 and wharves are addressed in the Marine Finfish FMP (Section 5.1.2.6). Is clarification on location of cage construction and wharf for service vessels still required?**

Description of the project

- Labelled, scale drawings of the proposed culture facility in two dimensions (plan view and cross sectional view) including all equipment such as cages (include length, width and depth) walkways, mooring system,

anchors, feed sheds, mortality storage, net washing and feed barges, etc. **Note: Site Plan and Site, Infrastructure and Holding System are addressed in the Marine Finfish FMP (Sections 2.2, 5.1).**
  - Note: a diagram is provided in the NPA application, but does not include equipment other than cages, lines and anchors/moorings. If there is other equipment, please include it.
- Drawings of alternate siting configurations if it is anticipated that the infrastructure will be moved within the tenure boundaries **Please see attached "Additional info attachment 0814 July 4" and advise if additional information is required.**
  - Note: it is stated that the cages may be moved around to enable fallowing of areas.
- Description of the construction materials to be used and the name of the cage system manufacturer. **Note: Description of equipment and materials, including cage materials are addressed in the Marine Finfish FMP (Section 5.1.2.2).**
- Description of the anchoring / mooring system (e.g. screwed in, non-attached, etc.), dimensions of all materials, and placement and installation procedures to be employed. This should include a description of plans, if any, to uninstall and reinstall anchors and weights (or any equipment associated physically attached to the benthic substrate) in different locations as they rotate equipment. **Note: Description of equipment and materials for anchoring and mooring systems including installations are addressed in the Marine Finfish FMP (Sections 5.1.2.1 and 5.1.3).**

Production

- Details on the use and storage of both medicated and non-medicated feeds **Note: Feed storage and management is addressed in the Marine Finfish FMP (Section 6.8.3).**
- For boundary amendments, details of provincial EMP data for the existing site spanning the previous 2 production cycles **Resolved – NSDFA Operations provided DFO with 2018 and 2019 EMP data.**
- Description of harvesting procedures and schedule, including transportation of product from the production site to the processing plant and the disposal of bloodwater and offal
  - Procedures to mitigate any potentially harmful effects resulting from harvesting and transportation activities **Note: Production Plan, Waste Management Strategy, SOPs for Fish Transport and Harvesting are addressed in the Marine Finfish FMP (Sections 2.1, 6.10.6, 6.13.6, 6.14.1, 6.14.2, 7.2.2, 9.2.1).**
- Will there be introduced artificial light? **Response from Applicant: "There will not be any grow lights used on this lease."**

Anti-fouling

- Details for any anti-fouling materials that may be used and description of how each may be applied, including the location, method and frequency of application and other water/material will be disposed. **Note: Antifouling is addressed in Marine Finfish FMP (Section 6.3.1.3).**

Decommissioning

- Description of the decommissioning process, including measures to restore the area to its pre-development state. **Note: Decommissioning is addressed in Marine Finfish FMP (Section 8.2).**

Socio-Economic Environment

- List of contact names and comments received from fishers and fishing that have been contacted to discuss the proposed development. **Is this information required?**

Description of the Aquatic Environment

- Confirmation on whether or not the site lies within the migratory route of any fish species and if so, identification of species and the predicted time(s) of migration. **Is this information required?**

Predator Control

- Will there be any use of acoustic predator deterrents? **Note: Predator deterrents are addressed in Marine Finfish FMP (Section 6.1, 6.2).**

Should you or the proponents have any questions regarding these additional information requirements, please

feel free to contact me.

Thanks,
Ed

Edward Parker
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-1489
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P500, Dartmouth, NS B2Y 4A2
CP 1006, P500, Dartmouth, N-É B2Y 4A2
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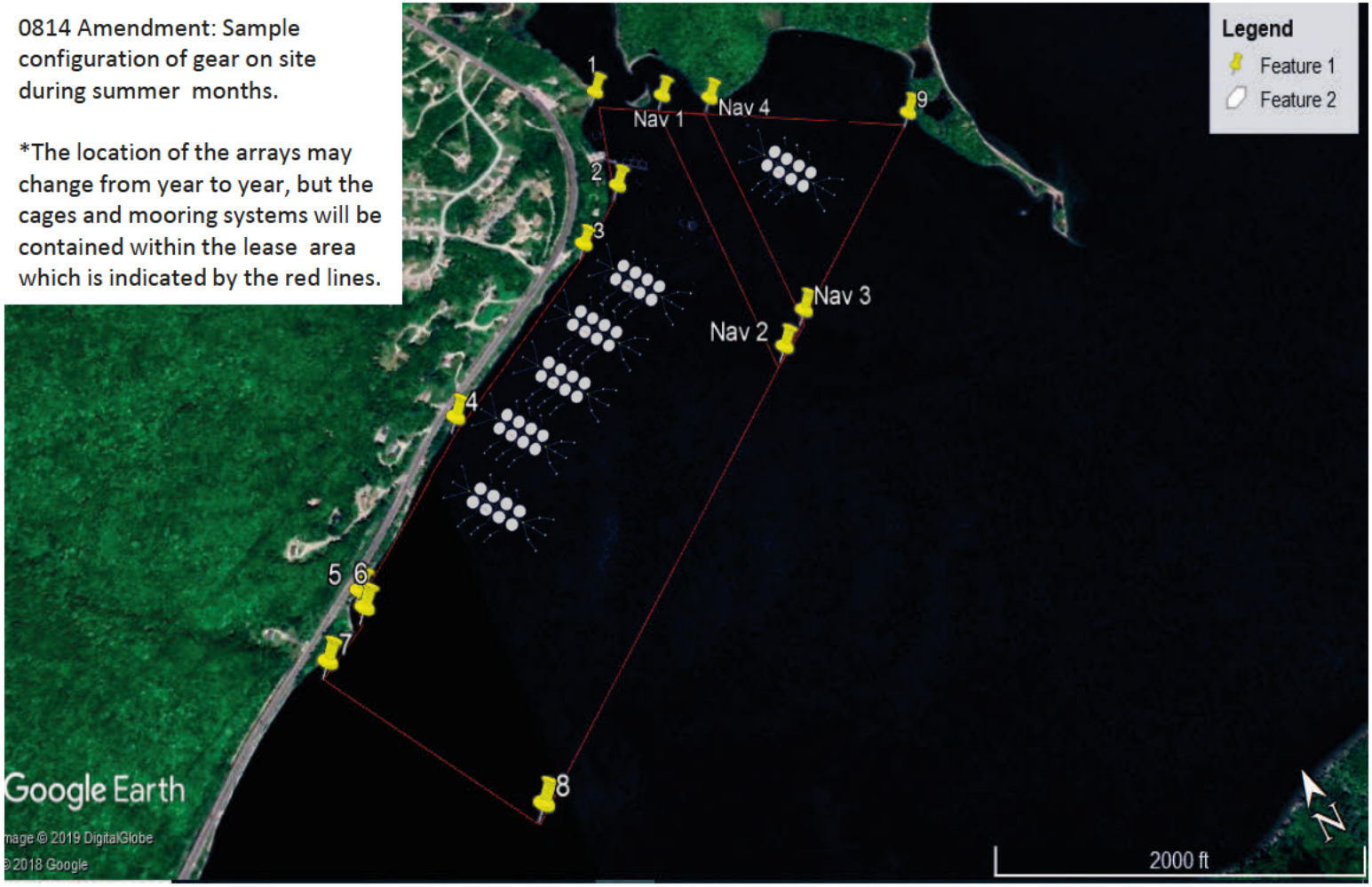
Additional info attachment 0814 Ju

0814 Amendment:
Overwintering locations on lease indicated by blue polygon.
Grow-out locations indicated by orange polygons.



0814 Amendment: Sample configuration of gear on site during summer months.

*The location of the arrays may change from year to year, but the cages and mooring systems will be contained within the lease area which is indicated by the red lines.



From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: November 17, 2020 1:22 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Jennifer,

Thank you for the information. The only remaining information we need is that which I highlighted. In light of discussions to date between our two departments to date regarding information in FMP's, we are happy to discuss the request.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
CP 1006, P600, Dartmouth, N-É B2Y 4A2
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> **From:** Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
> **Sent:** Wednesday, September 23, 2020 3:46 PM
> **To:** Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
> **Cc:** Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
> **Subject:** RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation
>
> Hi Ed,
>
> I am following up on the AQ#0814 Boundary Amendment Application regarding possible outstanding information as per your email dated September 20, 2019 (see below).
>
> Do you still require the information requested based on DFO's checklist, or has the subsequent information provided on this application and the aquaculture application review process information sessions between our departments satisfied DFO's review of this file?
>
> I have added notes to the list below that state if the request has since been resolved (in green), if information from the proponent has been provided (in purple), or that information may be outstanding (in red).

Please let me know if any additional information is required at your earliest convenience.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: September 20, 2019 4:33 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Laking, Erin <Erin.Laking@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Lynn,

DFO has reviewed the application and supporting information received July 15, 2019 from your department. As a result of our comparison of the application against our "DRAFT Checklist of Information Submitted by Proponent" and feedback from our internal reviewers, DFO requests the following additional information to continue our review:

Contact information: Resolved – information provided to DFO on September 23, 2019 by Lynn Winfield.

- Primary mailing address for the proponent
- Full legal registered name of the company (if applicable)
- Contact information of the duly authorized representative of the proponent (if applicable)

Location of the project:

- Description of the location of the point of access for the proposed site (i.e., wharf, slipway) and locate it on the topographic map or nautical chart **Resolved – map provided to DFO on September 23, 2019 by Lynn Winfield.**
  - Note: Where will the construction of the cages take place; and where is the wharf at which service vessels will tie up? **Note: Identification of wharf in map submitted Sept 23, 2019 and wharves are addressed in the Marine Finfish FMP (Section 5.1.2.6). Is clarification on location of cage construction and wharf for service vessels still required?**

Description of the project

- Labelled, scale drawings of the proposed culture facility in two dimensions (plan view and cross sectional view) including all equipment such as cages (include length, width and depth) walkways, mooring system, anchors, feed sheds, mortality storage, net washing and feed barges, etc. **Note: Site Plan and Site, Infrastructure and Holding System are addressed in the Marine Finfish FMP (Sections 2.2, 5.1).**
  - Note: a diagram is provided in the NPA application, but does not include equipment other than cages, lines and anchors/moorings. If there is other equipment, please include it.
- Drawings of alternate siting configurations if it is anticipated that the infrastructure will be moved within the tenure boundaries **Please see attached "Additional info attachment 0814 July 4" and advise if additional information is required.**
  - Note: it is stated that the cages may be moved around to enable fallowing of areas.
- Description of the construction materials to be used and the name of the cage system manufacturer. **Note: Description of equipment and materials, including cage materials are addressed in the Marine Finfish FMP (Section 5.1.2.2).**

- Description of the anchoring / mooring system (e.g. screwed in, non-attached, etc.), dimensions of all materials, and placement and installation procedures to be employed. This should include a description of plans, if any, to uninstall and reinstall anchors and weights (or any equipment associated physically attached to the benthic substrate) in different locations as they rotate equipment. **Note: Description of equipment and materials for anchoring and mooring systems including installations are addressed in the Marine Finfish FMP (Sections 5.1.2.1 and 5.1.3).**

Production

- Details on the use and storage of both medicated and non-medicated feeds **Note: Feed storage and management is addressed in the Marine Finfish FMP (Section 6.8.3).**
- For boundary amendments, details of provincial EMP data for the existing site spanning the previous 2 production cycles **Resolved – NSDFA Operations provided DFO with 2018 and 2019 EMP data.**
- Description of harvesting procedures and schedule, including transportation of product from the production site to the processing plant and the disposal of bloodwater and offal
  - Procedures to mitigate any potentially harmful effects resulting from harvesting and transportation activities **Note: Production Plan, Waste Management Strategy, SOPs for Fish Transport and Harvesting are addressed in the Marine Finfish FMP (Sections 2.1, 6.10.6, 6.13.6, 6.14.1, 6.14.2, 7.2.2, 9.2.1).**
- Will there be introduced artificial light? **Response from Applicant: "There will not be any grow lights used on this lease."**

Anti-fouling

- Details for any anti-fouling materials that may be used and description of how each may be applied, including the location, method and frequency of application and other water/material will be disposed. **Note: Antifouling is addressed in Marine Finfish FMP (Section 6.3.1.3).**

Decommissioning

- Description of the decommissioning process, including measures to restore the area to its pre-development state. **Note: Decommissioning is addressed in Marine Finfish FMP (Section 8.2).**

Socio-Economic Environment

- List of contact names and comments received from fishers and fishing that have been contacted to discuss the proposed development. **Is this information required?**

Description of the Aquatic Environment

- Confirmation on whether or not the site lies within the migratory route of any fish species and if so, identification of species and the predicted time(s) of migration. **Is this information required?**

Predator Control

- Will there be any use of acoustic predator deterrents? **Note: Predator deterrents are addressed in Marine Finfish FMP (Section 6.1, 6.2).**

Should you or the proponents have any questions regarding these additional information requirements, please feel free to contact me.

Thanks,
Ed

Edward Parker
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-1489
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P500, Dartmouth, NS B2Y 4A2

CP 1006, P500, Dartmouth, N-É B2Y 4A2
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From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Wednesday, November 18, 2020 11:50 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

Thank you for your response. We would like to schedule a meeting with you and your review team to discuss the request and how it relates to DFO's stressor categories so we can ensure the appropriate information is provided by NSDFA and/or the proponent for your review.

Please let me know a day and time that would work for you in the coming weeks and who you would like included on the call, and I will follow up with the meeting request.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: November 20, 2020 4:10 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Thanks Jennifer.

For your consideration, please find below a clarification (removed information request related to decommissioning and anti-foulant use) of the highlighted sections in the below email and an explanation as to what information is being requested and why (context) we are requesting it. We are not in possession of the Farm Management Plan. Although we are appreciative of NSDFA's efforts to inform us of the role of FMP's to date, we are still at the stage of needing more specific information. After review of the details below, please advise if you still need to meet to discuss. Thanks!

Clarification on location of cage construction

- Cage construction activities can impact fish and fish habitat. If they are planned to occur, further details will be required, including mitigation measures:
    - Description of construction and installation activities that are intended to take place in water, on wetlands or on beaches. Schedule of what activities are intended to take place and where. List of specific types of heavy machinery, vehicles or vessels to be used on wetlands or beaches or within the intertidal or deep water area for the installation and construction phases. Explain when and how they are to be used.

If there is other equipment, please include it

- This is in the context of other associated infrastructure that may be constructed/installed and may impact fish and fish habitat. If there are such plans, further details will be required such as placement and installation procedures, including mitigation.

Description of equipment and materials for anchoring and mooring systems including installations are addressed in the Marine Finfish FMP

- The use of heavy equipment and the installation of anchoring and mooring systems can result in impacts to fish and fish habitat. Further details are required such as placement and installation procedures, including mitigation.

Details on the use and storage of both medicated and non-medicated feeds

- The placement and installation of infrastructure related to feed management can impact fish and fish habitat.
- Potential for spills is considered in our risk assessment.

Use of acoustic predator deterrents

- Acoustic deterrent devices for example represent sources of sensory disturbance (e.g. noise) to a variety of fish species, marine mammals and aquatic species-at-risk. Depending on the time of year, these activities can result in altered biological behavior for species using this area to carry out life processes.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
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From: Feehan, Jennifer
Sent: February 11, 2021 10:48 AM
To: 'donald' [redacted]; Melissa Rommens <melissa@aquaculture-solutions.com>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Feindel,

Jessica A <Jessica.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: AQ#0814 - Request for Additional Information

Hi Donald and Melissa,

Hope you are well. We have received a follow up request from Fisheries and Oceans Canada for additional information on the Boundary Amendment application for AQ#0814 (see list below).

Some of the information requested would be present in your Farm Management Plan, and I have indicated corresponding sections of the FMP in blue. This may help in compiling your response, although additional information may be required as described below.

1. **Clarification on location of cage construction (Section 5.1)**

- Cage construction activities can impact fish and fish habitat. If they are planned to occur, further details will be required, including mitigation measures:
    - Description of construction and installation activities that are intended to take place in water, on wetlands or on beaches. Schedule of what activities are intended to take place and where. List of specific types of heavy machinery, vehicles or vessels to be used on wetlands or beaches or within the intertidal or deep water area for the installation and construction phases. Explain when and how they are to be used.

2. **If there is other equipment, please include it (Section 5.1)**
    - This is in the context of other associated infrastructure that may be constructed/installed and may impact fish and fish habitat. If there are such plans, further details will be required such as placement and installation procedures, including mitigation.

3. **Description of equipment and materials for anchoring and mooring systems including installations (Sections 5.1.2.1 and 5.1.3)**
    - The use of heavy equipment and the installation of anchoring and mooring systems can result in impacts to fish and fish habitat. Further details are required such as placement and installation procedures, including mitigation.

4. **Details on the use and storage of both medicated and non-medicated feeds (Section 6.8.3)**
    - The placement and installation of infrastructure related to feed management can impact fish and fish habitat.
    - Potential for spills is considered in our risk assessment.

5. **Use of acoustic predator deterrents (Sections 6.1 and 6.2)**
    - Acoustic deterrent devices for example represent sources of sensory disturbance (e.g. noise) to a variety of fish species, marine mammals and aquatic species-at-risk. Depending on the time of year, these activities can result in altered biological behavior for species using this area to carry out life processes.

Please do not hesitate to reach out should you have any questions or wish to discuss.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Feehan, Jennifer [mailto:Jennifer.Feehan@novascotia.ca]
Sent: Thursday, February 18, 2021 8:39 AM
To: Melissa Rommens
Cc: Winfield, Lynn
Subject: FW: AQ#0814 - Request for Additional Information

Hi Melissa,

I just noticed that I sent the email below to possibly an outdated email address for you. Apologies for that.

Please let me know if you have any questions.

Thanks,
Jennifer

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: February 18, 2021 9:51 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ#0814 - Request for Additional Information

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Thank-you for resending Jennifer.
I will begin to work on the response.
Melissa

Feehan, Jennifer

Subject: Waycobah Adjudicated Applications - Meeting (via Teams)
Location: Microsoft Teams Meeting

Start: Mon 2021-02-22 1:00 PM
End: Mon 2021-02-22 1:30 PM

Recurrence: (none)

Meeting Status: Accepted

Organizer: Forgeron, Joanna L
Required Attendees Forgeron, Joanna L; donald davis ; Feindel, Nathaniel J; 'Dobson, Suzanne'; Hancock, Bruce H; Feehan, Jennifer; Winfield, Lynn; melissa@sustainaqua.ca; Robert Ceschiutti
Optional Attendees: Parker, Edward V; Ceschiutti, Robert

Microsoft Teams meeting

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Click here to join the meeting

Join with a video conferencing device
20014895@t.plcm.vc
Video Conference ID: 119 657 277 4
Alternate VTC dialing instructions

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From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: February 22, 2021 2:42 PM
To: Aquaculture <Aquaculture@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: donald [redacted]
Subject: Depositional models for Aberdeen sites - We'koqma'q AQ 1430, 1431

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Good afternoon:
Attached find the outcomes for depositional models for the amended production plans for each of the sites in Aberdeen, currently numbered AQ 1430 and AQ 1431. The outcomes for the modeling appear as png files. The assumptions for these models are also attached as xlsx files.

The formal request for the change to the Development Plans for these sites has also been attached as an email for reference.

If we are required to submit this information to DFO directly as well, please advise.

Please contact Donald and myself directly with questions on this submission.

Kind regards,
Melissa

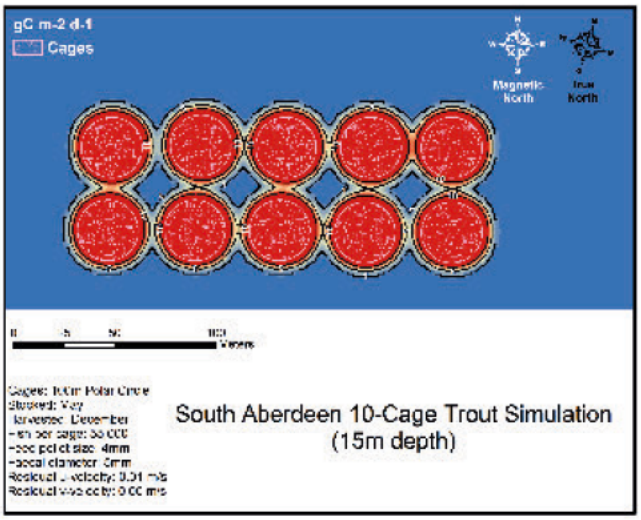
SustainAqua
Sustainable Solutions for Long Term Growth

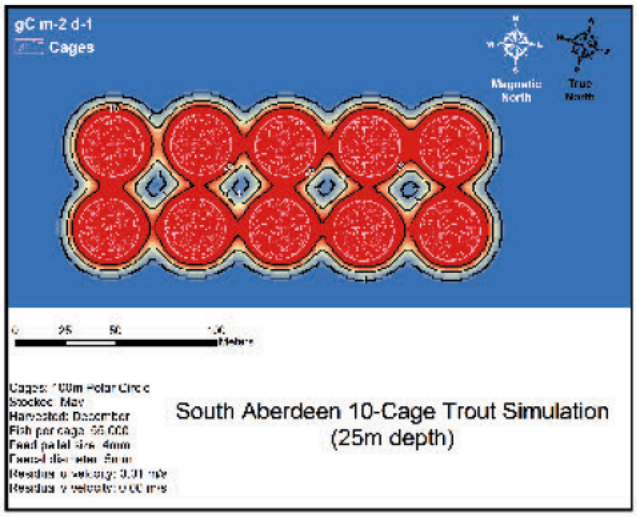
MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

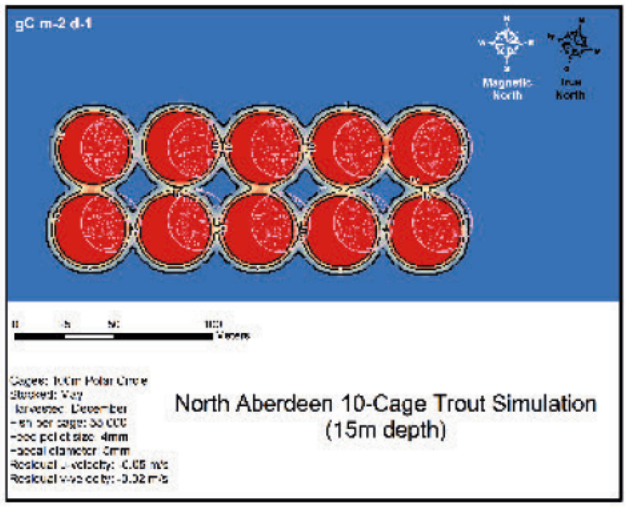
Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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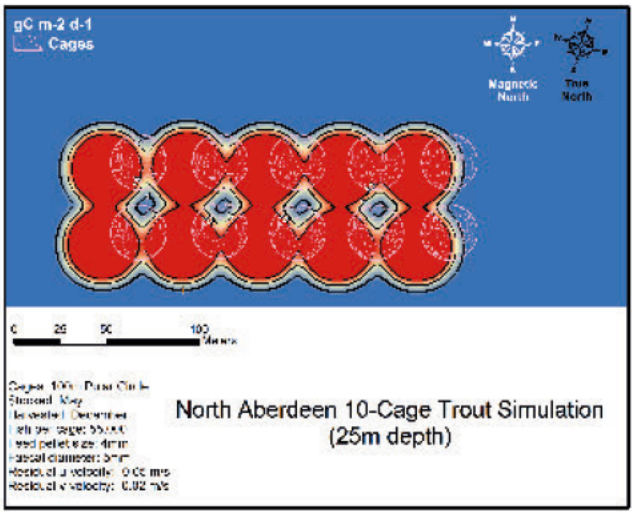
Data for Organix North Aberdeen 10(Data for Organix South Aberdeen 10(Changes to applications for AQ

NOTE: Please refer to the Application Package, Volume 2, Section 4.4 – Development Plan Revisions AQ#1430 and AQ#1431 (2020) and Section 4.5 – Depositional Models AQ#1430 and AQ#1431 (2020), for the attachments in this email.









From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Thursday, February 25, 2021 2:47 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>; Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: Depositional models for Aberdeen sites - We'koqma'q AQ 1430 &1431

Hi Ed,

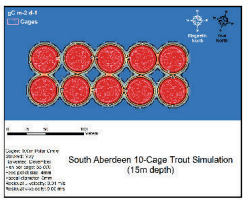
I am following up on the meeting between our departments and We'koqma'q First Nation held on February 22nd. Please find attached the proposed revisions to the development plans for AQ#1430 and AQ#1431 in Aberdeen, as well as the amended outcomes for the depositional models for the amended production plans.

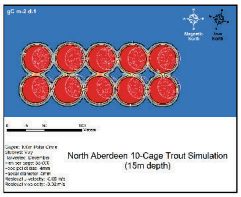
The outcomes for the modeling appear as png files. The assumptions for these models are also attached as xlsx files.

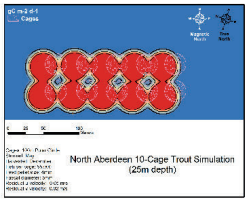
Please let me know if you have any questions.

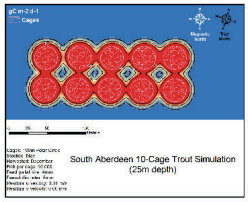
Kinds regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca









Data for Organix North Aberdeen 10(

Data for Organix South Aberdeen 10(

Revisions to 1430 1431.pdf

NOTE: Please refer to the Application Package, Volume 2, Section 4.4 – Development Plan Revisions AQ#1430 and AQ#1431 (2020) and Section 4.5 – Depositional Models AQ#1430 and AQ#1431 (2020), for the documents sent to and reviewed by DFO.

From: Feehan, Jennifer [mailto:Jennifer.Feehan@novascotia.ca]
Sent: Thursday, February 25, 2021 2:52 PM
To: Melissa Rommens; 'donald'
Cc: Greenwood, Megan N; Ceschiutti, Robert; Feindel, Nathaniel J
Subject: RE: Depositional models for Aberdeen sites - We'koqma'q AQ 1430, 1431

Hi Donald and Melissa,

I am following up to confirm that we have forwarded the depositional modelling and amended production plans for AQ#1430 and AQ#1431 to DFO.

We will be in touch if DFO has any further questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC

Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: February 26, 2021 1:11 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; donald <[redacted]>
Subject: RE: AQ#0814 - Request for Additional Information

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Hello Jennifer:
Find attached a response to the questions below.
Kind regards,
Melissa

Additional info response 0814 Febr

Response to additional information boundary amendment AQ # 0814

Feb. 26, 2021

Below find a map showing location of We'koqm'aq's activities to support AQ #0814, as described in the text that follows. The boundaries for the requested site amendment are shown as yellow pins.



1. ***Clarification on location of cage construction***
   - *Cage construction activities can impact fish and fish habitat. If they are planned to occur, further details will be required, including mitigation measures:*
     - *Description of construction and installation activities that are intended to take place in water, on wetlands or on beaches. Schedule of what activities are intended to take place and where. List of specific types of heavy machinery, vehicles or vessels to be used on wetlands or beaches or within the intertidal or deep water area for the installation and construction phases. Explain when and how they are to be used.*

Many of the cages for use in the amended site are already constructed and in the water. Any new cage construction will occur at We'koqma'q's existing local near-shore cage construction location shown in the map by the green circle.

This is a maintained area adjacent to the lake on reserve land which is used exclusively for the purpose of assembling cages and pulling them into the water. This area used for cage construction is neither a wetland nor a beach nor an intertidal area.

Once assembled, the cages are pulled over the intertidal area into the water using a lake-based vessel. The shortest path over the intertidal area is used to reduce impacts. In this area, the water gets deep enough to float the cages almost immediately. The floating cages are then pulled to their location by being towed behind a vessel through water deep enough to ensure no drag.

2. ***If there is other equipment, please include it***
   - *This is in the context of other associated infrastructure that may be constructed/installed and may impact fish and fish habitat. If there are such plans, further details will be required such as placement and installation procedures, including mitigation.*

There are two existing wharves which service the AQ#0814 site whose ends are moored on the lake bottom. Their location is indicated on the map via the blue circle. The moorings for these wharves are in place. Cage system mooring details follow in #3.

3. ***Description of equipment and materials for anchoring and mooring systems including installations***
   - *The use of heavy equipment and the installation of anchoring and mooring systems can result in impacts to fish and fish habitat. Further details are required such as placement and installation procedures, including mitigation.*

Mooring deployment is described below:
Moorings (concrete blocks) are transferred from land to a barge at the main existing shore-based location (blue circle on map). The barge is motored out to the pre-determined GPS waypoint and the mooring is dropped/pushed off the barge.

The end moorings and center lines are dropped first. They are pulled tight before the cross grids are installed. Two moorings are used for each end line. Two moorings are also used on each of the cross grids on the sides. The inside mooring is dropped first, the line is pulled tight, then the second mooring is dropped. The grid and scope lines are assembled prior to installation so that all connections and intersections of the lines can be properly secured. The scope of the mooring lines is targeted to be at least 3:1 at high tide.

The only items that contact the bottom for the mooring system are the moorings themselves. All other equipment used in installation is barge or vessel mounted.

4. ***Details on the use and storage of both medicated and non-medicated feeds***
    - *The placement and installation of infrastructure related to feed management can impact fish and fish habitat.*
    - *Potential for spills is considered in our risk assessment.*

Bulk feed storage is located at a repurposed rink that was acquired by We'koqma'q for this purpose in 2019. It is located several kilometers away from the shore, indicated by the purple circle in the map. This is also the location that the feed is delivered to. Abell Pest control is contracted to manage pests in and around the building.

Only feed fed during the same day is brought to the main existing shore-based location (blue circle on map). If an excess of feed happens to be delivered, it is stored in secure, steel transport containers located across the parking lot for the wharves. The amount of feed stored is minimal, far less than the amount that can be safely and properly stored according to space in the containers.

Feed is loaded onto vessels according to daily use. On the vessels it is covered to protect it from birds. It is not left on a vessel unless it will be fed within the day. Bags or open containers of feed are not left exposed or uncovered.

Any feed that is unusable is removed from the site as soon as possible and disposed of at an approved waste management facility. Feed spills are cleaned up immediately. The pathway for feed delivery and passage is kept clear and free of obstacles to reduce spillage.

Records of feed use are maintained and amounts are entered into production control software.

5. ***Use of acoustic predator deterrents***
    - *Acoustic deterrent devices for example represent sources of sensory disturbance (e.g. noise) to a variety of fish species, marine mammals and aquatic species-at-risk. Depending on the time of year, these activities can result in altered biological behavior for species using this area to carry out life processes.*

No acoustic predator deterrents are used.

From: Feehan, Jennifer
Sent: February 26, 2021 1:42 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Feindel, Jessica A <Jessica.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

Please find attached the response from We'koqma'q First Nation in reference to the additional information requested below for AQ#0814.

Let me know if you require any additional information or clarification from the proponent.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



Additional info response 0814 Febr

NOTE: Please refer to correspondence above (see February 26, 2021) for the attachment in this email.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: February 26, 2021 1:45 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Thank you Jennifer.

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: March 2, 2021 5:50 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,

DFO is hereby requesting the following information in order to continue with its review of the boundary amendment application for site 0814:

- Please provide all mitigation measures related to fish containment, including but not limited to the following:
    - Operating procedures that limit the risk of a breach, including the identification of critical control points, critical control limits, monitoring and corrective actions.
    - Operating procedures for net maintenance (surface and below surface) such as inspection procedures, cleaning, disinfection, testing, repair, changing procedures, biofouling strategies as well as recording and reporting procedures for these activities.
    - Mooring and anchor inspection, grid system inspection and recording and reporting procedures for these activities.
    - Engineer approved minimum infrastructure requirements, and minimum infrastructure maintenance and inspection requirements in place for containment management.
    - Corrective actions related to the above procedures.
    - Procedures for site management in the event of severe weather.
    - Procedures for response to breaches or suspected breaches, including mandatory reporting.
    - Security protocols to reduce risk of vandalism and release of fish.
    - In the Development Plan submitted by the proponent, it is stated that We'koqma'q First Nation hopes to become certified to the Global Aquaculture Alliance's Best Aquaculture Practices, which includes enhanced monitoring and global performance standards. Please advise if this certification has been obtained and if so, please provide all enhanced mitigation measures related to fish containment.

- Please provide all mitigation measures related to oxygen supplementation, including but not limited to the following:
    - Protocols for monitoring of dissolved oxygen, and mitigation protocols in the event of low levels.
    - Description of equipment used for oxygen supplementation i.e. type, quantity.
    - Operating procedures for the use of the oxygenation system and monitoring procedures for effectiveness.
    - Reporting procedures for mass mortality events, or significant mortality of unknown cause

- Will artificial illumination be used?
    - If so, please provide details of equipment used, timing, and procedures, etc.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: March 3, 2021 5:48 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: Depositional models for Aberdeen sites - We'koqma'q AQ 1430 &1431

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Thank you Jennifer!

Edward Parker
Regional Senior Aquaculture Management Officer
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Si vous avez reçu cette communication par erreur, veuillez en aviser l'expéditeur immédiatement et la supprimer sans l'imprimer, la copier, ou la faire suivre. Merci.

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Monday, March 8, 2021 11:26 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne

<Suzanne.Dobson@dfo-mpo.gc.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

Thank you for the request for additional information for AQ#0814. We will forward the request to the applicant.

In the meantime, we are looking to set up a call between NSDFA and DFO's reviewers to discuss and get some clarification on the request.

Our group currently has availability all **morning** on **Thursday, March 18th**. Let me know if maybe 10-11 am would work for your group or please suggest another time/day that might work better.

Thanks,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Sent: March 8, 2021 11:57 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

I am not available at 10am on the 18th, but I also may not be required for this meeting.
Sue

From: Feehan, Jennifer
Sent: Monday, March 8, 2021 12:14 PM
To: donald; Melissa Rommens
Cc: Greenwood, Megan N; Feindel, Nathaniel J; Ceschiutti, Robert
Subject: AQ#0814 - DFO Request for Additional Information

Hi Donald and Melissa,

Fisheries and Oceans Canada has requested additional information for the boundary amendment application for AQ#0814.

Please see DFO's request listed in the bullets below:

- Please provide all mitigation measures related to fish containment, including but not limited to the following:
    - Operating procedures that limit the risk of a breach, including the identification of critical control points, critical control limits, monitoring and corrective actions.

  - Operating procedures for net maintenance (surface and below surface) such as inspection procedures, cleaning, disinfection, testing, repair, changing procedures, biofouling strategies as well as recording and reporting procedures for these activities.
  - Mooring and anchor inspection, grid system inspection and recording and reporting procedures for these activities.
  - Engineer approved minimum infrastructure requirements, and minimum infrastructure maintenance and inspection requirements in place for containment management.
  - Corrective actions related to the above procedures.
  - Procedures for site management in the event of severe weather.
  - Procedures for response to breaches or suspected breaches, including mandatory reporting.
  - Security protocols to reduce risk of vandalism and release of fish.
  - In the Development Plan submitted by the proponent, it is stated that We'koqma'q First Nation hopes to become certified to the Global Aquaculture Alliance's Best Aquaculture Practices, which includes enhanced monitoring and global performance standards. Please advise if this certification has been obtained and if so, please provide all enhanced mitigation measures related to fish containment.

- Please provide all mitigation measures related to oxygen supplementation, including but not limited to the following:
  - Protocols for monitoring of dissolved oxygen, and mitigation protocols in the event of low levels.
  - Description of equipment used for oxygen supplementation i.e. type, quantity.
  - Operating procedures for the use of the oxygenation system and monitoring procedures for effectiveness.
  - Reporting procedures for mass mortality events, or significant mortality of unknown cause

- Will artificial illumination be used?
  - If so, please provide details of equipment used, timing, and procedures, etc.

Much of this information would be found within the Farm Management Plan. Can you let us know what information you have and could provide and what information you do not have? We will be reaching out to DFO to get clarification on the request and your input would be helpful.

Please do not hesitate to reach out if you have any questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: March 8, 2021 12:56 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: donald <d[redacted]>
Subject: RE: AQ#0814 - DFO Request for Additional Information

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Thanks Jennifer:
We will be able to develop responses (mostly extract from the FMP) for all questions and hope to submit within a week.
Melissa

Feehan, Jennifer

Subject: Meeting with NSDFA re 0814 request for additional info
Location: Microsoft Teams Meeting

Start: Thu 2021-03-18 10:00 AM
End: Thu 2021-03-18 11:00 AM

Recurrence: (none)

Meeting Status: Accepted

Organizer: Parker, Edward V

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Hi,

In response to our request for additional info for 0814, NSDFA is asking if we are available at this date and time to discuss and clarify the request. Please advise.

Thanks,
Ed

Microsoft Teams meeting

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From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: March 18, 2021 3:18 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; 'donald' [redacted]
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 - DFO Request for Additional Information

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Hello Jennifer:
Find attached the additional information requested as per the e-mail below.
Please be sure to contact us with questions or concerns.
Kind regards,
Melissa

Additional info response 0814 Marc

Response to additional information boundary amendment AQ # 0814

Mar. 8, 2021

1) Please provide all mitigation measures related to fish containment, including but not limited to the following:

a. Operating procedures that limit the risk of a breach, including the identification of critical control points, critical control limits, monitoring and corrective actions.

Operating procedures that limit the risk of a breach including net maintenance, mooring and anchor maintenance, infrastructure maintenance, engineer approval, and severe weather are described further on in this document while answering succeeding questions.

More general operating procedures described for the site also recognize the necessity to mitigate escape risk and have steps or actions required within them to do so. These procedures and their containment specific actions are listed below. In addition, a hazard analysis of the processes conducted at the farm has been completed to reveal critical control points. There was one identified and it is listed according to its corresponding operational procedure.

These procedures form part of the farm's Farm Management Plan which has been approved for implementation by NSDFA.

- Routine mortality collection and disposal procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspection of equipment prior to use.
    - Securing of the enclosure net asap after its lowering for diver entry.
    - Controlled removal of morts to ensure that the tote is not over-filled, and it is hoisted in a manner so that spillage of morts does not occur upon mort retrieval.
    - The path of travel of the tote is not over open water.
    - Through a hazard analysis, it was determined that ensuring closure of the cages - both the containment and bird nets - prior to moving onto the next subsequent cage is a critical control point and must be checked and initialed by the tender. The HACCP plan is attached as Appendix A.

- Weight sampling procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspection of equipment prior to use.
    - Laying down a piece of netting between the barge and the cage to catch any fish that may fall out of the dip net onto the deck of the barge.

- Grading and/or splitting procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspection of equipment prior to use.
    - Secure all pipes with rope to pen railings to prevent slippage.
    - Assure there are no areas that fish can escape either at the input end or discharge. Escape can be prevented by tying the pipes to the head rope of the net and placing catch nets between the ungraded fish pen and the barge or wharf or placing catch nets between the receiving pen and the discharge pipe.
    - Check pipes and catch nets frequently to ensure that containment is secure.
    - At completion of grade of a cage, net is removed from pen vertically (hydraulic boom) once pursed so that no fish are left behind or can escape.

- Harvesting using a barge or wharf procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspection of equipment prior to use.
    - If using a net to transfer:
        - Ensure "jump netting" is in place below the path of travel of the fish to be harvested.
    - If using a fish pump:
        - Secure all pipes with rope to pen railings to prevent slippage.
        - Assure there are no areas that fish can escape either at the input end or discharge.
    - Check pipes and catch nets frequently to ensure that containment is secure.
    - Ensure all fish are removed from the pen by pursing the net towards the side and use a dip net to collect any remaining fish. Net is removed from pen vertically (hydraulic boom) once pursed so that no fish can be left behind or can escape.

- Harvesting using a harvest vessel procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspection of equipment prior to use.
    - Secure all pipes with rope to pen railings to prevent slippage.
    - Assure there are no areas that fish can escape either at the input end or discharge.
    - Check pipes and catch nets frequently to ensure that containment is secure.
    - Ensure ends and connections of pipes are secure.
    - Ensure all fish are removed from the pen by pursing the net towards the side and use a dip net to collect any remaining fish. The net is removed from the pen vertically (hydraulic boom) once pursed so that there is no possibility of fish left behind or fish escape.
    - The pump assembly is completed and double-checked to ensure all fittings and attachments are secure and the fish flow will not allow release of fish (dead or alive) into the wild.

- Winter harvesting procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspection of equipment prior to use.
    - If using a net to transfer:
        - Ensure "jump netting" is in place below the path of travel of the fish to be harvested.
    - If using fish pump:
        - The fish pump hoses must be connected and secured, as necessary to ensure they cannot become detached. Attachments must be double checked prior to harvest.
    - Assure there are no areas that fish can escape, particularly at the discharge end of the pump and the dewatering table.
    - There must be nets (jump netting) laid out around, under, and between any equipment where live fish (or dead fish) are able to escape into the wild.

- Live fish transport procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - Inspect equipment to ensure it is in proper operational condition.
    - Ensure jump netting or tarp is in place under any open path of travel of fish.

- Pushing stocked cages procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
    - The cage frame and net is inspected prior to pushing to ensure structural integrity.
    - The nets must be clean and free from fouling to decrease drag, stress on the nets and increase water flow within the cage.

  - (After relocation) An inspection occurs to ensure the cage and nets remain in good condition.

- Unusual event response procedure. Specific actions within this SOP that are directed at mitigating risks to fish escape include the following:
  - Stabilize structures, if applicable, and block source or possible source of a breach, if applicable. (As soon as can be conducted safely.)
  - Contact (Site Manager) to assess and correct the failure.
  - If there is a breach or suspected breach, report to company and authorities and follow escape response SOP.
  - Conduct necessary follow up repair or replacement. (As soon as can be conducted safely.)
  - Conduct necessary post repair inspections. (As soon as can be conducted safely.)
  - Amend inspection schedules, or procedures, as required to prevent recurrence.

b. Operating procedures for net maintenance (surface and below surface) such as inspection procedures, cleaning, disinfection, testing, repair, changing procedures, biofouling strategies as well as recording and reporting procedures for these activities.

Operating procedures for net care and maintenance are summarized below. Corresponding records or are indicated by red text. Corresponding SOPs are indicated by blue text.

- All nets must be tagged with a number to identify them.
- All nets must be listed in an inventory (Net Inventory sheet).
- Each net must have a net history record. This must include the date it is put in use, cage it is used on, date it is removed from the water, repair work that is completed, date it is cleaned, date it is disinfected, date it is tested, testing results, and any other details that demonstrate proper net maintenance (Net History Record sheet).
- Nets must be changed to ensure mesh size is appropriate to fish size. (Net changing SOP)
- Surface inspections occur at least once a week and this inspection must be recorded (Surface Inspection Checklist).
- Nets containing fish must be inspected underwater every four weeks with the inspection recorded (Monthly Underwater Net Inspections sheet).
- Nets containing fish must also be inspected underwater after a storm or strong winds, a vessel collision or other event which could weaken the net, an unexplained drop in feeding level, suspected fish outside of cages, evidence of damage or suspicion of damage. These inspections must be recorded. (Use Monthly Underwater Net Inspections sheet.)
- Nets must be removed from the water after each production cycle, then cleaned, and disinfected before re-use.
- Nets must be tested for strength and examined for holes prior to use (or re-use). Net testing strength results must be recorded (Net Stress Test Record sheet). (Net testing SOP)
- When in water, nets must be cleaned regularly. (Net cleaning SOP)
  - July – August : every three weeks since heavy mussel sets are recurring.
  - Outside of this period: according to observation for the 45m and 60m nets, but still on a regular 3 week rotation for the 90m and 100m nets.
  - A record of the cleaning must be kept (AutoBoss Net Cleaning Record sheet).
- Net repair must follow Net repair SOP.

c. Mooring and anchor inspection, grid system inspection and recording and reporting procedures for these activities.

Operating procedures for cage equipment and supporting system care are summarized below. Corresponding records are indicated by red text.

- All cages must be tagged with a number to identify them.
- All cages must be listed in an inventory (Cage Inventory sheet).
- Any repairs or modifications to the cages must be recorded (Mooring, Grid or Cage Repair Record sheet).
- Any repairs or modifications to the cage system or moorings or mooring systems must be recorded (Mooring, Grid or Cage Repair Record sheet).
- Cage systems must be inspected from the surface at least once a week and this inspection must be recorded (Surface Inspection Checklist).
- The bridles and other lines, chains, points of attachment, buoys, cages, as well as the moorings must be inspected under water in the spring and fall. The results of the inspection must be recorded (Below-water Infrastructure Inspection Checklist sheet). These inspections are to occur only to a depth that is safe for the divers.

d. Engineer approved minimum infrastructure requirements, and minimum infrastructure maintenance and inspection requirements in place for containment management.

Historically, Janega Engineering has approved structures in place for containment management. Maintenance and inspection requirements have been described previously.

e. Corrective actions related to the above procedures.

Corrective actions are determined by the situation and are initiated when procedures are not followed. A blank corrective actions form is attached as Appendix B.

f. Procedures for site management in the event of severe weather.

As written in the FMP, the following describes site management procedures for severe weather.

Severe weather conditions or expected conditions that trigger severe weather management measures: Southeast winds represent the strongest winds that the farm is exposed to. These winds hit the farm at a 90° angle. Those greater than 30 knots would be a concern for the farm. The farm is protected from winds coming from other directions because of the lay of the land adjacent to the farm.

Severe weather management measures undertaken:

- The Operations Manager monitors weather forecasts to track severe weather events so that reasonable preparations can be made.
- Time permitting, impending bad weather will trigger inspection of the net pens above water.
    - "Pre-storm" inspections will ensure infrastructure is adequate.
    - Above water structures will be checked, and reinforced, if appropriate.
- After the severe weather, inspection of the net pens above water will occur as soon as possible (relative to crew safety).

- After the severe weather, inspection of the net pens below water will occur as soon as possible (relative to crew safety).
- Repairs will occur as soon as possible

g. Procedures for response to breaches or suspected breaches, including mandatory reporting.

The SOP for Escape Response is attached as Appendix C.

h. Security protocols to reduce risk of vandalism and release of fish.

The land-base for the site, including access wharves, is manned 24 hours a day. During the day, the regular farm crew keeps a look out for suspect activity. Outside of working hours (7 pm to 7am), a security person is on site, stationed at the farm office, and does regular walking rounds of the site.

i. In the Development Plan submitted by the proponent, it is stated that We'koqma'q First Nation hopes to become certified to the Global Aquaculture Alliance's Best Aquaculture Practices, which includes enhanced monitoring and global performance standards. Please advise if this certification has been obtained and if so, please provide all enhanced mitigation measures related to fish containment.

We'koqma'q is still in the training phase of BAP certification for the farm but on the path to achieving this goal as soon as possible. A new Farm Standard was released March 1, 2021 which will be the issue used for We'koqma'q's certification. Requirements for containment are shown in Appendix D, as excerpted from Issue 3.0 Aquaculture Facility Certification BAP Farm Standard. These include the specific audit clauses as well as expanded explanations of implementation of the requirements. It is notable that this certification will require an annual (minimum) audit by a third party to demonstrate achievement of the minimum requirements.

2) Please provide all mitigation measures related to oxygen supplementation, including but not limited to the following:

a. Protocols for monitoring of dissolved oxygen, and mitigation protocols in the event of low levels.

i. *Oxygen and temperature monitoring*

Oxygen and temperature must be measured daily with a handheld probe. This is necessary in order to ensure the welfare of the fish and manage activities at the site according to the environment.
Procedures:

- Check the oxygen meter for proper calibration while still in the area where it was stored. Recalibrate or perform required maintenance (change membrane, solution, etc.).
- Choose a cage within each array that is most heavily stocked with fish.
- The oxygen and temperature must be monitored inside of the heaviest stocked cage of each array.
- The oxygen and temperature must be measured at 2m, 4m and 6m depths for each location.
- The measurements must be recorded.
- During times when oxygen readings are below 6.8mg/L, more cages must be monitored and the measurements must be taken twice daily, or more frequently.

ii. Mitigation protocols

6.0 mg/L is used as the lower threshold for implementing additional mitigation procedures according to past trout growing experience in these waters. The mitigation procedures follow:

- Increase dissolved oxygen monitoring to twice daily or more
- Limit feeding
- Limit activity in the cages (reduce mort dives to once weekly if mort rates are <0.05% per day, limit cage repairs/maintenance to essential work only)
- Increase net cleaning activity if biofouling is an issue
- Depending on the circumstances causing the low oxygen, the nets may be changed or the fish may be split into more cages.
- Oxygen supplementation may be provided.

b. Description of equipment used for oxygen supplementation i.e. type, quantity.

Ceramic oxygen diffusers are used with liquid oxygen as the source.

c. Operating procedures for the use of the oxygenation system and monitoring procedures for effectiveness.

The diffusers are suspended in cages with known low oxygen and/or prone to low oxygen due to high biomass. These are connected to a liquid oxygen cylinder. Flow meters set the oxygen flow rate according to oxygen levels measured in the cages. Oxygen monitoring may be increased to two times daily at these times.

d. Reporting procedures for mass mortality events, or significant mortality of unknown cause

Mortality reporting (On site mortality)

- Unusually high mortality levels must be reported by contacting the veterinarian on call: (902) 893-5359 followed by a written report (Mandatory Disease and/or Mortality Report).
- This reporting must be done for mass mortality and significant mortality events.
    - Mass mortality means the death of fish at an aquaculture site whose:
    - total weight exceeds 4000 Kg within a 24 hour period, OR
    - number is equivalent to at least 2% of the site inventory in 24 hours, OR
    - total weight exceeds 10,000 K within a 5-day period, OR
    - number is equivalent to at least 5% of the inventory in a 5 day period.
    - Significant mortality means the death of fish at an aquaculture site that results in a daily mortality rate of over 0.05% of the fish in the same holding unit for 3 consecutive days, without a known cause.
- This reporting must be done even if not all of the information requested on the form is available.

The Mandatory Disease and/or Mortality Report is attached as Appendix E.

3) *Will artificial illumination be used?*

Artificial illumination will not be used.

Appendix A: HACCP Plan for Containment CCP

Waycobah Hazard Control Plan – Containment

Critical Control Point (CCP)	Significant Hazard	Control Measure	Critical Limit for each control measure	Monitoring					Corrective Action and Records
				What	How	Frequency	Who	Records	
CCP2 Mortality and maintenance dives	Not closing the net after dive entry may allow fish escape	Check that nets are secured before leaving cage after dive	Nets secured	Nets	Visual	After each cage dive	Dive tender	Initials on Mort Collection Record	Cages that were not checked for closing will be re-checked and secured, if applicable. Review requirements with staff. Record corrective action.

Waycobah Corrective Action Report

Date:	Site #:
FMP Section:	
Description of non-compliance item:	
Date non-compliance item was identified:	
Description of how the non-compliance item was identified:	
Date corrective actions were taken:	
Description of corrective actions:	
Outcome of corrective actions:	
Actions taken to prevent reoccurrence:	

Signature:	Date:

Title	Escape Response Standard Operating Procedure
SOP number	*n/a*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	

Purpose and Scope
The purpose of this SOP is to define the minimum steps to be taken in the event that a breach of the marine finfish containment structure occurs at Waycobah Fisheries.

A breach refers to any escaping of fish from an aquaculture site.

Required Documents
Related SOPs: Net Repair SOP, Waste disposal SOP
Related MSDS: N/A

Materials and Supplies
Escape response kit consisting of:

- Net repair kit
- Recovery gear (if applicable), and
- Transfer cage complete with containment net.
- (All spare containment nets and bird nets are housed near the marine farm so that they are readily accessible.)

Pre-escape procedures (available at all times)

1. Proposed recapture activities description is completed (directly follows this SOP).

Immediate response procedures

1. Block source of the escape or stop the practice causing the escape.
2. Feed within the area to try to keep escaped fish on site.
3. Contact (Site and operations Manager) to assess and correct the failure.
4. Report breach to company and the NSDFA Aquatic Animal Health Veterinarian on-call at **902-893-5359**.
5. Seek licences and permits for recovery (if applicable) using the attached Proposed Recapture Activities Description, if applicable. Note that Waycobah's recapture activities are all planned to occur within the farm boundaries
6. Repair failed structure or equipment.

Stock recovery (if applicable)

1. Assemble required staff, vessels and gear.
2. Deploy gear.

3. Complete recapture activities according to licences and permits.
4. Report recapture efforts according to licences and permits.
5. Dispose of mortalities according to waste disposal SOP. Transfer captured fish to new cage after inspection by DFO and DNR, if applicable.

Post escape procedures

1. Conduct necessary post repair follow up.
2. Conduct necessary post repair inspections.
3. Amend inspection schedules, or procedures, as required to prevent recurrence.

Records

- Proposed recapture activities description (if applicable)
- Recapture effort results (If applicable)
- Breach reporting form
- Amended procedures to prevent recurrence.

Breach of Containment Notification to NSDFA

A breach is defined as any escaping fish from an aquaculture site.

Contact the NSDFA on call veterinarian immediately (within 1 hour) upon suspicion of a breach of containment or known loss of fish: 902-893-5359

This report is to be completed and faxed or e-mailed to: 902-875-7429, Nathaniel.Feindel @novascotia.ca, upon suspicion of a breach of containment or known loss of fish.

Name of reporter: _____
Reporter's contact phone number: _____
Reporter's email address: _____

Name of the Aquaculture Licence Holder (*if known*): _____
License or lease number: _____
Site location (area): _____
Site address: _____

Number of holding units affected: _____
Total number of holding units at the marine site: _____
Identification number(s) of the holding unit(s) where breach occurred: _____
Number of fish in holding unit(s) where breach occurred: _____

Species of fish on-site: _____
Age of fish on-site (months): _____
Average weight and size of fish on-site: _____

Freshwater hatchery of origin (include watershed source): _____
Estimated number of fish released: _____
Suspected date of breach: _____

Suspected or confirmed cause of the breach:

_____
_____

Describe the mitigation efforts that will be taken, are in progress, or are proposed to address the breach of containment:

_____
_____
_____
_____

Company Representative Signature: _____

Proposed Recapture Activities Description[1]

Company: Waycobah First Nation

Contact person: Jim Martin

Aquaculture site (Licence #): 0600, 0845, 0814 OR 5010

Species on Site: Rainbow trout

Fishing location (coordinates): Within the boundaries of the farm

Vessels to be employed: No vessels used for recapture. Recapture is passive.

Type of gear:

Transfer net with dropped side

Description of gear: (e.g. # of gillnets by mesh size, length, depth, etc.):
Feeding will take place to draw fish into a transfer cage with a dropped side. A belt feeder can trickle the feed in. The fish will be corralled in the transfer cage. DFO, NSDoE, and DNR will be contacted to enable them to inspect the captured fish, if they choose. The recaptured fish are then moved back to their original cage that has since been repaired or to a new cage that is ready to receive them.

Personnel and/or contractors to conduct activity:

Jim Martin, other farm workers.

Plan for transportation and disposal of recaptured fish:
Recaptured fish will be moved back into production cages live.

Applicant: _____ Date: _____

[1] Adapted from AANS Codes of Practice

I. Control of Escapes - All Production Systems

Audit Clauses

All Production Systems

3.49: All holding, transport and culture systems shall be designed, operated and maintained to minimize the release of aquatic animals at any life stage.

3.50: Screens and nets of a size to retain the smallest farmed animals present at the farm shall be installed as a barrier between the culture unit and the environment.

3.51: During harvesting and stock transfer operations, effective secondary containment measures shall be applied to control the escape of animals.

3.52: All incidents involving escapes of aquaculture animals shall be accurately documented.

3.53: For tilapia farms in watersheds where tilapia are not indigenous and not established, farms shall have at least two independent containment systems to prevent escapes. Additionally, they shall only stock monosex juveniles (minimum 99% phenotypically monosex).

Net Pens

3.54: The farm shall have a written Containment Plan that includes procedures to prevent, detect and respond to incidences of escapes of aquatic animals from culture units.

3.55: The farm shall provide documents to show that all staff members have received training in the Containment Plan, which shall be verifiable by training certificates in workers' files and verified during the audit by interviews with a subset of workers.

3.56: Cages, nets and pens shall be labeled and maintained in good condition, and records of repairs shall be kept.

3.57: Regular inspections by divers or underwater cameras of mooring lines and cage mesh condition shall be documented.

3.58: Jump nets that extend above the water line shall surround the perimeter or cover the entire surface of net pens and shall have appropriate mesh sizes to contain the aquatic animals.

Implementation

Containment System Integrity

Avoiding breaches in containment leading to escapes of aquatic animals is in the economic interest of producers. It is also in the interest of minimizing environmental interactions between farmed and wild organisms, such as disease transfer and changes in gene frequency in wild populations. Thus, containment systems for any life stage shall be designed, constructed and operated to minimize the escape of culture animals. These containment systems can be used to grow, hold temporarily or transport cultured aquatic animals.

Containment systems should be designed and constructed using applicable standards or best practices. For example, earthen pond embankments should be designed with proper slopes, using soils

that are suitable for holding water, and construction techniques that provide sufficient compaction to avoid embankment failure.

The infrastructure and equipment used to contain aquatic animals shall be inspected according to a regular schedule. A program should be in place for regular preventative maintenance and repair of containment infrastructure and equipment. A reporting system shall be in place to indicate inspection results and preventative maintenance undertaken.

Screening

Screens and nets of a size to retain the smallest aquatic animals present shall be installed as a barrier between the culture unit and the environment. This applies to cages or net pens and outlets (pipes, gates, etc.) from land-based pond, tank or flow-through systems. Examples of acceptable filter devices include a series of mesh screens capable of screening all water, dry-bed filters constructed with gravel and sand, microscreen solids filters, and pond traps with screened discharge.

Escape Detection and Incidence Response

All incidents involving animal escapes shall be accurately documented, including the reason for the escape, the number of organisms that escaped, the health status of the escapes, and any recovery plans/effectiveness statistics. Farms shall maintain equipment for attempted recapture of escaped animals and have written procedures for its use. The procedures must enable rapid response, subject to legal constraints on the types of equipment that can be used. If an escape is known or suspected to have occurred, the root cause shall be investigated immediately, the steps shall be taken to correct it, and plans and actions proposed to address future escape risks. These actions shall be documented in farm records. If, after investigation, there are grounds for believing an escape occurred, the remaining aquatic animals in the culture system shall be counted, if and/or when **water and welfare indicators indicate this can be done without causing excessive distress to the aquatic animals, and any loss of inventory shall be recorded.**

Net Pens

Every effort shall be made to assure that fish do not escape from enclosures in water bodies. Cages and net pens shall be constructed of sturdy material and maintained in good condition to minimize the likelihood of holes and rips in the cage mesh through which fish can escape. It is particularly important to use material that does not corrode, as holes can suddenly appear without warning in nets made of corrodible wire.

Cages and pens should be placed in areas where there is little danger of collisions with boats or floating debris and where heavy waves are not likely to damage them. Brightly colored buoys or navigation lights should be placed to mark location of cage arrays. Placement of cages and pens in navigable waters may need approval from governmental authorities. Divers or underwater cameras shall periodically inspect cages for holes, rips and tears.

Containment Plan

Farms using cages or net pens shall have a written Containment Plan that covers escape prevention and deals with known or suspected escapes. The Containment Plan shall include the following elements:

- Integrity of Infrastructure and Equipment – design and construction standards for an effective containment system, equipment testing

- Inspections – inspection program for infrastructure and equipment, including preventative maintenance program and repair
- Inventory Control Procedures – counting methodology and verification, aquatic animal inventory reconciliation
- Aquatic Animal Handling Practices – precautions during transfers, counting, grading, disease treatment, harvesting, transport and other farm operations
- Predator Deterrence and Control Plan – predator control structures (as appropriate), control of predator access, control methods
- Response Procedures and Escape Mitigation – recapture and recovery of stock, escape incident reporting requirements, root cause analysis of escapes or containment failure
- Recordkeeping – equipment testing results, aquatic animal inventory reconciliation or escape detection, escape event log, training activities.
- Training – definition of employee responsibilities, oversight.

Escape Prevention

- Documents shall show the farm's moorings were installed according to the manufacturer's and/or marine engineer's specifications.
- A site risk analysis updated at least annually shall identify the potential and actual causes of fish escapes, determine their relative likelihood of occurrence or recurrence at the farm site, and identify critical control points for effective escape risk monitoring, reduction and response by farm staff.
- Procedures based on the risk analysis shall include management protocols and actions designed to monitor escape risks, reduce them when identified and respond to escape events in a timely and effective manner. The efficacy of these measures shall be verified and documented through the year.
- Procedures shall require the main surface components of the system to be inspected at least annually and repaired or replaced as needed. The sub-surface components must be inspected and replaced as needed at least every two years or between each crop cycle, whichever is shorter. Equipment shall be replaced as needed.

  Net inventory management procedures shall track the ages of all nets on the farm or in storage, and provide strength tests on all nets between crops or every two years, whichever period is shorter. Nets shall be retired when their strength is below levels specified in local regulations or, where there are none, below the manufacturer's or supplier's recommendations.
- Cage inspection procedures shall ensure all operational nets are surface checked for holes at least weekly and checked sub-surface at least every four weeks. Nets and cage superstructure shall be checked for holes and other indications of structural damage after risk events such as storms or big tides.
- Predator deterrence procedures shall minimize the risk that predators can make holes in nets.
- Boat equipment shall include guards on propellers and staff training procedures that minimize the risk of contact between boats and farm nets.
- At marine sites, procedures and equipment consistent with local Coast Guard rules shall warn non-farm marine traffic of the farm's presence.
- Procedures for handling live fish shall prevent "spillage" during transfers.

Mandatory Disease and/or Mortality Report

Mandatory Reporting of Disease and/or Mortality

A "***mass mortality event***" means the death of fish at an aquaculture site whose:

- total weight exceeds 4000 Kg within a 24 hour period, OR
- number is equivalent to at least 2% of the site inventory in 24 hours, OR
- total weight exceeds 10,000 K within a 5-day period, OR
- number is equivalent to at least 5% of the inventory in a 5 day period.

A "***significant mortality event***" means the death of fish at an aquaculture site that results in a **daily** mortality rate of over **0.05%** of the fish in the same holding unit for **3 consecutive days,** without a known cause.

A **"*reportable disease*"** means a disease that the Minister determines must be reported to the Chief Aquatic Animal Health Veterinarian and includes the following:

- *Aeromonas salmonicida* bacteria (typical and atypical furunculosis)
- *Renibacterium salmoninarum* bacteria (bacterial kidney disease)
- *Yersina rusckeri* bacteria (enteric red mouth disease)
- Infectious Hematopoietic Necrosis (IHN) Virus
- Infectious Pancreatic Necrosis (IPN) Virus
- Infectious Salmon Anemia (ISA) Virus
- Viral Hemorrhagic Septicemia (VHS) Virus
- Nodavirus (Viral encephalopathy retinopathy)
- Pancreas Disease (PD) (PAV)

Report

Name of reporter: _____

Reporter's contact phone number: _____

Reporter's email address: _____

Name of the Aquaculture Licence Holder (*if known*): _____

License or lease number: _____

Site location (area): _____

Site address: _____

Number of holding units affected: _____

Total number of holding units at the marine site: _____

Identification numbers of the affected holding units: _____

Species of fish on-site: _____

Age of fish on-site: _____

From: Greenwood, Megan N
Sent: March 29, 2021 1:54 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Sampson, Nicole A <Nicole.Sampson@novascotia.ca>; King, Matthew S <Matthew.King@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: AQ#1430 Network Memo-Amended Plan

Good Afternoon,

We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1430 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

The original plan was sent to you for feedback on October 29, 2019 and a comment has been received from your Department.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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2021.03.29-Network Memo-Amended Pla

NOTE: Please refer to Appendix A for the Network Memo (dated March 29, 2021) sent to and reviewed by DFO, and Application Package, Volume 2, Section 4.4 for the Development Plan Revisions AQ#1430 and AQ#1431 (2020).

From: Greenwood, Megan N
Sent: March 29, 2021 3:52 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Sampson, Nicole A <Nicole.Sampson@novascotia.ca>; King, Matthew S <Matthew.King@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: AQ#1431 Network Memo-Amended Plan

Good Afternoon,

We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1431 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in South Aberdeen, Whycocomagh Bay, Inverness County.

The original plan was sent to you for feedback on October 29, 2019 and a comment has been received from your Department.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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2021.03.29-Network Memo Amended Pla

NOTE: Please refer to Appendix A for the Network Memo (dated March 29, 2021) sent to and reviewed by DFO, and Application Package, Volume 2, Section 4.4 for the Development Plan Revisions AQ#1430 and AQ#1431 (2020).

From: Feehan, Jennifer
Sent: March 29, 2021 4:27 PM
To: 'donald' <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: Network Comments AQ#1430 & 1431

Hi Donald and Melissa,

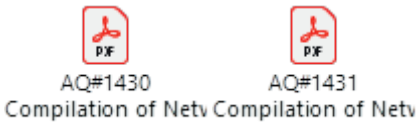
Please be advised that the amended development plans with revised production plans and cage configuration for AQ#1430 and AQ#1431 have been sent to Network for review.

I have attached a compilation of network comments received to date based on the original development plans. Network may have additional questions or comments pending review of the amended plans. You may begin preparing any required responses as per the comments to date, and we will be in touch when final comments or questions from Network have been submitted.

Please do not hesitate to reach out if you have any questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#1430 and AQ#1431 up to March 29, 2021, attached in this email.

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: March 30, 2021 9:47 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: FW: AQ#1430 Network Memo-Amended Plan

Good morning,

My apologizes, I didn't include to template form for comment.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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NOTE: Please refer to Appendix A for the Network Agency Review Form attachment in this email.

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: March 30, 2021 9:49 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: FW: AQ#1431 Network Memo-Amended Plan

Good morning,

My apologizes, I didn't include the template in the original email.

Megan Greenwood
Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429
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NOTE: Please refer to Appendix A for the Network Agency Review Form attachment in this email.

From: Feehan, Jennifer
Sent: April 6, 2021 11:00 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

Please find attached the additional information submitted by We'koqma'q First Nation in response to your March 2, 2021 request for AQ#0814 Boundary Amendment Application.

In reference to the request for engineer approved minimum infrastructure requirements, please note the following regarding NSDFA's Containment Management Framework:

- The Containment Management content of the Aquaculture Management Regulations (AMRs) provide the basis for the Containment Management Framework for the aquaculture industry in Nova Scotia.
- The Containment Management Framework is augmented by the contents of the Farm Management Plan (FMP), which by Regulation, focus on: the infrastructure and procedures needed for containment management; reporting procedures for suspected or confirmed breaches of containment; and the marking specifics used to effectively identify the ownership of any farmed fish detected outside of a farmed fish enclosure.
- Prior to the initial stocking or re-stocking of an aquaculture site, an aquaculture licence holder must be in possession of an approved FMP, which includes approved/certified engineering documentation pertaining to the integrity of the site's infrastructure.
- Site infrastructure design and construction must have been deemed as being satisfactory to reasonably withstand the prevailing oceanographic and meteorological conditions (e.g., weather, currents, ice flow, etc.) at the site's location to ensure the fish stay contained.
- Professional engineer's approval is required after final decision on an application has been made by the Aquaculture Review Board, as the Board could determine that modifications to the site need to be implemented based on results of the hearing.

Also note that the Farm Management Plan for the three sites included in the boundary amendment (AQ#0814, 0845 and 0600) has been approved by NSDFA for current operations. If the application is successful at the Aquaculture Review Board hearing, the FMP would then be updated and reviewed by NSDFA again to ensure all recommendations from the hearing have been incorporated.

Please do not hesitate to reach out if you have any questions.

Kind regards,
Jennifer
Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



2021.03.18-Additio
nal Info Response-E

NOTE: Please refer to correspondence above (see March 18, 2021) for the attachment in this email.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: April 7, 2021 12:23 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Thank you Jennifer!

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
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Si vous avez reçu cette communication par erreur, veuillez en aviser l'expéditeur immédiatement et la supprimer sans l'imprimer, la copier, ou la faire suivre. Merci.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: April 21, 2021 2:22 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: Network Comments AQ#1430 & 1431

** EXTERNAL EMAIL / COURRIEL EXTERNE **
Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Hello Jennifer:
Find attached responses to network comments you had received as of March 29, 2020 for AQ 1430 and AQ 1431.
Please let us know if a different kind of formatting for responses is preferred.
Just reach out with questions or concerns.
Kind regards,
Melissa



MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Response to Network Comments



Response to Network Comments

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

1. **CFIA; Dec. 2, 2019:** No concerns regarding the proposed development. No reply required.

2. **ECCC, SWCP (CSSP); Dec. 20, 2019:** No comments on the application. No reply required.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

3. ECCC, CWS; Jan. 3, 2020:

- On page 38, it is stated that "A wildlife interaction plan must be described in an operator's Farm Management Plan as defined by the Nova Scotia Aquaculture Management Regulations. It must be approved for implementation by NSDFA..." Neither the wildlife interaction plan nor the Farm Management Plan were submitted for review. If forwarded to us, we would be happy to review the wildlife interaction plan, or the mitigation/monitoring measures to be included in such a plan.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

- It should be clarified whether grow lights are proposed for this site. Bright lights can cause problems for night migrating birds and night-flying seabirds (e.g. storm-petrels), especially during periods of fog, drizzle, and haze. A powerful pencil of light shining upwards into the fog can appear as a corridor through darkness into which the birds fly. Birds then get killed or injured by flying into the lit object, by flying into the light itself, or by colliding with other birds. For those that don't get killed or injured but flutter in the light pencil for a long period, they may deplete their energy reserves and either die of exhaustion or drop to the ground where they are at risk from predators. In order to avoid impacts on migratory birds, it is recommended that lights be shielded and aimed downwards.

No grow lights will be used at the site.

- The proponent should clarify its measures to deal with migratory birds that are potential predators of fish, keeping in mind its obligations under the *Migratory Birds Convention Act* and associated regulations.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

- The proponent should clarify whether any measures are proposed to avoid bird entanglements with nets (i.e. keeping bird nets tight and free of slack). The proponent should also prepare a clear plan for site workers to implement in the event that birds get entangled despite these measures or pass through the predator net and not be able to get back out.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

There is no written plan for bird entanglement. Guidance on this would be appreciated.

We will be in a better position to comment on the proposal once the information requested above has been submitted. In the meantime, we have the following comments in the event that the project is ultimately approved:

- Food scraps and other garbage left on beaches and other coastal habitat can artificially enhance the populations of avian and mammalian predators of eggs and chicks of migratory birds. A similar effect could occur if gulls are attracted and have access to excess feed. The proponent should ensure that no litter (including food wastes) is left in coastal areas staff and/or contractors. Also the feed program should be managed to minimize waste, and should include use of tarps to prevent bird access to fish feed.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan and include feed management measures.

Also note the following:

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

Operational waste will be collected and contained in sealed containers as it is generated. A weekly grounds inspection, complete with checklist, will promote the timely collection and disposal of the waste.

- Project staff/contractors and vessels should not approach concentrations of seabirds, waterfowl or shorebirds.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan and include statements that describe avoidance of the shore or other wildlife habitat and wildlife itself.

- Project staff/contractors should use well muffled vessels and machinery.

As extracted from the Farm Management Plan:

Noise produced at the site is minimized through proper and timely maintenance of equipment and machinery and the use of mufflers or noise reduction devices, where appropriate.

Beaches and wetlands are sensitive habitats and proponents should not utilize these habitats for construction, operational or decommissioning activities, with the exception of beach clean-up activities, which should be timed to not coincide with sensitive periods for breeding birds and other wildlife.

There are two shore side locations that are used in operations, construction, and decommissioning activities. These locations include a main shore-based area which consists of two existing wharves with an adjoining parking lot, building and storage trailers, and a second maintained area adjacent to the lake on reserve land which is used for assembling or decommissioning cages and pulling them into or out of the water. This area used for cage construction/decommissioning is neither a wetland nor a beach. Once assembled, the cages are pulled over the intertidal area into the water using a lake-based vessel. The shortest path over the intertidal area is used to reduce impacts. In this area, the water gets deep enough to float the cages almost immediately. For cage disassembly, the reverse process occurs in this same area.

Since even small spills of oil can have very serious effects on migratory birds, every effort should be taken to ensure that no oil spills occur. The proponents should ensure that all precautions are taken by the contractors and staff to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared.

As extracted from the Farm Management Plan:

Spills are minimized by ensuring that the amount kept on site at any one time will be limited to the amount that will be used within a reasonable timeframe and is able to be safely and properly stored at the site. Only appropriate lubricant and chemical storage receptacles will be used.

Waste oil is brought to the processing plant (secure land-based location) for temporary storage until it can be taken for disposal at a receiving facility.

A clean up and containment kit is available which will be used to deal with a spill according to its required procedures.

Reporting to the Department of Environment will occur to report a spill or release of a hazardous substance if it may potentially cause an adverse effect. Tel # 1 800 565-1633

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

4. **DFO (Ed, via Jennifer);**

Jan. 3, 2020:

Can you please confirm with the applicant that they do not plan to use Small Craft Harbour infrastructure in the construction and operation of their proposed farms (1430 and 1431)?

The intent for 1430 and 1431 is to use We'koqma'q's existing wharf in the west end of Whycocomagh Bay, not a Small Craft Harbour wharf.

March 4, 2020 (Several emails):

1. For AQ#0814, is the plan to have a maximum of 1,000,000 fish on this site? It is unclear based on how the number of fish referenced in the application differentiates between site 0814 and the other two proposed sites.

2. For AQ#0814, the production plan speaks to 6 arrays of 8 cages with a maximum of 15,000 fish per cage. This can be interpreted as a total of 48 cages; however, in the ORGANIX model setup Excel file, the number of cages shows only 8 cages. Can this be explained?

A response to the above was submitted March 4, 2020 but based on EMP results, results from the experimental permit activities, and other considerations, the plans were changed after that date. Amended development plans for sites 1430 and 1431 were consequently submitted September 9, 2020. The depositional modeling using the amended development plans were submitted February 2, 2021.

Note that We'koqma'q has applied for an Experimental Permit to conduct research to validate a model that can better advise We'koqma'q of expected benthic impacts from stocking plans and feeding pressure. It is anticipated that, in the future, this model will help We'koqma'q to direct production in a way that is less impactful.

3. For AQ#1430 and AQ#1431, can you please confirm if you plan to use Small Craft Harbour infrastructure in the construction and operation of these proposed farms?

The intent for 1430 and 1431 is to use We'koqma'q's existing wharf in the west end of Whycocomagh Bay, not a Small Craft Harbour wharf.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

5. Transport Canada; Dec. 2, 2019. Application received, NPP will need to issue a CNWA approval. *Please clarify - is any reply required? Cage configurations have changed, but the lease area has not.*

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

6. Nova Scotia Department of Agriculture; Oct. 30, 2019: No concerns regarding the proposed development. No reply required.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

7. Nova Scotia Environment and Climate Change; Dec. 18, 2019: Department does not have any issues with this application. No reply required.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

8. NSDFA (Inland Division); Undated:

The only concern with this from an Inland Fisheries perspective would be that there is recreational angling, primarily for trout, that occurs along the shoreline adjacent to the proposed site. Angling by boat currently occurs in the waters where the array of cages is proposed. There is some potential for conflict to occur although, admittingly, the history of angler - fish farmer interaction in Whycocomagh Bay has for the most part been one of anglers targeting escapees.

Anglers will be educated, as required, on the lease boundaries to ensure that navigation and angling are safely conducted. It is notable that Whycocomagh Bay is a large body of water so that recreational fishing and this development should be able to peaceably co-exist, as they have for the past several decades.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

9. Nova Scotia Department of Lands and Forestry; Dec. 18, 2019:

The proponent has had recent issues with the storage of nets and fish food that are kept outside and in a building, close to the village. Bears have been attracted to the site and without intervention this will continue. This is a safety issue for both the proponent and the bears. The Department proposes the following conditions to alleviate this issue:

1. Storage of nets/fish food/wildlife attractants:

The proponent must ensure that all nets, fish food and other potential wildlife attractants which are stored on land are stored in a fashion that will not attract bears and other scavenging animals. The Department recommends that all waste be disposed of quickly and/or rendered non attractive for bears/ coyotes and eagles etc.

It is notable that We'koqma'q has acquired and repurposed the local former rink building to enable the indoor storage of feed, nets, and other bulky items that were previously stored outdoors or in temporary storage areas. This will deter scavenging animals. More details are described in the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

Furthermore, We'koqma'q no longer cleans fish containment nets themselves. Previously, the outdoor storage and cleaning of nets may have caused issues with respect to the organic debris from the nets. Nets are now sent to a third party contractor for cleaning in a timely fashion so that this organic debris is no longer a potential attractant to pests and a potential smell issue.

2. The proponent has not provided any mitigations for diving fish eating birds (cormorants, loons etc.). The Department recommends that mitigation measures be put in place to ensure species are not entangled in the below water portion of the net if there is a possibility that this is an issue.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

3. There is loon significant habitat located close to the proposed location. The Department does not anticipate that there will be many adverse effects provided that the proponent conducts mitigations to reduce loon entanglement. The Department requires that the proponent report all diving bird entanglement/mortalities to the Department.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan. Note that records of interactions with birds, mammals, or other animals that result in injury or death are kept. *Please indicate the appropriate contact for notification of diving bird entanglement/mortalities to so that we can add it to the Farm Management Plan.*

4. There is a tendency for waste to be produced by these projects that ends up on the shore and this may have a negative impact on our terrestrial biodiversity and potentially the cleanliness of the park. The Department recommends that the proponent take all measures necessary to ensure waste remains onsite and does not pollute the shoreline.

As extracted from the Farm Management Plan, retrieval of loose gear will be dealt with as follows:

Items will be retrieved as soon as the issue is identified and it is safe to do so. The company has its own vessels and staff capable of retrieving loose gear so that there should be little/no delay

between identifying the problem and its recovery, except due to safety issues, if applicable. Equipment to be kept for re-use will be moved to the rink for storage as soon as possible (at least within a week). Equipment that requires a longer lead time for disposal (e.g. sold as scrap, sold for another use, or requires special arrangements for delivery to an acceptable waste location) will be stored at the rink until disposal can be arranged.

As extracted from the Farm Management Plan, maintaining the site in good order will be accomplished as follows:

A sweep of the wharf and farm area will be conducted weekly. In addition, weekly surface inspections will occur and be documented for cage infrastructure. Maintenance issues will be identified at these times. Small tasks will be completed within a week or asap if containment or fish welfare may be at risk from the identified issues. Larger issues will be brought to management's attention to allow a plan for remediation. Most issues will be resolved within a month, budget permitting. Significant issues may require a longer time since financial resources will have to be found. If these situations arise, the farm will institute temporary remediation within a month. This remediation will return the site to a suitable appearance.

Equipment to be kept for re-use will be moved to the rink for storage as soon as possible (at least within a week). Debris that is to be discarded with normal garbage will be disposed of accordingly, in a timely fashion. Equipment that requires a longer lead time for disposal (e.g. sold as scrap, sold for another use, or requires special arrangements for delivery to an acceptable waste location) will be stored at the rink until disposal can be arranged.

As extracted from the Farm Management Plan, accumulation of refuse and neglect of decommissioned farm supplies and equipment will be managed according to the following plan:

Decommissioned farm equipment and extra supplies are housed at the rink, an enclosed building, away from the farm. Some may be housed at indoor facilities owned by the farm.

A sweep of the wharf and farm area will be conducted weekly. Transfer of un-used farm equipment and supply stores too large to hold in the farm-side steel containers will be moved to the compound or to an indoor facility. This will be done during the weekly sweep or early the following week if transportation is not immediately available.

Operational waste will be collected and contained in sealed containers as it is generated. A weekly grounds inspection, complete with checklist will promote the timely collection and disposal of the waste.

Other Considerations:
There are multiple areas of bald eagle significant habitat surrounding the proposed expansion area. It is not expected that these areas will experience significant additional stress compared to the current operation assuming mitigation is put in place. The proponent has outlined a mitigation for eagle predation resulting in entanglement. Due to the increase in the size of this project, it is possible that further mitigation will be necessary. This project has the potential to artificially increase the presence of eagles to the area and increase competition between them

due to an increase in anthropogenic food sources (waste fish etc.). These effects would be difficult to measure. Increased human presence in the area could have a negative impact on the nesting success of the eagles in the area. Lastly, increased human activity may increase human wildlife conflicts in the area.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

The Department defers to federal and provincial fisheries for expertise on the potential effects on the marine ecosystem. Any negative effects on the marine ecosystem may carry over to terrestrial species.
According to the records on file at the Department of Lands and Forestry's Crown Land Information Management Centre, any land lying below the original ordinary high-water mark of Whycocomagh Bay, at the location provided, is considered ungranted Crown land with no encumbrances.
It should be noted that the scope of this research only includes information on file at this office.

Title	Bird & Predator Deterrence Strategy
SOP number	*N/A - Strategy*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	September 12, 2019, April 12, 2021

Strategy

Interactions with birds and predators are to be avoided. Unwanted attention from birds and predators endangers the birds and predators themselves, can present a nuisance to workers, may stress the fish, and may pose biosecurity and fish health risks.

Deterrence is the best way to avoid such interactions. Bird and predator deterrence relies primarily on reducing the food available. The Pest Management Strategy describes feed, net, and grounds management which will help to reduce food for birds and predators. Deterrence of birds and other animals, as well as general activities to avoid interaction with animals must also be considered and are described in this document.

This Bird & Predator Deterrence Strategy forms part of the Wildlife Interaction Plan.

Required Documents

Related SOPs: Routine Mortality Collection and Disposal SOP; Mass Mortality Collection and Disposal SOP, Harvesting SOP, Pest Management Strategy
Related MSDS: N/A

Bird Deterrence

- The use of bird nets over the cages removes the possibility of preying on fish.
- A bird net is placed over a floating bird stand located in the centre of the pen.
- Tie the bird stand with at least three ropes to centre it in the middle.
- Bird net mesh size has to be smaller than the smallest predator bird which is usually a sea gull, although in some instances kingfishers may be bothersome to smaller fish(<100g). The size of the mesh must be balanced with fish size since if too small a mesh is used it will be difficult to remove when fish get larger without gilling them.
- It is vital that the net is large enough to span the entire pen top.
- The bird net must be inspected and repaired, if necessary, before installation, and as required while in place.
- There can be no gaps or low spots in the bird cover as herons will take advantage at night by working in concert to get a meal by weighing down the cover to reach a meal.
- The cover must be made larger than the handrail to provide some overlap.

- The net should be “zinging” tight using the shackles on the stanchions and any extra rope required.

Marine Mammal Deterrence

- No below-water predator nets have been required in the Bras D’Or as there have been no recorded breaches of nets by seals in 40 years
- Removal of morts regularly prevents predators such as mammals and others (cod, eels, striped bass, etc.) from being attracted to and trying to chew through the net.

General Animal Interactions

- In order to further reduce the incidence of interaction with wildlife, boat travel to and from the cages to be worked will be via the most direct route possible, respecting any special requirements instituted for biosecurity concerns.
- Most importantly, approach of the shore or other wildlife habitat and wildlife itself will be avoided as much as feasible.
- A record of animal interactions is kept to help improve procedures. Any interactions that result in injury or mortality to wildlife must be reported.

Records

- Net Inventory Record
- Abell Pest Control Records
- Surface Inspection Checklist (cages)
- Grounds Inspection Checklist
- Bird Interaction Record
- Marine Mammal Interaction Record
- Wildlife Interaction Record

Title	Pest Management Strategy
SOP number	*N/A - Strategy*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	September 12, 2019, April 12, 2021

Strategy

Pest management relies primarily on reducing the food and habitat available for pests. Keeping clean grounds and ensuring proper storage of materials are key factors. Rodents are the biggest pest problem for both stored food and nets. However, improper storage of feed or nets can also attract larger mammals such as raccoons and bears and others. Feed and net management and the biosecurity measures regarding mortality storage and disposal, explained elsewhere, will reduce attraction to pests. A contracted pest control company assists with these measures and ensures monitoring of the effectiveness of the measures.

This Pest Management Strategy forms part of the Wildlife Interaction Plan.

Required Documents

Related SOPs: Routine Mortality Collection and Disposal SOP; Mass Mortality Collection and Disposal SOP, Harvesting SOP, Bird & Predator Deterrence Strategy
Related MSDS: N/A

Feed Management Measures

- The majority of the feed is stored at the rink which has a pest control contract with Abell pest control.
- The doors to this facility must be closed, unless activities require the doors to be open.
- Only feed fed during the same day is brought to the shore-based location.
- If an excess of feed happens to be delivered to the site, it must be stored in secure, steel transport containers. The doors to these containers must be closed at all times, unless loading or unloading is occurring.
- On the vessels, feed is covered to protect it from birds. It is not left on a vessel unless it will be fed within the day.
- Bags or open containers of feed are not left exposed or uncovered.
- Occasionally during unloading of feed, bags get broken. In these circumstances feed is picked up and placed in garbage containers which are placed inside the feed containers or in Dynaplast tubs until disposed of.
- Any feed that is unusable is removed from the site as soon as possible and disposed of at an approved waste management facility.
- Feed spills are cleaned up immediately. The pathway for feed delivery and passage is kept clear and free of obstacles to reduce spillage.

Net Management Measures

- Nets are also stored inside at the rink, unless activities (e.g. repair) require work to be done outside.

Site Management Measures

- Site inspection is scheduled for once a week to survey and pick up any garbage including fouling organisms and feed that were missed in daily clean-up activities. These inspections are used to reinforce the disposal of wastes in a timely manner.

Records

- Abell Pest Control Records
- Grounds Inspection Checklist

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

1. **CFIA; Dec. 2, 2019:** No concerns regarding the proposed development. No reply required.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

2. **ECCC, SWCP (CSSP); Dec. 20, 2019:** No comments on the application. No reply required.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

3. ECCC, CWS; Jan. 6, 2020:

- On page 34, it is stated that "CEPI, 2006 also mentioned barrows goldeneye which have been seen near Whycocomagh Bay shore..." This species is not further mentioned in the report. Barrow's Goldeneye is a migratory bird listed on Schedule 1 of the Species at Risk Act. The species is designated Special Concern by the Committee on the Status of Endangered Wildlife in Canada. The proponent should therefore ensure that contractors and staff are aware of the possibility of this species at risk occurring in the area, and that aquaculture staff and equipment not approach Barrow's Goldeneyes.

The significance of this species at risk will be communicated to staff and contractors. Also, see the Bird & Predator Deterrence Strategy attached as Appendix A. This has been extracted from the Farm Management Plan and includes statements that describe avoidance of the shore or other wildlife habitat and wildlife itself.

- On page 38, it is stated that "A wildlife interaction plan must be described in an operator's Farm Management Plan as defined by the Nova Scotia Aquaculture Management Regulations. It must be approved for implementation by NSDFA..." Neither the wildlife interaction plan nor the Farm Management Plan were submitted for review. If forwarded to us, we would be happy to review the wildlife interaction plan, or the mitigation/monitoring measures to be included in such a plan.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

- It should be clarified whether grow lights are proposed for this site. Bright lights can cause problems for night migrating birds and night-flying seabirds (e.g. storm-petrels), especially during periods of fog, drizzle, and haze. A powerful pencil of light shining upwards into the fog can appear as a corridor through darkness into which the birds fly. Birds then get killed or injured by flying into the lit object, by flying into the light itself, or by colliding with other birds. For those that don't get killed or injured but flutter in the light pencil for a long period, they may deplete their energy reserves and either die of exhaustion or drop to the ground where they are at risk from predators. In order to avoid impacts on migratory birds, it is recommended that lights be shielded and aimed downwards.

No grow lights will be used at the site.

- The proponent should clarify its measures to deal with migratory birds that are potential predators of fish, keeping in mind its obligations under the *Migratory Birds Convention Act* and associated regulations.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

- The proponent should clarify whether any measures are proposed to avoid bird entanglements with nets (i.e. keeping bird nets tight and free of slack). The proponent should also prepare a clear plan for site workers to implement in the event that birds get entangled despite these measures or pass through the predator net and not be able to get back out.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

There is no written plan for bird entanglement. Guidance on this would be appreciated.

We will be in a better position to comment on the proposal once the information requested above has been submitted. In the meantime, we have the following comments in the event that the project is ultimately approved:

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

- Food scraps and other garbage left on beaches and other coastal habitat can artificially enhance the populations of avian and mammalian predators of eggs and chicks of migratory birds. A similar effect could occur if gulls are attracted and have access to excess feed. The proponent should ensure that no litter (including food wastes) is left in coastal areas staff and/or contractors. Also the feed program should be managed to minimize waste, and should include use of tarps to prevent bird access to fish feed.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan and include feed management measures.

Also note the following:
Operational waste will be collected and contained in sealed containers as it is generated. A weekly grounds inspection, complete with checklist, will promote the timely collection and disposal of the waste.

- Project staff/contractors and vessels should not approach concentrations of seabirds, waterfowl or shorebirds.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan and include statements that describe avoidance of the shore or other wildlife habitat and wildlife itself.

- Project staff/contractors should use well muffled vessels and machinery.

As extracted from the Farm Management Plan:

Noise produced at the site is minimized through proper and timely maintenance of equipment and machinery and the use of mufflers or noise reduction devices where appropriate.

- Beaches and wetlands are sensitive habitats and proponents should not utilize these habitats for construction, operational or decommissioning activities, with the exception of beach clean-up activities, which should be timed to not coincide with sensitive periods for breeding birds and other wildlife.

There are two shore side locations that are used in operations, construction, and decommissioning activities. These locations include a main shore-based area which consists of two existing wharves with an adjoining parking lot, building and storage trailers, and a second maintained area adjacent to the lake on reserve land which is used for assembling or decommissioning cages and pulling them into or out of the water. This area used for cage construction/decommissioning is neither a wetland nor a beach. Once assembled, the cages are pulled over the intertidal area into the water using a lake-based vessel. The shortest path over the intertidal area is used to reduce impacts. In this area, the water gets deep enough to float the cages almost immediately. For cage disassembly, the reverse process occurs in this same area.

Since even small spills of oil can have very serious effects on migratory birds, every effort should be taken to ensure that no oil spills occur. The proponents should ensure that all precautions are taken by the contractors and staff to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared.

As extracted from the Farm Management Plan:

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

Spills are minimized by ensuring that the amount kept on site at any one time will be limited to the amount that will be used within a reasonable timeframe and is able to be safely and properly stored at the site. Only appropriate lubricant and chemical storage receptacles will be used.

Waste oil is brought to the processing plant (secure land-based location) for temporary storage until it can be taken for disposal at a receiving facility.

A clean up and containment kit is available which will be used to deal with a spill according to its required procedures.

Reporting to the Department of Environment will occur to report a spill or release of a hazardous substance if it may potentially cause an adverse effect. Tel # 1 800 565-1633

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

4. **DFO (Ed, via Jennifer);**
Jan. 3, 2020:

Can you please confirm with the applicant that they do not plan to use Small Craft Harbour infrastructure in the construction and operation of their proposed farms (1430 and 1431)?

The intent for 1430 and 1431 is to use We'koqma'q's existing wharf in the west end of Whycocomagh Bay, not a Small Craft Harbour wharf.

March 4, 2020 (Several emails):

1. For AQ#0814, is the plan to have a maximum of 1,000,000 fish on this site? It is unclear based on how the number of fish referenced in the application differentiates between site 0814 and the other two proposed sites.

2. For AQ#0814, the production plan speaks to 6 arrays of 8 cages with a maximum of 15,000 fish per cage. This can be interpreted as a total of 48 cages; however, in the ORGANIX model setup Excel file, the number of cages shows only 8 cages. Can this be explained?

A response to the above was submitted March 4, 2020 but based on EMP results, results from the experimental permit activities, and other considerations, the plans were changed after that date. Amended development plans for sites 1430 and 1431 were consequently submitted September 9, 2020. The depositional modeling using the amended development plans were submitted February 2, 2021.

Note that We'koqma'q has applied for an Experimental Permit to conduct research to validate a model that can better advise We'koqma'q of expected benthic impacts from stocking plans and feeding pressure. It is anticipated that in the future this model will help We'koqma'q to direct production in a way that is less impactful.

3. For AQ#1430 and AQ#1431, can you please confirm if you plan to use Small Craft Harbour infrastructure in the construction and operation of these proposed farms?

The intent for 1430 and 1431 is to use We'koqma'q's existing wharf in the west end of Whycocomagh Bay, not a Small Craft Harbour wharf.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

5. Transport Canada; Dec. 2, 2019. Application received, NPP will need to issue a CNWA approval. *Please clarify - is any reply required? Cage configurations have changed, but the lease area has not.*

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

6. Nova Scotia Department of Agriculture; Oct. 30, 2019: No concerns regarding the proposed development. No reply required.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

7. Nova Scotia Environment and Climate Change; Dec. 18, 2019: Department does not have any issues with this application. No reply required.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

8. NSDFA (Inland Division); Undated:

The only concern with this from an Inland Fisheries perspective would be that there is recreational angling, primarily for trout, that occurs along the shoreline adjacent to the proposed site. Angling by boat currently occurs in the waters where the array of cages is proposed. As well there is significant ice fishing activity in the winter for smelt in the immediate vicinity of the proposed site. There is some potential for conflict to occur although, admittingly, the history of angler - fish farmer interaction in Whycocomagh Bay has for the most part been one of anglers targeting escapees.

Fishers will be educated, as required, on the lease boundaries to ensure that navigation and fishing are safely conducted. It is notable that Whycocomagh Bay is a large body of water so that recreational fishing and this development should be able to peaceably co-exist, as they have for the past several decades.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

9. Nova Scotia Department of Lands and Forestry; Dec. 18, 2019

The proponent has had recent issues with the storage of nets and fish food that are kept outside and in a building, close to the village. Bears have been attracted to the site and without intervention this will continue. This is a safety issue for both the proponent and the bears. The Department proposes the following conditions to alleviate this issue:

1. Storage of nets/fish food/wildlife attractants:

The proponent must ensure that all nets, fish food and other potential wildlife attractants which are stored on land are stored in a fashion that will not attract bears and other scavenging animals. The Department recommends that all waste be disposed of quickly and/or rendered non attractive for bears/ coyotes and eagles etc.

It is notable that We'koqma'q has acquired and repurposed the local former rink building to enable the indoor storage of feed, nets, and other bulky items that were previously stored outdoors or in temporary storage areas. This will deter scavenging animals. More details are described in the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

Furthermore, We'koqma'q no longer cleans fish containment nets themselves. Previously, the outdoor storage and cleaning of nets may have caused issues with respect to the organic debris from the nets. Nets are now sent to a third party contractor for cleaning in a timely fashion so that this organic debris is no longer a potential attractant to pests and a potential smell issue.

2. The proponent has not provided any mitigations for diving fish eating birds (cormorants, loons etc.). The Department recommends that mitigation measures be put in place to ensure species are not entangled in the below water portion of the net if there is a possibility that this is an issue.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

3. There is loon significant habitat located close to the proposed location. The Department does not anticipate that there will be many adverse effects provided that the proponent conducts mitigations to reduce loon entanglement. The Department requires that the proponent report all diving bird entanglement/mortalities to the Department.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan. Note that records of interactions with birds, mammals, or other animals that result in injury or death are kept. *Please indicate the appropriate contact for notification of diving bird entanglement/mortalities to so that we can add it to the Farm Management Plan.*

4. There is a tendency for waste to be produced by these projects that ends up on the shore and this may have a negative impact on our terrestrial biodiversity and potentially the cleanliness of the park. The Department recommends that the proponent take all measures necessary to ensure waste remains onsite and does not pollute the shoreline.

As extracted from the Farm Management Plan, retrieval of loose gear will be dealt with as follows:

Items will be retrieved as soon as the issue is identified and it is safe to do so. The company has its own vessels and staff capable of retrieving loose gear so that there should be little/no delay

between identifying the problem and its recovery, except due to safety issues, if applicable. Equipment to be kept for re-use will be moved to the rink for storage as soon as possible (at least within a week). Equipment that requires a longer lead time for disposal (e.g. sold as scrap, sold for another use, or requires special arrangements for delivery to an acceptable waste location) will be stored at the rink until disposal can be arranged.

As extracted from the Farm Management Plan, maintaining the site in good order will be accomplished as follows:

A sweep of the wharf and farm area will be conducted weekly. In addition, weekly surface inspections will occur and be documented for cage infrastructure. Maintenance issues will be identified at these times. Small tasks will be completed within a week or asap if containment or fish welfare may be at risk from the identified issues. Larger issues will be brought to management's attention to allow a plan for remediation. Most issues will be resolved within a month, budget permitting. Significant issues may require a longer time since financial resources will have to be found. If these situations arise, the farm will institute temporary remediation within a month. This remediation will return the site to a suitable appearance.

Equipment to be kept for re-use will be moved to the rink for storage as soon as possible (at least within a week). Debris that is to be discarded with normal garbage will be disposed of accordingly, in a timely fashion. Equipment that requires a longer lead time for disposal (e.g. sold as scrap, sold for another use, or requires special arrangements for delivery to an acceptable waste location) will be stored at the rink until disposal can be arranged.

As extracted from the Farm Management Plan, accumulation of refuse and neglect of decommissioned farm supplies and equipment will be managed according to the following plan:

Decommissioned farm equipment and extra supplies are housed at the rink, an enclosed building, away from the farm. Some may be housed at indoor facilities owned by the farm.

A sweep of the wharf and farm area will be conducted weekly. Transfer of un-used farm equipment and supply stores too large to hold in the farm-side steel containers will be moved to the compound or to an indoor facility. This will be done during the weekly sweep or early the following week if transportation is not immediately available.

Operational waste will be collected and contained in sealed containers as it is generated. A weekly grounds inspection, complete with checklist will promote the timely collection and disposal of the waste.

Other Considerations:
There are multiple areas of bald eagle significant habitat surrounding the proposed expansion area. It is not expected that these areas will experience significant additional stress compared to the current operation assuming mitigation is put in place. The proponent has outlined a mitigation for eagle predation resulting in entanglement. Due to the increase in the size of this project, it is possible that further mitigation will be necessary. This project has the potential to artificially increase the presence of eagles to the area and increase competition between them

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

due to an increase in anthropogenic food sources (waste fish etc.). These effects would be difficult to measure. Increased human presence in the area could have a negative impact on the nesting success of the eagles in the area. Lastly, increased human activity may increase human wildlife conflicts in the area.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

The Department defers to federal and provincial fisheries for expertise on the potential effects on the marine ecosystem. Any negative effects on the marine ecosystem may carry over to terrestrial species.
According to the records on file at the Department of Lands and Forestry's Crown Land Information Management Centre, any land lying below the original ordinary high-water mark of Whycocomagh Bay, at the location provided, is considered ungranted Crown land with no encumbrances.
It should be noted that the scope of this research only includes information on file at this office.

Title	Bird & Predator Deterrence Strategy
SOP number	*N/A - Strategy*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	September 12, 2019, April 12, 2021

Strategy

Interactions with birds and predators are to be avoided. Unwanted attention from birds and predators endangers the birds and predators themselves, can present a nuisance to workers, may stress the fish, and may pose biosecurity and fish health risks.

Deterrence is the best way to avoid such interactions. Bird and predator deterrence relies primarily on reducing the food available. The Pest Management Strategy describes feed, net, and grounds management which will help to reduce food for birds and predators. Deterrence of birds and other animals, as well as general activities to avoid interaction with animals must also be considered and are described in this document.

This Bird & Predator Deterrent Strategy forms part of the Wildlife Interaction Plan.

Required Documents

Related SOPs: Routine Mortality Collection and Disposal SOP; Mass Mortality Collection and Disposal SOP, Harvesting SOP, Pest Management Strategy
Related MSDS: N/A

Bird Deterrence

- The use of bird nets over the cages removes the possibility of preying on fish.
- A bird net is placed over a floating bird stand located in the centre of the pen.
- Tie the bird stand with at least three ropes to centre it in the middle.
- Bird net mesh size has to be smaller than the smallest predator bird which is usually a sea gull, although in some instances kingfishers may be bothersome to smaller fish(<100g). The size of the mesh must be balanced with fish size since if too small a mesh is used it will be difficult to remove when fish get larger without gilling them.
- It is vital that the net is large enough to span the entire pen top.
- The bird net must be inspected and repaired, if necessary, before installation, and as required while in place.
- There can be no gaps or low spots in the bird cover as herons will take advantage at night by working in concert to get a meal by weighing down the cover to reach a meal.
- The cover must be made larger than the handrail to provide some overlap.

- The net should be “zinging” tight using the shackles on the stanchions and any extra rope required.

Marine Mammal Deterrence

- No below-water predator nets have been required in the Bras D’Or as there have been no recorded breaches of nets by seals in 40 years
- Removal of morts regularly prevents predators such as mammals and others (cod, eels, striped bass, etc.) from being attracted to and trying to chew through the net.

General Animal Interactions

- In order to further reduce the incidence of interaction with wildlife, boat travel to and from the cages to be worked will be via the most direct route possible, respecting any special requirements instituted for biosecurity concerns.
- Most importantly, approach of the shore or other wildlife habitat and wildlife itself will be avoided as much as feasible.
- A record of animal interactions is kept to help improve procedures. Any interactions that result in injury or mortality to wildlife must be reported.

Records

- Net Inventory Record
- Abell Pest Control Records
- Surface Inspection Checklist (cages)
- Grounds Inspection Checklist
- Bird Interaction Record
- Marine Mammal Interaction Record
- Wildlife Interaction Record

Title	Pest Management Strategy
SOP number	*N/A - Strategy*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	September 12, 2019, April 12, 2021

Strategy

Pest management relies primarily on reducing the food and habitat available for pests. Keeping clean grounds and ensuring proper storage of materials are key factors. Rodents are the biggest pest problem for both stored food and nets. However, improper storage of feed or nets can also attract larger mammals such as raccoons and bears and others. Feed and net management and the biosecurity measures regarding mortality storage and disposal, explained elsewhere, will reduce attraction to pests. A contracted pest control company assists with these measures and ensures monitoring of the effectiveness of the measures.

This Pest Management Strategy forms part of the Wildlife Interaction Plan.

Required Documents

Related SOPs: Routine Mortality Collection and Disposal SOP; Mass Mortality Collection and Disposal SOP, Harvesting SOP, Bird & Predator Deterrence Strategy
Related MSDS: N/A

Feed Management Measures

- The majority of the feed is stored at the rink which has a pest control contract with Abell pest control.
- The doors to this facility must be closed, unless activities require the doors to be open.
- Only feed fed during the same day is brought to the shore-based location.
- If an excess of feed happens to be delivered to the site, it may be stored in secure, steel transport containers. The doors to these containers must be closed at all times, unless loading or unloading is occurring.
- On the vessels, feed is covered to protect it from birds. It is not left on a vessel unless it will be fed within the day.
- Bags or open containers of feed are not left exposed or uncovered.
  Occasionally during unloading of feed, bags get broken. In these circumstances feed is picked up and placed in garbage containers which are placed inside the feed containers or in Dynaplast tubs until disposed of.
- Any feed that is unusable is removed from the site as soon as possible and disposed of at an approved waste management facility.
- Feed spills are cleaned up immediately. The pathway for feed delivery and passage is kept clear and free of obstacles to reduce spillage.

Net Management Measures

- Nets are also stored inside at the rink, unless activities (e.g. repair) require work to be done outside.

Site Management Measures

- Site inspection is scheduled for once a week to survey and pick up any garbage including fouling organisms and feed that were missed in daily clean-up activities. These inspections are used to reinforce the disposal of wastes in a timely manner.

Records

- Abell Pest Control Records
- Grounds Inspection Checklist

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: April 27, 2021 10:56 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Brager, Lindsay <Lindsay.Brager@dfo-mpo.gc.ca>; Kelly, Noreen <Noreen.Kelly@dfo-mpo.gc.ca>
Subject: REQUEST: status of sites near North and South Aberdeen

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Hi Lynn,

Can NSDFA please confirm the status (i.e. active/inactive, or stocked/not stocked) of the other aquaculture leases surrounding the proposed North and South Aberdeen sites? This is for the purposes of our cumulative effects assessment. In particular, the following sites are within a 5 km radius according to the NSDFA site mapping tool. Any information you can share about their status would be of assistance:

- #1291
- #1295
- #0193

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
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From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Wednesday, April 28, 2021 1:14 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Brager, Lindsay <Lindsay.Brager@dfo-mpo.gc.ca>; Kelly, Noreen <Noreen.Kelly@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: REQUEST: status of sites near North and South Aberdeen

Hi Ed,

The status of the other aquaculture sites surrounding AQ#1430 and AQ#1431 is as follows:

- **AQ#1291 and 1295** – these sites have minimal activity due to MSX. The sites are currently stocked with a small number of oysters (in 4 OysterGro cages per site) for research purposes.

- **AQ#0193** – this site has been inactive, but was recently assigned to We'koqma'q First Nation and renewed. Site utilization plans are in place and the site is considered active, but not currently stocked.

Please do not hesitate to reach out should you have any additional questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: April 28, 2021 2:10 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Kelly, Noreen <Noreen.Kelly@dfo-mpo.gc.ca>; Brager, Lindsay <Lindsay.Brager@dfo-mpo.gc.ca>
Subject: RE: REQUEST: status of sites near North and South Aberdeen

Thank you Jennifer!

Edward Parker
Regional Senior Aquaculture Management Officer
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From: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Sent: Monday, June 21, 2021 8:33 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: Status Update for Network Review of AQ#1430 and AQ#1431

Good morning Ed,
I was wondering if you could please provide me with a status update on the progress regarding network review of the amended plans to aquaculture applications AQ#1430 and AQ#1431, attached.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
Phone: 902-875-7430
Robert.Ceschiutti@novascotia.ca

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: June 22, 2021 9:39 AM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: Status Update for Network Review of AQ#1430 and AQ#1431

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Hi Robert,

Thanks for checking in. We are holding the CSAS meeting today. We combined the two sites into one CSAS process. Usually there are only minor details to revise after the meeting, then sectors can continue their reviews.

Ed

Edward Parker
Regional Senior Aquaculture Management Officer
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l'imprimer, la copier, ou la faire suivre. Merci.

From: Feehan, Jennifer
Sent: June 22, 2021 4:06 PM
To: donald <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: AQ#0814 Compilation of Network Comments

Hi Donald and Melissa,

Please find attached the compilation of comments received from Network Agencies for AQ#0814. A compilation of DFO's requests for additional information to date is attached separately. Please note that DFO's final Letter of Advice and CSAS Report for this application are still pending.

In regard to Nova Scotia Department of Lands and Forestry's comments (see pages 39-41), we would like to set up a call to discuss and provide some clarification. To allow time for you to review the network comments and prepare any questions, would a call on **July 14th at 11 am** work for you?

Please let me know and I will follow up with a meeting request.

Kind regards,
Jennifer

Jennifer Feehan
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902-237-0771
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NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#0814x up to June 22, 2021, attached in this email.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: June 23, 2021 10:02 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Cc: Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>; McLean, Mark G <Mark.McLean@dfo-mpo.gc.ca>; Gentile, Paul <Paul.Gentile@dfo-mpo.gc.ca>; Berthier, Jacinta <Jacinta.Berthier@dfo-mpo.gc.ca>; Sullivan, Mike DJ <Mike.Sullivan@dfo-mpo.gc.ca>; Herbert, Glen <Glen.Herbert@dfo-mpo.gc.ca>; Williams, Wendy <Wendy.Williams@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,

Please find attached to this email, DFO's letter of advice for We'koqma'q First Nation's request to amend their provincial aquaculture licence to reflect an expansion of the boundaries from 1.39 hectares to 65.53 hectares at their existing marine finfish cage aquaculture site 0814 in Whycocomagh Bay, Bras d'Or Lake, Inverness County.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
CP 1006, P600, Dartmouth, N-É B2Y 4A2
Government of Canada | Gouvernement du Canada

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LOA_2019-MarAq-0
21_We'koqma'q Firs

1 Challenger Drive, P600
Dartmouth, NS
B2Y 4A2

DFO File # 2019-MarAq-021

Lynn Winfield, Licensing Coordinator
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0

Dear Lynn Winfield:

Subject: Boundary Expansion of Marine Finfish Cage Aquaculture Site 0814 – We'koqma'q First Nation

As requested, Fisheries and Oceans Canada (DFO) has completed its review of the application of We'koqma'q First Nation (the proponent) for an amendment to its aquaculture licence under the provincial *Fisheries and Coastal Resources Act*. The proponent is requesting to amend their licence to reflect an expansion of the boundaries from 1.39 hectares to 65.53 hectares at their existing marine finfish cage aquaculture site 0814 in Whycocomagh Bay, Bras d'Or Lake, Inverness County. Although licensed for Rainbow Trout and Atlantic Salmon (Saint John River strain), the proponent is proposing to stock Rainbow Trout. It is DFO's understanding that if the aquaculture licence is amended, site 0814 would encompass the areas of two of the proponent's other sites 0600 (1.40 hectares) and 0845 (1.57 hectares), which would cease to exist.

DFO's review consisted of the following:

- Information received March 11, 2019 from the proponent containing information referred to in paragraphs 8(1)(a) to (d) of the *Aquaculture Activities Regulations*;
- Two emails from Lynn Winfield, Licensing Coordinator, Nova Scotia Department of Fisheries and Aquaculture (NSDFA), dated July 15, 2019, titled, "AQ0814 - Boundary Amendment Application - We'koqma'q First Nation";
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated March 11, 2020, titled, "AQ#0814, 1430, 1431 - DFO Network Partner Response";
- Email from Melissa Rommens, Sustain Aqua, dated June 15, 2020, titled, "FW: Level III Environmental monitoring results for AQ 0814";
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated August 12, 2020, titled, "RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation";
- Email from Jessica Feindel, Manager of Aquaculture Operations, NSDFA, dated August 25, 2020, titled, "RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation";
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated September 4, 2020, titled, "RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation"; and
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated April 6, 2021, titled, "RE: UPDATE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation".

DFO's legislative mandate

In accordance with DFO's legislative mandate, which includes the *Fisheries Act*, *Species at Risk Act* (SARA), *Oceans Act* and applicable regulations, the application was reviewed to assess the deposit of deleterious substances; the death of fish by means other than fishing; the harmful alteration, disruption or destruction of fish habitat; and the killing, harming or harassing of SARA-listed species and the destruction of their critical habitat. The following DFO sectors participated in the review: Ecosystem Management - Regulatory Review, Marine Planning and Conservation, Resource and Aboriginal Fisheries Management, the Eastern Nova Scotia Area Office and Science. The results of DFO Science's review will be published by the DFO Canadian Science Advisory Secretariat in a Science Response titled, "DFO Maritimes Region Science Review of the Proposed Marine Finfish Aquaculture Boundary Amendment, Whycocomagh Bay, Bras d'Or Lake, Nova Scotia".

DFO's risk management approach for review of the application

DFO's review of the application used a risk management approach with the objective of socially, economically and environmentally sustainable aquaculture development while protecting fish and fish habitat, including SARA-listed species. DFO conducted a risk assessment using pathways of effects to establish cause-and-effect relationships by linking activities to stressors and stressors to effects on fish and fish habitat, including SARA-listed species. The residual risk to fish and fish habitat was determined after taking into consideration the proponent's avoidance and mitigation measures, as well as the regulatory requirements of DFO and other federal and provincial regulators that protect fish and fish habitat. The residual risk was evaluated to determine if additional risk treatment was needed. Using the precautionary approach, the amount of risk treatment required was commensurate with the level of scientific uncertainty and seriousness of residual risk.

Fish and fish habitat, including SARA-listed species, at risk of impact from stressors

DFO used its own databases, expert knowledge, and information provided by the proponent to identify which fish and fish habitat, including SARA-listed species, are at risk of impact by stressors as a result of the construction and operation of the expanded site 0814. Much of the data, however, is of low spatial and temporal resolution and too sparse to give a robust indication of the seasonality and spatial distribution of fish and fish habitat in the areas at risk of impact. Despite these limitations with the data, DFO focused on fish and fish habitat susceptible to aquaculture impacts, with particular focus on SARA-listed species and species assessed as endangered, threatened or of special concern by the Committee on the Status of Endangered Wildlife in Canada.

No SARA-listed species or their Critical Habitat or Residences are likely to be found within the areas at risk of impact. Species assessed by the Committee on the Status of Endangered Wildlife in Canada, and their habitat, that are likely to be found within the area at risk of impact include: Eastern Cape Breton Atlantic Salmon (endangered); American Eel (threatened); Harbour Porpoise (Northwest Atlantic population) (threatened); and Atlantic Cod (Southern population) (endangered).

Other fish, and their habitat, that are likely to be found within the areas at risk of impact include: sticklebacks; Atlantic Silverside; Banded Killifish; Mummichog; Cunner; Brook Trout; mussels;

Winter Flounder; Smooth Flounder; Northern Pipefish; Grubby; Jellyfish; Grass Shrimp; Sand Shrimp; *Halothrix lumbricalis* (Brown algae); one regionally rare species of algae named *Nemalion helminthoides*; Grey Seal; Harbour Seal; Winter Skate; American Plaice; Atlantic Mackerel; Rainbow Smelt; Gaspereau; American Oyster and Atlantic Herring.

The western end of Whycocomagh Bay is isolated from water bodies to the east by shallow sills that restrict flushing and facilitate naturally-occurring hypoxic (low oxygen) and anoxic (no oxygen) conditions. Whycocomagh Bay is part of the Bras d'Or Lake Ecologically and Biologically Significant Area; however, it is ranked as the second least significant basin in the Area due to its limited habitat diversity and ability to support diverse and productive biota. There are significant areas of localized salt marsh and historically eelgrass has been widespread. Significant spatial and temporal variability in eelgrass distribution and condition is expected due to natural factors within the region that are suboptimal for eelgrass.

DFO's risk assessment results

DFO assessed the risk of physical alteration of habitat structure of the water column and of the benthos due to the presence of the farmed fish and the site infrastructure, such as the mooring system, grid system and cages. Bycatch or entanglement of fish is expected to be low relative to local population sizes. Incidental death of slow moving or non-motile species that may occur due to the placement or movement of infrastructure is expected to be low relative to local population sizes. The installation of blocks or anchors on 4 known areas of eelgrass along the perimeter of the proposed expanded lease boundaries should be avoided. No additional risk treatment for this stressor is required.

DFO assessed the risk of alteration in light due to shading caused by the farmed fish and aquaculture site infrastructure, or due to increased light levels caused by artificial illumination. The proponent plans to locate cages at a minimum depth of 14 meters which is outside the depth range that eelgrass inhabits (12 meters), and to not use artificial illumination. No additional risk treatment for this stressor is required.

DFO assessed the risk of noise due to the use of acoustic deterrent devices, vessels, equipment and machinery for various day-to-day operations. The proponent plans to not use acoustic deterrent devices, and other sounds have short-term localized effects that do not appear sufficient to cause injury or permanent displacement. No additional risk treatment for this stressor is required.

DFO assessed the risk of the deposit of nutrients and organic material released through waste feed, feces, metabolic waste products and bio-fouling organisms. The deposit of biochemical oxygen demanding matter is regulated by the *Aquaculture Activities Regulations*. DFO made a precautionary overestimate, called benthic predicted exposure zone, of the area at risk of impact from the deposit of biochemical oxygen demanding matter. Waste feed is anticipated to have the greatest intensity of impact, and may extend up to 860 meters from the center of the proposed expanded lease boundaries, with the intensity of impacts decreasing with distance from cages.

The proponent submitted to DFO the predicted contours (i.e. spatial extent and intensity) of the footprint of the biochemical oxygen demanding matter that would be deposited as waste feed and feces during maximum daily quantity of feed usage. The prediction suggests a potential for elevated free sediment sulfide concentration, which is a measurement of the impact of biochemical

oxygen demanding matter, under the cages. There is a risk that the mean concentration of free sediment sulfide could exceed 3000 micro-molar, a threshold above which the *Aquaculture Activities Regulations* would prohibit restocking of the site. No additional risk treatment for this stressor is required, but the proponent should be reminded that under subsection 7(2) of the *Aquaculture Activities Regulations* the proponent will have to take reasonable measures to minimize the deposit of fish feces and unconsumed feed, having regard to the factors set out in paragraphs 7(1)(a) to (c).

DFO assessed the risk of the removal of dissolved oxygen due to the deposit of biochemical oxygen demanding matter and fish respiration. The accumulation and decomposition of biochemical oxygen demanding matter in the deep hypoxic and anoxic water will contribute to suppressed dissolved oxygen levels. In even the most optimal conditions for the site, there are likely to be sub-lethal negative effects on the farmed fish due to low dissolved oxygen. Although dissolved oxygen depletion at the site is not anticipated to spread to the bay-scale, it is a compounding factor in an already naturally-stressed environment and may impact wild fish in the vicinity of the site. No additional risk treatment for this stressor is required.

DFO assessed the risk of accidental and intentional deposit of chemicals. The intentional deposit of pest control products that are registered, or whose use is authorized under the *Pest Control Products Act*, is regulated by the *Aquaculture Activities Regulations*. DFO made a precautionary overestimate, called pelagic predicted exposure zone, of the area at risk of impact from deposit of azamethiphos, the most toxic pest control product. Concentrations of azamethiphos that may be toxic to susceptible species may extend up to 2790 meters from the center of the proposed expanded lease boundaries, with the intensity of impacts decreasing with distance from cages. Azamethiphos is unlikely to persist in the aquatic environment. Available data since 2015 show pest control products have not been deposited at any of the proponent's existing sites in Whycocomagh Bay. If pest control products were to be used according to Health Canada Pest Management Regulatory Agency regulatory guidelines and deposited, the available information suggests little evidence of directly susceptible species being within the area and therefore little risk of significant impact to non-target populations. No additional risk treatment for this stressor is required, but the proponent should be reminded that under subsection 7(1) of the *Aquaculture Activities Regulations*, the proponent must, in depositing a pest control product referred to in paragraph 2(b), take reasonable measures to minimize detriment to fish and fish habitat outside the facility, having regard to paragraphs 7(1)(a) to (c).

The intentional deposit of drugs whose sale is permitted or otherwise authorized, or whose importation is not prohibited under the *Food and Drugs Act*, is regulated by the *Aquaculture Activities Regulations*. DFO assumed that the deposit of in-feed drugs is dominated by the deposit of medicated waste feed and feces, therefore the area at risk of impact from the deposit of drugs is the same as the precautionary overestimate, called benthic predicted exposure zone, made for biochemical oxygen demanding matter. Waste feed and feces may extend up to 860 meters and 1811 meters the proposed expanded lease boundaries, respectively, with the intensity of impacts decreasing with distance from cages. Available data since 2015 show drugs have not been deposited at any of the proponent's existing sites in Whycocomagh Bay. Scientific uncertainties regarding the exposure and effects of drugs on non-target populations limits DFO's assessment of the deposit of drugs. No additional risk treatment for this stressor is required, but the proponent should be reminded that under subsection 7(1) of the *Aquaculture Activities Regulations*, the

proponent must, in depositing a drug referred to in paragraph 2(a), take reasonable measures to minimize detriment to fish and fish habitat outside the facility, having regard to paragraphs 7(1)(a) to (c).

The accidental or intentional deposit of deleterious substances other than those regulated by the *Aquaculture Activities Regulations* into waters frequented by fish is subject to the general prohibition under section 36 of the *Fisheries Act*, irrespective of the amounts or inherent toxicity of the substance. No additional risk treatment for this stressor is required.

DFO assessed the risk of the release of farmed fish, henceforth referred to as Rainbow Trout escapees. Eastern Cape Breton Atlantic Salmon are at highest risk of impact from Rainbow Trout escapees. Although there is a successfully reproducing Rainbow Trout population in Bras d'Or Lake and the watercourses that flow into them, Rainbow Trout are not indigenous to Bras d'Or Lake, therefore impacts on them were not assessed. The province has stocked Rainbow Trout in Bras d'Or Lake since the early 1900s. Available data show that Rainbow Trout escapees have occurred at site 0814 in the past. DFO assumed Rainbow Trout escapees would likely occur in the future and that they would be capable of swimming to all Eastern Cape Breton Atlantic Salmon rivers. Direct genetic interaction is unlikely because there is no scientific evidence of such. Ecological interactions that alter selection pressures such as the transfer of diseases, predation, or competition for space, food, or mates are likely to result in the reduction of population size and genetic diversity of Eastern Cape Breton Atlantic Salmon. Because the risks are proportional to the number Rainbow Trout escapees, the proponent should prioritize preventing Rainbow Trout escapees. No additional risk treatment for this stressor is required.

DFO's assessment of the risk of the release of pathogens will occur via the review of the proponent's application to DFO to stock Rainbow Trout pursuant to sections 55 and 56 of the *Fishery (General) Regulations* made under the federal *Fisheries Act*. DFO will not issue the Licence if the Rainbow Trout have any disease or disease agent that may be harmful to the protection and conservation of wild fish. To apply for an Introductions and Transfers License, the proponent should email NSITC.XMAR@dfo-mpo.gc.ca.

If you have any questions concerning this letter, or if DFO's understanding of the application is either incorrect, incomplete, or if there are changes to the application, please contact me either by telephone at 902-402-0298 or by email at Edward.Parker@dfo-mpo.gc.ca.

Sincerely,

Parker, Edward Digitally signed by Parker, Edward Date: 2021.06.18 09:36:29 -03'00'

Edward Parker
Senior Advisor, Aquaculture Management Office
Maritimes Region

cc: M. McLean, Ecosystem Management, DFO Maritimes
P. Gentile, Eastern Nova Scotia Area Office, DFO Maritimes
J. Berthier, Resource and Aboriginal Fisheries Management, DFO Maritimes
M. Sullivan, Ecosystem Science, DFO Maritimes
G. Herbert, Marine Planning and Conservation, DFO Maritimes

From: Melissa Rommens <melissa@sustainaqua.ca>
Date: 2021-06-23 7:58 a.m. (GMT-04:00)
To: "'Feehan, Jennifer'" <Jennifer.Feehan@novascotia.ca>, 'donald' <donalddavis@waycobah.ca>
Cc: "'Greenwood, Megan N'" <Megan.Greenwood@novascotia.ca>, "'Feindel, Nathaniel J'" <Nathaniel.Feindel@novascotia.ca>, "'Ceschiutti, Robert'" <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

This time is good for me Jennifer.

Please await a reply from Donald before final scheduling.

Kind regards,

Melissa

From: donalddavis <donalddavis@waycobah.ca>
Sent: June 23, 2021 8:18 AM
To: Melissa Rommens <melissa@sustainaqua.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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That time is fine with me.....Regards Donald.

Sent from my Bell Samsung device over Canada's largest network.

From: Feehan, Jennifer
Sent: June 28, 2021 10:00 AM
To: donalddavis <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

Hi Donald and Melissa,

Please see attached DFO's Letter of Advice for AQ#0814 boundary amendment application. DFO's Canadian Science Advisory Secretariat (CSAS) science response with a more detailed review of the application is still pending.

This can be added to our discussion on July 14th.

Kind regards,
Jennifer



2021.06.23-DFO-Ed Parker-Response.pd

NOTE: Please refer to correspondence above (see June 23, 2021) for the attachment in this email.

Feehan, Jennifer

Subject:	AQ#0814 Network Comments Discussion
Location:	Microsoft Teams Meeting
Start:	Wed 2021-07-14 11:00 AM
End:	Wed 2021-07-14 12:00 PM
Recurrence:	(none)
Meeting Status:	Meeting organizer
Organizer:	Feehan, Jennifer
Required Attendees:	donald; Melissa Rommens; Greenwood, Megan N; Feindel, Nathaniel J; Ceschiutti, Robert

---

Microsoft Teams meeting

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20014895@t.plcm.vc
Video Conference ID: 111 836 635 6
Alternate VTC dialing instructions

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From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 26, 2021 4:44 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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Hello Jennifer:
Find attached a response to the compiled network comments as referred to in the email below.

There are a few outstanding items noted:

- Confirm if anything is outstanding with TC.
- Determine contact information for the Coordinator of Special Places Program of NSCCH.
- Confirm if anything is required for NSECC.
- Determine intention of bald eagle monitoring requested by NSDLF.
- Confirm if additional information is required for DFO.

We are available to discuss the above as well as the submission at your convenience.

Thank-you for the opportunity to discuss and respond to the network concerns.

Kind regards,
Melissa.

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0

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Network comment responses 0814x Jul

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document: 1 -AQ#8014 Compilation of Network Comments – 2021.06.22

1. **CFIA; Aug. 9, 2019:** No concerns or comments regarding the proposed development. No reply required.

2. ECCC -CSSP; Aug. 21, 2019: No comments on the application. No reply required.

3. ECCC, CWS; Sept. 17, 2019 +

We'koqma'q replied to comments with pdf documents "Additional info response 0814 Sept 20" and "0814 WIP Excerpts FMP Attachment 1". NSDFA provided a map of the proposed amendment.

These responses were acknowledged by ECCC, CWS; and we note their offer to be contacted in the event that cormorants become a problem at the site. To date, this is not the case.

The September 20, 2019 reply by We'koqma'q included excerpts from the Farm Management Plan. It should be noted that this is a living document and is updated as required, and reviewed and approved for implementation by NSDFA annually, at a minimum. More up-to-date versions of the Bird & Predator Deterrent Strategy and Pest Management Strategy are available within a more recent reply to questions posed by NS Lands & Forestry. (See pages 9 to 15 of this document.)

4. Transport Canada; July 9, 2020+

No questions required a reply. *NSDFA to follow up to see if there are any concerns.*

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document: 1 -AQ#8014 Compilation of Network Comments – 2021.06.22

5. Nova Scotia Department of Agriculture; Sept. 4, 2019: No concerns regarding the proposed development. No reply required.

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document: 1 -AQ#8014 Compilation of Network Comments – 2021.06.22

6. Nova Scotia Communities Culture and Heritage; Sept. 18, 2019: No concerns regarding the proposed development. No reply required.

We note that if during aquaculture construction or operation activities, archaeological materials are recovered, the Coordinator of Special Places Program is to be contacted immediately. This note has been added to the FMP in Section 8.4. Please provide us with a contact for the Coordinator of Special Places Program.

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document: 1 -AQ#8014 Compilation of Network Comments – 2021.06.22

7. Nova Scotia Environment and Climate Change; Jan. 24, 2020 +: No comments received. *NSDFA to follow up to see if there are any concerns.*

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document: 1 -AQ#8014 Compilation of Network Comments – 2021.06.22

8. NSDFA (Inland Division); April 24, 2020

General comments: Whycocomagh Bay is a popular destination for anglers fishing both from shore and from boats. The most popular species are: Rainbow trout, presumed escapees or from provincial stocking, Brook trout, Brown trout and smelt. While anglers, for the most part, are supportive of the current operation, there may exist the potential for conflict, particularly from boaters given the scale of the increased acreage; from less than 5Ha to 65Ha.

These comments speak only to changes with regards to increased Rainbow trout production although the license includes Atlantic salmon.

Response from We'koqma'q: Anglers will be educated, as required, on the lease boundaries to ensure that navigation and angling are safely conducted. It is notable that Whycocomagh Bay is a large body of water so that recreational fishing and this development should be able to peaceably co-exist, as they have for the past several decades.

The corrections to the recreational fisheries information submitted with the application are noted namely:

- *The recreational fishing season in the Bras d'Or Lakes for Rainbow trout and Brown is year-round.*
- *There are no smallmouth bass in the Bras d'Or Lakes.*

9. Nova Scotia Department of Lands and Forestry; July 2, 2019+

Responses were previously provided regarding location and trout strains as per July 4, 2019 letter from We'koqma'q.

Sept. 25, 2019 comments from NSDLF follow, along with We'koqma'q's replies.

The Department of Lands and Forestry is aware that the proponent has had recent issues with the storage of nets and fish food outside and in a building close to the village. Bears have been attracted to the site and without intervention this will continue. This is a safety issue for both the proponent and the bears.
The Department of Lands and Forestry recommends the following conditions to alleviate this and other issues:

1. Storage of nets/fish food/wildlife attractants:
The proponent must ensure that all nets, fish food and other potential wildlife attractants which are stored on land are stored in a fashion that will not attract bears and other scavenging animals. All waste should be disposed of quickly and/or rendered non attractive for bears/ coyotes eagles etc.

We'koqma'q has acquired and repurposed the local former rink building to enable the indoor storage of feed, nets, and other bulky items that were previously stored outdoors or in temporary storage areas. This will deter scavenging animals. More details are described in the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

Furthermore, We'koqma'q no longer cleans fish containment nets themselves. Previously, the outdoor storage and cleaning of nets may have caused issues with respect to the organic debris from the nets. Nets are now sent to a third-party contractor for cleaning in a timely fashion so that this organic debris is no longer a potential attractant to pests and a potential smell issue.

2. Mitigation measures to protect diving fish eating birds
There are currently no mitigation in place for diving fish eating birds (cormorants, loons etc.). The Department recommends that mitigation measures be put in place to ensure species are not entangled in the below water portion of the net if at all possible.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan.

3. Monitoring impacts to the bald eagle:
There are multiple areas of bald eagle significant habitat surrounding the proposed expansion area. The proponent has outlined mitigation for eagle predation resulting in entanglement. It is not expected that these areas will experience significant additional stress compared to current operation assuming mitigation is put in place. However, it is difficult to predict if the situation could change.
The Department recommends that the proponent monitor the bald eagle population and make additional mitigations when necessary. This is required because of:

- The increase in the size of the operation
- This project has the potential to artificially increase the presence of eagles to the area and increase competition between them due to an increase in anthropogenic food sources (waste fish etc.). These effects would be difficult to measure.

- Increased human presence in the area could have a negative impact on the nesting success of the eagles in the area.
- Lastly, increased human activity may increase human wildlife conflicts in the area.

See the Bird & Predator Deterrence Strategy as well as the Pest Management Strategy attached as Appendix A. These have been extracted from the Farm Management Plan. Note that records of interactions with birds, mammals, or other animals that result in injury or death are kept. Please indicate recommended procedures for monitoring the bald eagle population.

4. Mitigations to protect the shoreline from waste pollution:
There is a tendency for waste to be produced by these projects that ends up on the shore. This may have a negative impact on terrestrial biodiversity and potentially the cleanliness of the park. The Department recommends that measures be undertaken to ensure waste remains onsite and does not pollute the shoreline.

As extracted from the Farm Management Plan, retrieval of loose gear will be dealt with as follows:

Items will be retrieved as soon as the issue is identified and it is safe to do so. The company has its own vessels and staff capable of retrieving loose gear so that there should be little/no delay between identifying the problem and its recovery, except due to safety issues, if applicable. Equipment to be kept for re-use will be moved to the rink for storage as soon as possible (at least within a week). Equipment that requires a longer lead time for disposal (e.g. sold as scrap, sold for another use, or requires special arrangements for delivery to an acceptable waste location) will be stored at the rink until disposal can be arranged.

As extracted from the Farm Management Plan, maintaining the site in good order will be accomplished as follows:

A sweep of the wharf and farm area will be conducted weekly. In addition, weekly surface inspections will occur and be documented for cage infrastructure. Maintenance issues will be identified at these times. Small tasks will be completed within a week or asap if containment or fish welfare may be at risk from the identified issues. Larger issues will be brought to management's attention to allow a plan for remediation. Most issues will be resolved within a month, budget permitting. Significant issues may require a longer time since financial resources will have to be found. If these situations arise, the farm will institute temporary remediation within a month. This remediation will return the site to a suitable appearance.

Equipment to be kept for re-use will be moved to the rink for storage as soon as possible (at least within a week). Debris that is to be discarded with normal garbage will be disposed of accordingly, in a timely fashion. Equipment that requires a longer lead time for disposal (e.g. sold as scrap, sold for another use, or requires special arrangements for delivery to an acceptable waste location) will be stored at the rink until disposal can be arranged.

As extracted from the Farm Management Plan, accumulation of refuse and neglect of decommissioned farm supplies and equipment will be managed according to the following plan:

Decommissioned farm equipment and extra supplies are housed at the rink, an enclosed building, away from the farm. Some may be housed at indoor facilities owned by the farm.

A sweep of the wharf and farm area will be conducted weekly. Transfer of un-used farm equipment and supply stores too large to hold in the farm-side steel containers will be moved to the compound or to an indoor facility. This will be done during the weekly sweep or early the following week if transportation is not immediately available.

Operational waste will be collected and contained in sealed containers as it is generated. A weekly grounds inspection, complete with checklist will promote the timely collection and disposal of the waste.

Other Considerations:
There is wood turtle significant habitat near the area. This project should not have a negative impact on this habitat feature nor the individual turtles.
No reply required. *The significant habitat is noted.*

The Department defers to federal and provincial fisheries for expertise on the effects on the marine ecosystem. Any negative effects on the marine ecosystem may carry over to terrestrial species.
No reply required.

Title	Bird & Predator Deterrence Strategy
SOP number	*N/A - Strategy*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	September 12, 2019, April 12, 2021

Strategy

Interactions with birds and predators are to be avoided. Unwanted attention from birds and predators endangers the birds and predators themselves, can present a nuisance to workers, may stress the fish, and may pose biosecurity and fish health risks.

Deterrence is the best way to avoid such interactions. Bird and predator deterrence relies primarily on reducing the food available. The Pest Management Strategy describes feed, net, and grounds management which will help to reduce food for birds and predators. Deterrence of birds and other animals, as well as general activities to avoid interaction with animals must also be considered and are described in this document.

This Bird & Predator Deterrence Strategy forms part of the Wildlife Interaction Plan.

Required Documents

Related SOPs: Routine Mortality Collection and Disposal SOP; Mass Mortality Collection and Disposal SOP, Harvesting SOP, Pest Management Strategy
Related MSDS: N/A

Bird Deterrence

- The use of bird nets over the cages removes the possibility of preying on fish.
- A bird net is placed over a floating bird stand located in the centre of the pen.
- Tie the bird stand with at least three ropes to centre it in the middle.
- Bird net mesh size has to be smaller than the smallest predator bird which is usually a sea gull, although in some instances kingfishers may be bothersome to smaller fish(<100g). The size of the mesh must be balanced with fish size since if too small a mesh is used it will be difficult to remove when fish get larger without gilling them.
- It is vital that the net is large enough to span the entire pen top.
- The bird net must be inspected and repaired, if necessary, before installation, and as required while in place.
- There can be no gaps or low spots in the bird cover as herons will take advantage at night by working in concert to get a meal by weighing down the cover to reach a meal.

- The cover must be made larger than the handrail to provide some overlap.
- The net should be “zinging” tight using the shackles on the stanchions and any extra rope required.

Marine Mammal Deterrence

- No below-water predator nets have been required in the Bras D’Or as there have been no recorded breaches of nets by seals in 40 years
- Removal of morts regularly prevents predators such as mammals and others (cod, eels, striped bass, etc.) from being attracted to and trying to chew through the net.

General Animal Interactions

- In order to further reduce the incidence of interaction with wildlife, boat travel to and from the cages to be worked will be via the most direct route possible, respecting any special requirements instituted for biosecurity concerns.
- Most importantly, approach of the shore or other wildlife habitat and wildlife itself will be avoided as much as feasible.
- A record of animal interactions is kept to help improve procedures. Any interactions that result in injury or mortality to wildlife must be reported.

Records

- Net Inventory Record
- Abell Pest Control Records
- Surface Inspection Checklist (cages)
- Grounds Inspection Checklist
- Bird Interaction Record
- Marine Mammal Interaction Record
- Wildlife Interaction Record

Title	Pest Management Strategy
SOP number	*N/A - Strategy*
Created by	Waycobah First Nation
Date created	November 15, 2018
Date revised	September 12, 2019, April 12, 2021

Strategy

Pest management relies primarily on reducing the food and habitat available for pests. Keeping clean grounds and ensuring proper storage of materials are key factors. Rodents are the biggest pest problem for both stored food and nets. However, improper storage of feed or nets can also attract larger mammals such as raccoons and bears and others. Feed and net management and the biosecurity measures regarding mortality storage and disposal, explained elsewhere, will reduce attraction to pests. A contracted pest control company assists with these measures and ensures monitoring of the effectiveness of the measures.

This Pest Management Strategy forms part of the Wildlife Interaction Plan.

Required Documents

Related SOPs: Routine Mortality Collection and Disposal SOP; Mass Mortality Collection and Disposal SOP, Harvesting SOP, Bird & Predator Deterrence Strategy
Related MSDS: N/A

Feed Management Measures

- The majority of the feed is stored at the rink which has a pest control contract with Abell pest control.
- The doors to this facility must be closed, unless activities require the doors to be open.
- Only feed fed during the same day is brought to the shore-based location.
- If an excess of feed happens to be delivered to the site, it must be stored in secure, steel transport containers. The doors to these containers must be closed at all times, unless loading or unloading is occurring.
- On the vessels, feed is covered to protect it from birds. It is not left on a vessel unless it will be fed within the day.
- Bags or open containers of feed are not left exposed or uncovered.
- Occasionally during unloading of feed, bags get broken. In these circumstances feed is picked up and placed in garbage containers which are placed inside the feed containers or in Dynaplast tubs until disposed of.
- Any feed that is unusable is removed from the site as soon as possible and disposed of at an approved waste management facility.
- Feed spills are cleaned up immediately. The pathway for feed delivery and passage is kept clear and free of obstacles to reduce spillage.

Net Management Measures

- Nets are also stored inside at the rink, unless activities (e.g. repair) require work to be done outside.

Site Management Measures

- Site inspection is scheduled for once a week to survey and pick up any garbage including fouling organisms and feed that were missed in daily clean-up activities. These inspections are used to reinforce the disposal of wastes in a timely manner.

Records

- Abell Pest Control Records
- Grounds Inspection Checklist

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document 2 -AQ#8014 Compilation of Network Comments – 2021.06.22

1. **DFO: September 20, 2019+**

No additional information seems to be required. *Please let us know if additional information is required.*

From: Feehan, Jennifer
Sent: August 5, 2021 4:46 PM
To: Melissa Rommens <melissa@sustainaqua.ca>; 'donald' <donalddavis@waycobah.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

Hi Melissa,

Thank you for your submission of the response to network comments for AQ#0814. I am in the process of reviewing your responses and will get them sent out to the appropriate network agencies as soon as possible.

Regarding the outstanding items outlined in your email:

- TC has confirmed that they have the application and do not require you to reapply through the online portal.
- NSCCH has been contacted and we are waiting for a response. The general contact information for the Department is cch@novascotia.ca and (902) 424-2170, but I will see I can get you a direct contact.
- NSE has confirmed that they have not received comment from the compliance team and agreed that NSDFA will request comment directly from the Compliance and Enforcement Division for the compliance report, which is the regular process for receiving comment from the compliance team.
- I will follow up with NSDLF on the bald eagle monitoring when I send your response.
- I will confirm with DFO that no additional information is required when I send your response.

I will be in touch with any additional updates.

Kind regards,
Jennifer

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Thursday, October 7, 2021 8:31 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

DFO's network feedback and letter of advice for AQ#0814 were shared with the proponent. The proponent reviewed the information and provided a response (see attached) requesting confirmation that no additional information is required at this time.

Additionally, are there any updates on the status of the CSAS report for AQ#0814?

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5

902-237-0771
jennifer.feehan@novascotia.ca



2021.07.26-Applica
nt response to Netv

NOTE: Please refer to correspondence above (see July 26, 2021) for the attachment in this email.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: October 12, 2021 10:38 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Jennifer,

No additional information is needed by DFO at this time. I've asked for an update on the expected timeline as to when the CSAS report will be available online, and will update you and team ASAP.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: October 13, 2021 4:24 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J

<Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Jennifer,

I have been informed that the CSAS Report has been making its way through the approval processes and might be published as soon as October 28, 2021.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
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From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Tuesday, November 23, 2021 2:35 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

We located the CSAS Report for AQ#0814x boundary amendment application on DFO's website and wanted to confirm that it is the final version (see link: https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_041-eng.pdf).

I also wanted to confirm that the letter of advice received June 23, 2021 (see attached) is considered the final advice from DFO.

Many thanks,
Jennifer



LOA_2019-MarAq-02
1_We'koqma'q First N

NOTE: Please refer to correspondence above (see June 23, 2021) for the attachment in this email.

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: November 25, 2021 9:34 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Jennifer,

Thanks for checking!
Yes, that is the final version of the CSAS Report. Yes, that letter of advice is our final advice, unless, as stated in the LOA, there are changes to the application, in which case please contact me to discuss if additional advice is warranted.

Thanks,
Ed

Edward Parker
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
PO Box 1006, P600, Dartmouth, NS B2Y 4A2
CP 1006, P600, Dartmouth, N-É B2Y 4A2
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From: Feehan, Jennifer
Sent: November 25, 2021 9:42 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne

<Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Ed,

Thank you for confirming. I will be in touch if there are any changes or follow up required on this file.

Cheers,
Jennifer

From: Feehan, Jennifer
Sent: November 30, 2021 2:06 PM
To: donald <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

Hi Donald and Melissa,

This email is a follow up on the status of Network Comments for AQ#0814x boundary amendment application.

DFO recently published their CSAS Report for AQ#0814 online, which is attached and can also be found at the following link: https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_041-eng.pdf. The CSAS Report accompanies DFO's Letter of Advice, which was previously sent to you.

Additionally, CWS received your response to network comments submitted to NSDFA on July 26, 2021 and requested to review the referenced Bird & Predator Deterrence Strategy and Pest Management Strategy. This has been provided to CWS and their final response is pending.

CWS also noted a correction to your response, indicating the following:

- "There appears to be some confusion regarding cormorants in the latest information submitted. The proponent states that "These responses were acknowledged by ECCC, CWS; and we note their offer to be contacted in the event that cormorants become a problem at the site. To date, this is not the case." As indicated in our November 3, 2019 email to Lynn Whitfield, "…cormorants are not protected under the Migratory Birds Convention Act (MBCA). Therefore, the proponent should contact provincial wildlife biologists in the event that cormorants became a problem at the aquaculture site." To reiterate, it is provincial wildlife biologists who should be contacted in the event that cormorants become a problem at the aquaculture site."

Please let me know if you have any questions.

Kind regards,
Jennifer



AQ#0814 CSAS 2021_041-eng.pdf

Fisheries and Oceans Canada | Pêches et Océans Canada
Ecosystems and Oceans Science | Sciences des écosystèmes et des océans

Canadian Science Advisory Secretariat
Maritimes Region | Science Response 2021/041

DFO MARITIMES REGION REVIEW OF THE PROPOSED MARINE FINFISH AQUACULTURE BOUNDARY AMENDMENT, WHYCOCOMAGH BAY, BRAS D'OR LAKES, NOVA SCOTIA

Context

We'koqma'q First Nation has made an application to the Province of Nova Scotia to amend their existing sites (#0814, 0845, and 0600) in Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia.

As per the Canada-Nova Scotia Memorandum of Understanding on Aquaculture Development, the Nova Scotia Department of Fisheries and Aquaculture (NSDFA) has forwarded this application to Fisheries and Oceans Canada (DFO) for review and advice in relation to DFO's legislative mandate. The application was supplemented by information collected by the proponent as required by the *Aquaculture Activities Regulations (AAR)*.

To help inform DFO's review of this application, the Regional Aquaculture Management Office has asked for DFO Science advice on the Predicted Exposure Zones (PEZs) associated with the proposed range of aquaculture activities, and the predicted impacts on susceptible fish and fish habitat, including sensitive Species at Risk (SAR) listed species, susceptible fishery species, and the habitats that support them.

Specifically, the following questions are addressed in this report:

Question 1. Based on available data for the site and scientific information, what is the predicted exposure zone from the use of approved fish health treatment products in the marine environment, and the potential consequences to susceptible species?

Question 2. Based on available information, what Ecologically and Biologically Significant Areas (EBSAs), SAR, fishery species, Ecologically Significant Species (ESS), and associated habitats are within the predicted benthic exposure zone and vulnerable to exposure from the deposition of organic matter? How does this compare to the extent of these species and habitats in the surrounding area (i.e., are they common or rare)? What are the anticipated impacts to these sensitive species and habitats from the proposed aquaculture activity?

Question 3. How do the impacts on these species from the proposed aquaculture site compare to impacts from other anthropogenic sources in the area (including existing finfish farms)? Do the zones of influence overlap with these activities and if so, what are the potential consequences?

Question 4. To support the analysis of risk of entanglement with the proposed aquaculture infrastructure, which pelagic aquatic species at risk make use of the area, and for what duration and when?

Question 5. Which populations of salmonids are within a geographic range that escapes are likely to migrate to? What is the size and status trends of those populations in the escape exposure zone for the proposed site? Are any of these populations listed under Schedule 1 of *SARA*?

Question 6. The existing sites have been known to experience benthic and pelagic oxygen issues in the past. Given the proposed approach to managing this site and the increased numbers of fish to be cultivated in this area (i.e., 1,000,000 fish), what is the oxygen demand for the area and what does this mean for the balance of oxygen in the area (i.e., will the demand for oxygen exceed the supply of oxygen)?

This Science Response Report results from the Regional Science Response Process of December 1–2, 2020, on the DFO Maritimes Region Review of the Proposed Marine Finfish Aquaculture Boundary Amendment, Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia.

Background

We'koqma'q First Nation is requesting an amendment to combine three existing Rainbow Trout (*Oncorhynchus mykiss*) sites (#0814, 0845, and 0600) into one lease under #0814x. The proposed amalgamation under site #0814x will also be accompanied by an increase in total leased area. The proposed #0814x site is located in Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia, southwest of the village of Whycocomagh and Indian Island. The proponent's overall development plan for Whycocomagh Bay also includes the addition of two new proposed sites within the bay, #1430 North Aberdeen and #1431 South Aberdeen, which will be reviewed separately from site #0814x. The location of the proposed #0814x site, and proximity to the North (#1430) and South (#1431) Aberdeen sites, is shown in Figure 1.



Figure 1. Map of finfish aquaculture site leases in Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia. Light green polygons represent proposed finfish leases requested by We'koqma'q First Nation. Site #0814x is circled in red, and the others represent the North and South Aberdeen proposed new sites. Maps were retrieved from the NSDFA Site Mapping Tool website on March 23, 2020 (NSDFAa). The star denotes an approximate location of a mid-bay sill.

The existing sites (#0814, 0845, and 0600) have been in operation since 1992–1993 under various ownership. All three sites were inactive from 2001 until 2011, when they were transferred to We'koqma'q First Nation. The current combined area under lease by these three sites is 4.35 ha, and the proposed amendment would increase the area of the site to 75 ha

(including a navigational corridor), which represents a 1624% increase in total leased area (NSDFAa). The proposed lease infrastructure is 6 arrays of 8 net-pens; however, the site configuration will not be static. The intent is for the stocked net-pen arrays to be variables in location within the lease boundaries to allow for fallowing of sections, based on results from environmental monitoring, while other sections within the lease are stocked. Figure 2 shows the site development plan with bathymetry.

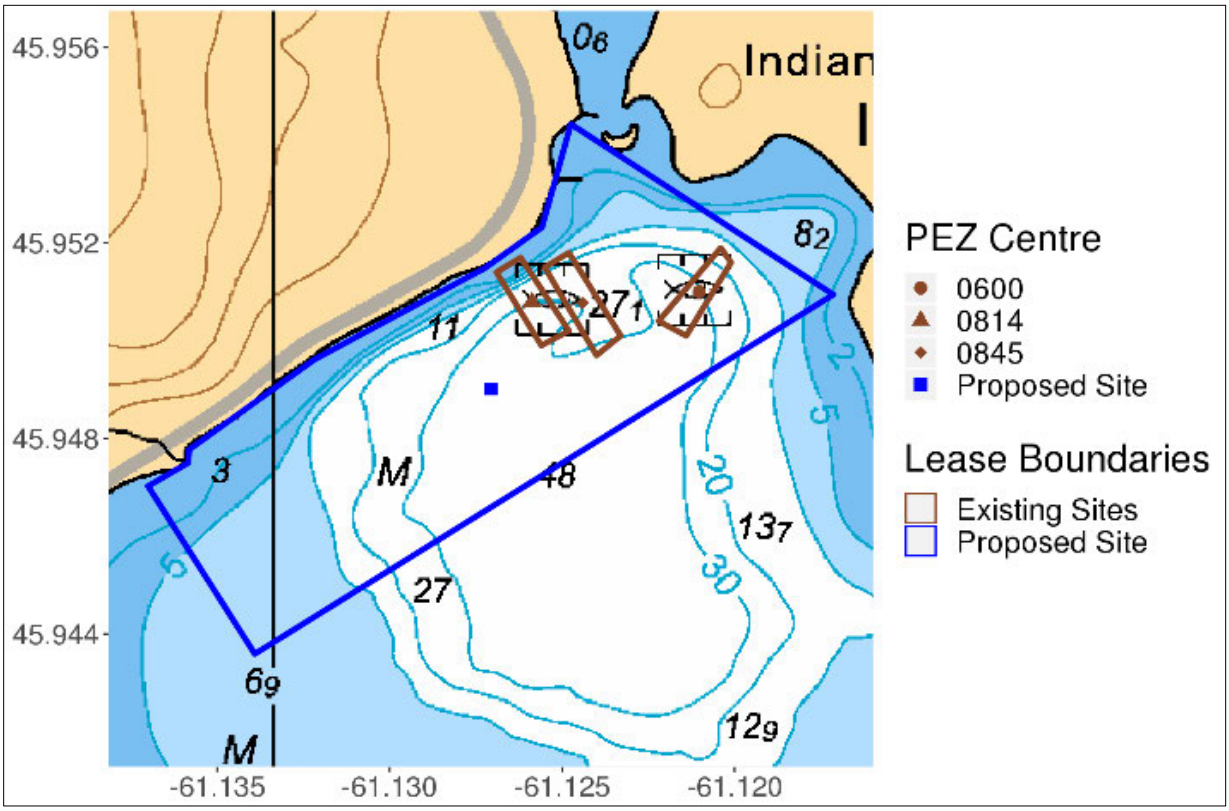


Figure 2. Current (brown) and proposed (blue) lease boundaries overlaid on CHS chart #4278. The centers of each lease for predicted exposure zone calculations are also shown.

Proposed site #0814x is located in a depositional area with a relatively homogenous bottom type. Baseline data collected in May 2020, submitted by the proponent (supplementary to the original baseline data), denotes the seabed consists of easily disturbed, black to brown mud. Several stations throughout the proposed lease had presence of waste feed and some feces, off-gassing, and Beggiatoa-like bacteria. Average sediment sulfide concentrations based on raw Environmental Monitoring Program (EMP) data from 2012–2019 for the existing #0814, 0845, and 0600 sites are shown in Table 1. Baseline conditions of proposed site #0814x from May 2020 are also shown.

Table 1. Average sediment sulfide concentrations at existing sites #0814, 0845, and 0600 based on level I sampling (and level II, if required by the Environmental Monitoring Program Framework for Marine Aquaculture in Nova Scotia, NSDFAb). Years where information is not available or data not collected are indicated by n/a.

Year	Average sediment sulfide concentration (µM)
2012	0814—2793 (level I) 0845—*n/a* 0600—*n/a*
2013	0814—722 (level I) 0845—1581 (level I) 0600—*n/a*
2014	0814—4681 (level I) / 7944 (level II) 0845—*n/a* 0600—2583 (level I) / 2620 (level II)
2015	0814—3037 (level I) 0845—*n/a* 0600—2284 (level I)
2016	0814—2397 (level I) 0845—1890 (level I) 0600—3481 (level I)
2017	0814—1326 (level I) 0845—1244 (level I) 0600—1830 (level I)
2018	0814—2311 (level I) 0845—*n/a* 0600—2129 (level I)
2019	0814—4631 (level I) / 3524 (level II) 0845—4380 (level I) / 3735 (level II) 0600—4103 (level I) / 4554 (level II)
2020 (baseline)	0814x—489

Linkages between sediment sulfide concentrations and overall sediment conditions such as oxic state and macrofauna diversity at aquaculture sites are well documented (Pearson and Rosenberg 1978, Hansen et al. 2001, Wildish et al. 2001, Hargrave et al. 2008). The sediments beneath all three existing sites have demonstrated elevated sediment sulfides in the past, with average sulfide concentrations reaching Hypoxic B levels in 2014, 2015, 2016, and 2019, and an Anoxic level in 2014 based on Hargrave (2010) oxic categories (Appendix A). Individual sediment sampling locations that have historically reached the Hypoxic B and Anoxic levels can be seen in Figure 3.

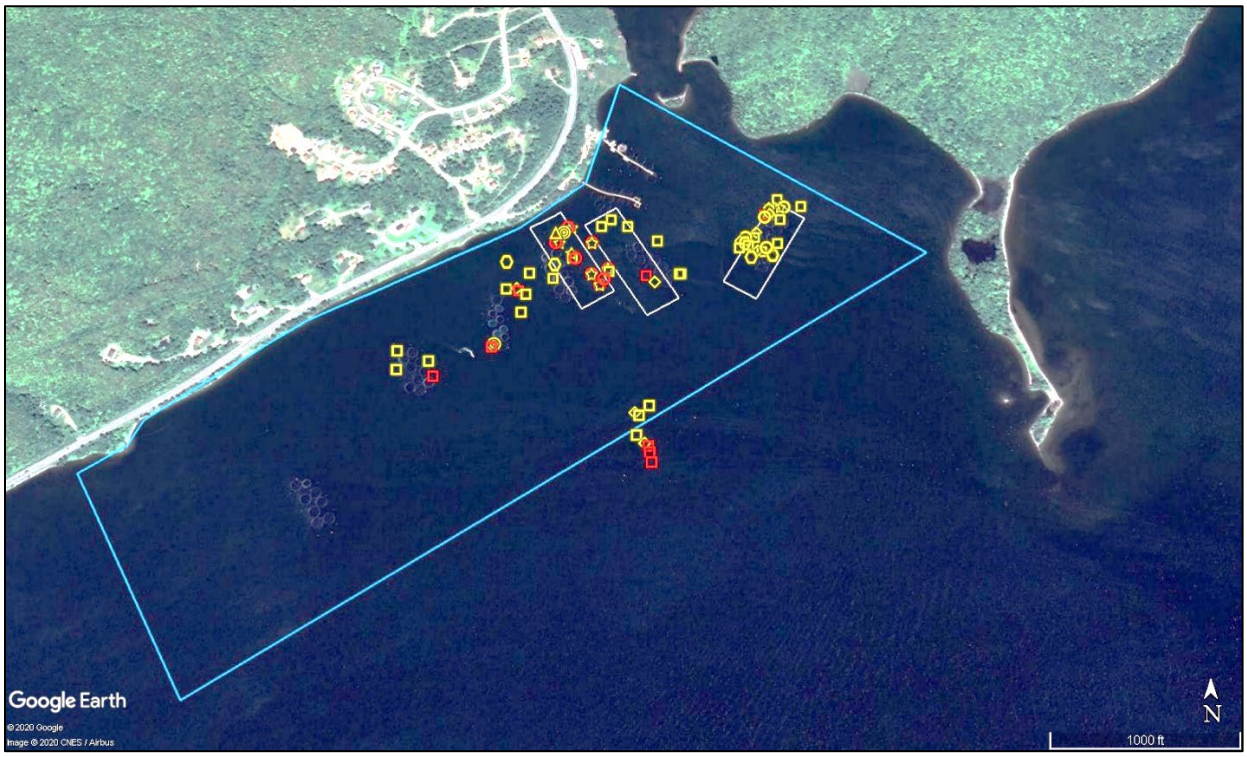


Figure 3. Sediment sampling locations from #0814, 0845, and 0600 that have reached sediment sulfide concentrations of 3000 µM (yellow) and 6000 µM (red), respectively, overlaid on a Google Earth image of the existing net-pens. This was observed in 2012 (triangles), 2014 (circles), 2015 (stars), 2016 (hexagons), 2018 (bullseye), and 2019 (squares). The blue polygon is the new proposed #0814x lease and the white polygons are existing lease boundaries.

The Google Earth imagery above depicts net-pens located west of the three currently-issued leases but within the proposed #0814x lease boundaries; however, the EMP station locations to the south indicate net-pens may have been located outside of the proposed boundaries. The staggered and complex nature of stocking throughout the year, due to factors such as ice cover and grow-out periods of 5–10 months, also make it challenging to know how many fish have historically been on site, as well as the number of fish that will be on site in the future at any given time throughout the year. The maximum number of Rainbow Trout anticipated to be on the #0814x site at any one time is 720,000 based on the proposed maximum number of fish per net-pen. This number appears to be greater than prior annual stocking levels. Available *AAR* data from 2015–2018 indicate that no pest control products (i.e., azamethiphos, hydrogen peroxide, emamectin benzoate) have been used at the existing site. This is consistent with other finfish sites in Nova Scotia. The existing sites within Whycocomagh Bay have experienced oxygen issues in the past, including reported kills of on-site farmed fish.

All basins within the Bras d'Or Lakes, including Whycocomagh Bay, are part of the Bras d'Or Lakes Ecologically and Biologically Significant Area (EBSA). The Bras d'Or Lakes EBSA is a unique inland sea of special importance for Atlantic Herring, Atlantic Cod, Sea Urchin, and eelgrass (DFO 2006). Given the significant heterogeneity of ecosystems within the Bras d'Or Lakes, bays were evaluated separately. While Whycocomagh Bay is a unique area of the Lakes, it does not have the habitat diversity or qualities to support a diverse and productive biota, and the enclosed nature of Whycocomagh Bay further limits the impact that it has on the Bras d'Or Lakes ecosystem as a whole (DFO 2006). For these reasons, Whycocomagh Bay

was ranked as the second least significant EBSA of the Lakes. Regardless, DFO (2004) states that EBSAs are intended as a tool for calling attention to an area that has particularly high ecological or biological significance to facilitate provision of a greater-than-usual degree of risk aversion in management of activities in such areas.

Biological surveys conducted in the Bras d'Or Lakes of fish, algae, copepods, polychaetes, and foraminifera show Whycocomagh Bay as one of two areas with the least variety of species (Parker et al. 2007). Currently, Whycocomagh Bay also has limited fisheries. The existing leases have operated for over a decade in the area. Lobster, Oyster, Scallop, and Rock Crab are the most significant commercial benthic invertebrate species in the Bras d'Or Lakes. Of these species, only wild oyster production has been significant in Whycocomagh Bay (Parker et al. 2007), but oysters have been over fished in their native habitats within the Lakes and only small wild pockets still exist (Lambert 2002). Commercial groundfish and pelagic fisheries within the Bras d'Or Lakes have included Winter Flounder, Atlantic Cod, and Atlantic Herring. Of these species, trawl surveys conducted from 1952–2000 identified Atlantic Cod and Winter Flounder in Whycocomagh Bay (Parker et al. 2007). The Winter Flounder fishery ended in 1992 and directed fisheries for 4VsW and 4Vn Atlantic Cod were both closed in 1993 due to the depleted status of the stocks (Fanning et al. 2003, DFO 2002). The Skye River estuary in Whycocomagh Bay supports limited recreational fisheries for American Eel, Mackerel, and Smelt. Traditional ecological knowledge (TEK) data compiled in 2017 by the Unama'ki Institute of Natural Resources (UINR) indicates the area is important for American Eel, Atlantic Salmon, Atlantic Herring, Mackerel, Atlantic Cod, Smelt, Oyster, Painted and Snapping Turtle, and otter trapping (Oceans Management, personal communication), and the majority of these populations have declined (CEPI 2006).

American Eel is currently assessed as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and is under consideration for listing under the *Species at Risk Act* (*SARA*). Eastern Cape Breton (ECB) Atlantic Salmon occupy rivers in Eastern Cape Breton that drain into the Bras d'Or Lakes (DFO 2014a) and are located in Salmon Fishing Area (SFA) 21. According to TEK, wild salmon in the area have declined in numbers and size (CEPI 2006, Parker et al. 2007). The ECB Atlantic Salmon were assessed as Endangered by COSEWIC in 2010. In 2019, all rivers within SFA 19 were closed to salmon fishing all year, with the exception of the Middle, Baddeck, and North rivers. These three rivers were open to catch-and-release angling during certain times of the year. Food, Social, and Ceremonial (FSC) allocations were available to First Nations on these three rivers; however, FSC harvest was discouraged where rivers are not expected to exceed their conservation egg requirement in a 2019–2020 Atlantic Salmon, Plamu, Conservation Harvesting Plan, and no harvest of returning salmon was reported by Indigenous communities in ECB (DFO 2020a).

Rainbow Trout are an introduced species to the Atlantic coast. Historically, escape events totaling over one million individuals from commercial Rainbow Trout aquaculture operations in the Bras d'Or Lakes have been recorded. These escapees were observed to have formed a feral, reproducing population in the late 1980s (Sabean 1983 cited in Alexander et al. 1986), which still exists today. There have been escape events at the current existing sites. Available information on reported escapes in recent years indicates single escape events in 2017 and 2018, and multiple events in 2019, with numbers ranging from hundreds to tens of thousands.

The proponent's submission indicates that Grey Seal and Harbor Seal are the only marine mammals known to transit Whycocomagh Bay. Submitted baseline video monitoring at the proposed #0814x site denotes echinoderms such as Sea Star as the main observed macrofaunal species. This is consistent with knowledge that echinoderms have been the

dominant invertebrate biomass collected during surveys of the Bras d'Or Lakes (Tremblay 2004).

Whycocomagh Bay is noted for its high salt marsh concentration within the Bras d'Or Lakes (Hastings et al. 2014). These wetland habitats support a number of important ecological functions, and they host a diversity of species not typically found in other habitats (Parker et al. 2007). Eelgrass is known to have historically provided important spawning grounds for herring (Denny et al. 1998) and may also have a significant contribution to the productivity of the Bras d'Or Lakes. Eelgrass is designated as an Ecologically Significant Species (ESS) because of the numerous ecological functions it provides, including habitat for fish and their prey. Video surveys conducted in 2007, when the sites had not been in operation since 2001, showed both extensive and patchy eelgrass beds in parts of Whycocomagh Bay (Vandermeulen 2016). Little is known about the present abundance and distribution of eelgrass in Whycocomagh Bay and in the broader Bras d'Or Lakes; however, proponent-submitted baseline data collected in May 2020 indicated the presence of eelgrass within the proposed lease at 4 out of 21 stations surveyed.

Other human activities with potential impacts on habitats and species in the area include a sewage treatment plant, recreational activities (e.g., pleasure boating, kayaking), a marina, additional proposed finfish farm leases, and oyster leases. Land-based inputs from the sub-watershed stem from forestry and agricultural activities, parks and trails (and other tourism), abandoned mines, transmission lines, suspected contaminated sites, and an increasing population and road density (Parker et al. 2007, Province of Nova Scotia, 2020). A 900-m section of Nova Scotia Highway 105 is immediately adjacent to the site, with only a 10–20 m wide land buffer between the highway and the shoreline boundary of the proposed site.

Key oceanographic, farm infrastructure, and grow-out characteristics of the existing sites and proposed expansion considered in the following analyses are summarized in Table 2.

Table 2. Key oceanographic, farm infrastructure, and grow-out characteristics of the existing sites and proposed expansion. Some information for the existing sites was not available at the time of this review (indicated by n/a).

Characteristic	Existing sites	Proposed site	Additional Information	Source
Tidal range (m)	0.57	0.57	• Range does not include surges in sea level.	• Drozdowski et al. 2014
Depth of tenure (m)	1.8–35.0	1.8–48.0	• Relative to vertical chart datum (lowest normal tide). • Proponent submission shows net-pens over 14–27 m depth. • Centre of proposed lease = 35 m. • PEZ calculation depth = 48 m.	• CHS chart #4278 (2016) • Proponent submission

Characteristic	Existing sites	Proposed site	Additional Information	Source
Current speed (m/s) • **Surface**	*n/a*	0.0–0.184	• Surface currents measured at 32 m above the bottom. • Midwater currents measured at 17 and 22 m above the bottom. • Bottom currents measured at 12 m above the bottom. • Near-bottom and midwater currents do not have dominant directions. Near-surface currents have a tendency for a small northerly dominance.	• Proponent submission (35-day record)
• **Midwater**	*n/a*	0.0–0.063		
• **Bottom**	*n/a*	0.0–0.035		
Salinity (PSU)	8.8–23.2	8.8–23.2	• A lower salinity surface layer is present in spring (8.8–17 PSU).	• Proponent submission • Strain et al. 2001, DFO data 2014 & 2020 (**Appendix B**)
Temperature (°C)	-0.6–22.6	-0.6–22.6	• Ice cover experienced in winter months (maximum in early March).	• Proponent submission (data collected by NSDFA 2016–2018) • Strain et al. 2001, DFO data 2014 & 2020 (**Appendix B**)
Dissolved oxygen (mg/L)	3.5–5.6	0–13.6	• Anoxic below 25 m depth. • Oxygen at existing sites estimated to be within surface values based on leases being in shallower waters.	• Strain et al. 2001, DFO data 2014 & 2020 (**Appendix B**)
Substrate type	Mud	Mud	-	• Proponent submission

Characteristic	Existing sites	Proposed site	Additional Information	Source
Net-pen array configuration	n/a	2 x 4 array 6 arrays	• Site configuration of 6 arrays will not be static within lease boundaries.	• Proponent submission
Individual net-pen circumference (m)	60	60	-	• Proponent submission
Net-pen depth (m)	6	6	-	• Proponent submission
Grow-out period (months)	5–10	5–10	-	• Proponent submission
Maximum number of fish on site	*n/a*	720,000	• Annual production plan.	• Proponent submission
Initial stocking number (fish/pen)	*n/a*	15,000	-	• Proponent submission
Average harvest weight (kg)	2.0	2.0	-	• Proponent submission
Expected maximum biomass (kg)	*n/a*	1,500,000	• Assumes growth of fish to approximately 2 kg.	• Proponent submission
Net-pen volume (m^3)	*n/a*	1700	--	• Proponent submission
Maximum stocking density (kg/m^3)	*n/a*	18.0	--	• Proponent submission

Sources of Data

Information to support this analysis includes data and information from the proponent, data holdings within DFO, publically available literature, and information from the SARA registry. Additionally, supporting information files submitted to DFO for consideration and used in its review are shown in Table 3.

Table 3. Summary table of information files submitted to DFO.

Description	Filename
Proposed development plan package	1) AQ0814 – Boundary Amendment Dev. Plan (DFO).pdf
Proponent-collected raw current meter data	1) Whycocomagh Basin – Current Stats.xlsx
Baseline survey data submission	1) Waycobah new lease coords and maps with depths.xlsx 2) 2018_Waycobah Amendment Data Baseline Results.xlsx 3) Data for Organix 0814 Amendment.xlsx 4) NS-0814 – 2020 Enhanced Baseline Report June_6_20.pdf
EMP data – in addition to data retrieved from NS Open Data Portal for 2012–2015 and 2017, (NSDFAc)	1) 20200721 DFO Information Request—2016 Data.xlsx 2) 2018 EMP Data Whycocomagh Bay 0814.xlsx 3) EMP Level I 0600_0814_0845_Oct 16_19.xlsx 4) EMP Level I 0600_0814_0845_Oct 22_19.xlsx 5) EMP Level I 0600_0814_0845_Oct 24_19.xlsx 6) EMP Level II 0845_dec 2_19.xlsx 7) EMP Level II 0600_0814_dec 4_19.xlsx 8) EMP Level II 0814_dec 5_19.xlsx 9) NS0814 – 2020 Level 3 EMP Report June_6_20.pdf
Historical stocking information	1) 2012–2015 stocking info Waycobah sites 0814 0600 0845.xlsx 2) Historical stocking 0814 0845 0600 for submission to NSDFA.XLSX

The following DFO databases were searched for species records within the Predicted Exposure Zones (PEZs) of the proposed site #0814x and returned no records:

- Ecosystem Research Vessel (RV) Survey
- Industry Survey Database (ISDB)
- Maritime Fishery Information System (MARFIS)
- Whale Sightings database

Site Description

Whycocomagh Bay is separated from the remainder of St. Patrick's Channel to the east by a shallow sill (approximately 12 m deep) at Little Narrows. A mid-bay sill (approximately 7 m deep) that further separates a pair of deep basins (40 and 48 m) also exists closer to the

#0814x site (Figure 1). The #0814x site is located in the western portion of the bay near the 48 m deep basin, in an area that displays both shallow and deep characteristics.

The sills at Little Narrows and mid-bay effectively isolate the deep areas of the bay from the rest of the Bras d'Or Lakes and restrict flushing. This bathymetric isolation means there is no direct horizontal connection to other deepwater areas, and this isolation has resulted in an environment of limited mixing and the longest flushing time (approximately two years) in the Lakes. Slow water exchange facilitates the hypoxic and anoxic characteristics of these water bodies below the surface layer (Petrie and Bugden 2002, Gurbutt and Petrie 1995, Gurbutt et al. 1993). The deep basin of the western half of Whycocomagh Bay is typically anoxic below 25 m, a characteristic that is naturally occurring and appears consistent over time (Krauel 1975, Strain and Yeats 2002).

The proposed amalgamation and expansion at the #0814x site will shift the southern portion of the site closer to the deep anoxic 48 m basin (Figure 2) and encompass a broader range of water depths than the existing sites (Figure 2; Table 2). This deep anoxic water has periodically been known to be pushed into the shallower waters during phenomena such as large storm events, although the exact mechanism is not well understood.

In general, additional information on physical characteristics in the vicinity of the #0814x site to supplement the information submitted by the proponent is lacking in Departmental and public data holdings. The scarcity of the data is shown in Appendix B. The water temperature and salinity at the #0814x site are expected to have minimal variation on tidal time scales, but larger variations on wind-driven and seasonal time scales. Values are expected to fall within the ranges indicated in Table 2.

The wave information provided by the proponent from the eastern end of Whycocomagh Bay near North Aberdeen is not considered representative of the #0814x site. The data were collected from a more exposed site approximately 9 km away. Wave amplitudes at the site are anticipated to be less than the reported maximum height of 1.08 m due to the sheltered location of the site from wind and waves on all sides, except the southeast.

Current meters were deployed by the proponent over a 35-day period in the center of the southern portion of the lease in 35 m of water. The median current speed was 1.5 cm/s, with a trend of decreasing current speeds with increasing depths (Table 2). This indicates the overall current dynamics at #0814x are "low energy" with respect to marine fish farming. Current speeds vary with complexities of the coastline, bathymetry, seasonal, and wind influences that may not be captured in the record.

Based on the depth profiles of current speed data, temperature, and salinity at the site, stratification is expected to be significant; therefore, estimates of exposure zones at the proposed site #0814x should consider stratification influences with respect to water current speed selection.

Benthic Predicted Exposure Zones and Interactions

Benthic Predicted Exposure Zone

The benthic-PEZ is an early screening step in a triage-based approach. A precautionary first-order estimate is used to determine the size and location of areas that may be exposed to a substance introduced into or released from a site. It is used to broadly assess the potential for impacts on the benthic community and seafloor from the deposit of waste feed and feces, which can result in organic loading and direct habitat and infaunal species impacts. Additionally, it is

assumed that the PEZ associated with the release of in-feed drugs and pesticides is dominated by the deposition of medicated feed waste and feces.

These predicted exposure zones are precautionary overestimates to determine whether the scoping area of concern warrants further refinement of the spatial extent, intensity, and/or duration of anticipated interactions. Otherwise, the PEZ analysis is considered sufficient for identifying, albeit at a larger spatial scale, the potential for impacts from the proposed activity.

The dominant factors that will affect estimations of benthic exposure for site #0814x are farm layout, stocking densities, feeding practices, and oceanographic conditions, such as the bathymetry, water currents, and stratification. The low flushing rate of Whycocomagh Bay makes it particularly sensitive to deleterious substance inputs, as they cannot be quickly dispersed by water movement (Parker et al. 2007). Benthic exposure can also occur in relation to bath pesticides, if they were to be used, particularly at sites over or near shallow depths such as #0814x. This will be considered in the Pelagic Predicted Exposure Zones and Interactions section of this review.

A first-order estimate of the spatial extent of the benthic-PEZ related to organic effluent and in-feed drugs and pesticides from the #0814x site was calculated. Limited available data suggest that sinking rates of Rainbow Trout feed and feces are within similar ranges to that of Atlantic Salmon. Sinking rates of different particulate materials released from farmed fish (i.e., waste feed and feces) vary, and the distribution of sinking speeds amongst the released particles is poorly characterized. Therefore, the minimum sinking rate for each category of particle (Table 4), along with the maximum site depth and maximum observed mid-water current speed in the proponent's record were used. The fish, and the release of waste feed and feces, are within the 6 m surface layer. Since these particles sink from the net-pens to the seabed, a mid-water current speed was selected as representative.

Table 4. First order estimates of the potential horizontal distances travelled by sinking particles, such as waste feed pellets, fish feces and in-feed drugs and pesticides released from the fish farm (settling rates obtained from literature; Findlay and Watling 1994, Chen et al. 1999, Cromey et al. 2002, Chen et al. 2003, Sutherland et al. 2006, Law et al. 2014, Bannister et al. 2016, Law et al. 2016, Skoien et al. 2016).

Particle type	Benthic-PEZ			
	Min. Sinking Rate (cm/s)	Max. Observed Current (cm/s)	Horizontal Distance Travelled (m)	PEZ Radius (m)
Feed	5.3	6.3	57	860
Feces	0.3	6.3	1,008	1,811
Fines and Flocs	0.1	6.3	3,024	3,827

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. The feed-PEZ is anticipated to have the greatest intensity of impacts and is conservatively a circle centered on the lease boundaries as seen in Figure 4.

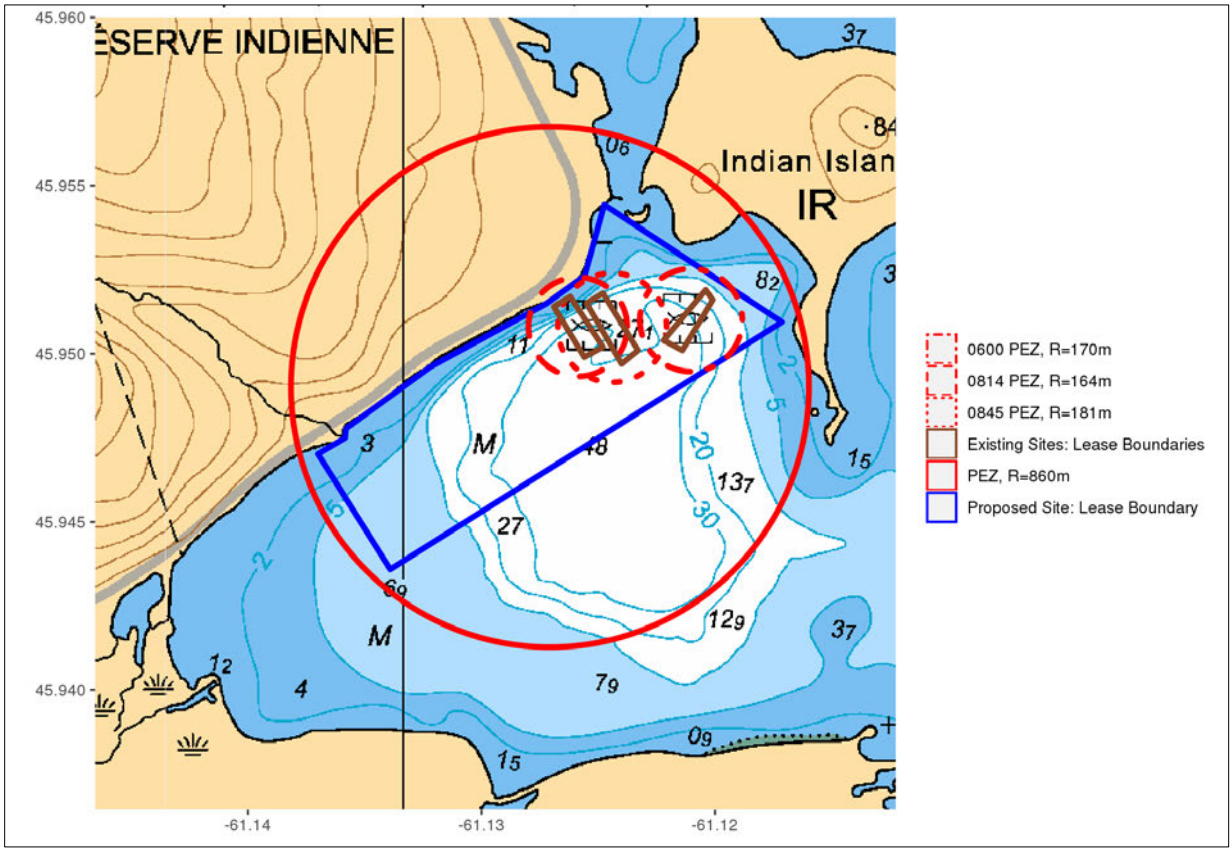


Figure 4. First-order estimation of the benthic-PEZ for #0814x using the waste feed minimum sinking rate overlaid on CHS chart #4278.

The locations of the net-pens within the proposed lease are unknown given the proponent's intent to move the net-pen arrays around within the lease boundaries. Therefore, a precautionary approach was taken in estimating the PEZ by adding the horizontal transport distance to the longest length scale of the proposed lease (i.e., half the length of the lease), as compared to the length scale of the net-pen arrays and centering the PEZ on the lease.

Current- and wave-induced bottom resuspension, is not considered in the first order estimates of exposure zones; however, waste particles are unlikely to extend beyond the benthic-PEZ estimated for fines and flocs. While some areas of the lease are shallow enough that the 6 m nets may be very near or touching the bottom, the proponent has stated that the net-pens will only be over water depths of at least 14 m. Therefore, any redistribution of fines and flocs are not anticipated to be caused by the net-pen infrastructure in this way.

Using the same current meter record, the PEZs for the existing sites have also been estimated (Figure 4). The benthic-PEZ for the proposed #0814x site is larger than those of the existing sites since the proposed lease is located over a larger area and encompasses some deeper waters. Furthermore, the benthic impact of the proposed site is anticipated to be larger than the combined benthic impacts of the existing sites since there are multiple net-pen arrays, and there may be increased numbers of fish on site at the same time than typically on site in the past.

Given the location of the additional proposed finfish sites #1430 Aberdeen North and #1431 Aberdeen South in the eastern end of the bay and the water circulation within the region, an

overlap between the benthic organic deposition zones associated with the farms is not expected.

In the existing locations, average sediment sulfide concentrations at all three sites #0814, 0845, and 0600 have reached Hypoxic and Anoxic oxic categories (Figure A1; Appendix A). It is not known whether the EMP station locations that have previously reached sulfide concentrations ≥ 3000 and 6000 µM will be beneath the proposed net-pen arrays given the proposed non-stationary nature of the arrays within the lease. However, areas of the seabed that have reached these levels during production occupy a large proportion of the proposed lease. This suggests that, in combination with the presence of offgassing, Beggiatoa-like bacteria, and waste feed and feces at baseline stations throughout the lease, the ability of the benthic environment within the proposed lease to handle increased inputs of organic matter is of concern. Since 2015, *AAR* reporting indicates that the existing #0814, 0845, and 0600 sites have not used in-feed drugs or pesticides.

Susceptible Species Interactions

Species are considered to be susceptible within the benthic-PEZ if they are sessile at any life stage and are sensitive to either low oxygen levels, smothering, loss of access to the site, or exposure to in-feed drugs and pesticides should treatment be required. This includes species such as crustaceans and bivalves. Specific consideration was also given to the presence of certain sensitive sessile species, such as sponges, corals and eelgrass, and critical habitat for *SARA*-listed species in the baseline survey data, scientific literature, and Departmental biological data holdings. When the available data are limited, consideration as to whether the benthic substrate type is suitable for the growth of these species was considered.

Departmental holdings of biological data from Whycocomagh Bay are sparse, and database searches of the PEZs returned no records. The ability to delineate present-day spatial overlaps between species distributions and the benthic-PEZ for site #0814x is limited; however, available information indicates that wild oysters and eelgrass are present within the benthic-PEZ.

Oyster beds have been known to exist in Whycocomagh Bay, but present-day distributions within the bay are unknown. Two American Oyster leases are located outside of the benthic-PEZ to the south and east of site #0814x. These sites are not currently in production due to a parasitic disease known as Multinucleate Sphere Unknown X (MSX); however, when in production, these sites may have been established upon existing wild beds. Given their sessile nature, oysters are sensitive to increased siltation, which could result in smothering due to excess deposition that exists within the benthic-PEZ. According to TEK, increased silt deposition has contributed to the decline of oysters in other areas of the Bras d'Or Lakes (CEPI 2006). Bivalves in the vicinity of net-pens elsewhere have also been shown to have measureable quantities of in-feed pesticides such as Emamectin Benzoate (EB). Currently, hazard information is primarily based on acute exposures; however, it does not indicate a high level of risk (Burridge et al. 2011). While the PEZ does encompass areas along the shoreline that meet the depth criteria, most water depths within the benthic-PEZ are outside of the preferred habitat range for oysters in the area (i.e., mostly < 2 m, although some found up to 11 m; Mackenzie et al. 1997). Additionally, the predominantly soft substrate type in the area is likely not suitable given that oyster larvae typically require coarser-grained habitats for settlement. For these reasons, wild oysters are not anticipated to be present in significant aggregations within the benthic-PEZ.

Currently, there are a lack of available data representing present-day eelgrass distribution within the benthic-PEZ; however, video surveys conducted in the western end of Whycocomagh Bay

in 2007 (Vandermeulen 2016) indicated potential spatial overlap between areas of patchy and continuous eelgrass coverage and the benthic-PEZs for all particle types (i.e., feed, feces, and fines and flocs). The distribution of eelgrass in the area in 2007 (Figure 5) depicts an environment that had been without aquaculture activities and inputs since 2001. Eelgrass habitat is subject to natural temporal and spatial variability, and it is unknown if distribution has changed since these data were collected. However, proponent-submitted baseline data collected in May 2020 identified the presence of eelgrass at 4 out of 21 locations sampled throughout the proposed lease (Figure 5). These stations were located in nearshore areas within the benthic feed-PEZ and were characterized as having between 5–30% eelgrass density. While available distribution data are insufficient for determining the scale of potential interactions, any overlap between eelgrass habitat and the benthic-PEZ is of concern given the importance of eelgrass as an ESS in Atlantic Canada.

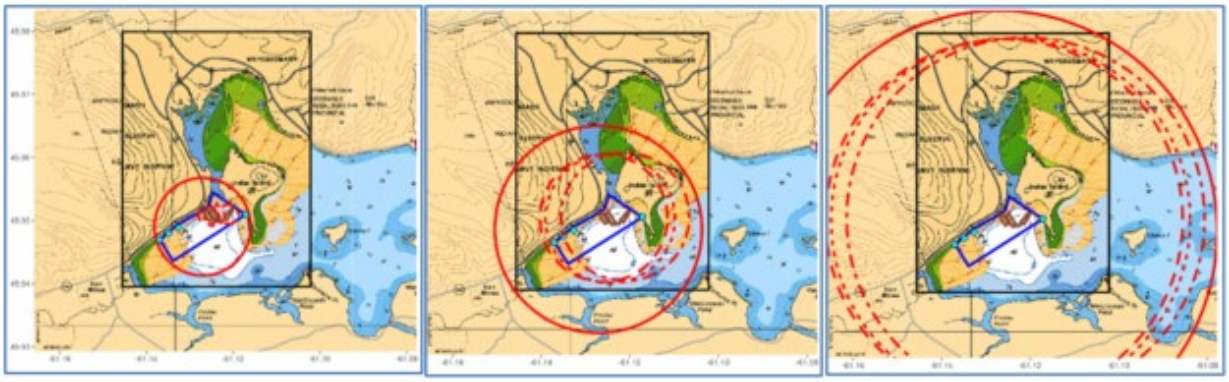


Figure 5. Map of eelgrass coverage in 2007 in the western end of Whycocomagh Bay (Vandermeulen 2016) overlaid on CHS chart #4278. Dark and light green represent areas of continuous and patchy eelgrass coverage, respectively. The existing leases (brown) and proposed lease (blue) are shown. The benthic-PEZs for feed (A), feces (B), and fines and flocs (C) are shown in dotted and solid red circles for the existing and proposed sites, respectively. Locations of baseline stations where eelgrass was present are shown in cyan.

The physical conditions of this region of the Bras d'Or Lakes are suboptimal for eelgrass. Optimal salinity for eelgrass growth ranges from 20–26 psu, although it can tolerate lower values for short periods (DFO 2009). As indicated in Table 2, salinity at the site ranges from 8.8 to 23.2 psu with a lower range in surface waters in spring (8.8 to 17 psu). It is likely that the salinity regime would contribute to reduced growth rates and spatial fragmentation. Additionally, Whycocomagh Bay experiences ice cover in winter, which can further contribute to spatial fragmentation through scouring. Aside from these physical factors, the presence of the invasive European Green Crab, which is known to cause widespread damage to eelgrass habitat, has been documented in the Bras d'Or Lakes (Vercaemer and Sephton 2016). Even in the absence of anthropogenic activities, such as aquaculture, it is likely that eelgrass in this area is subject to multiple stressors, and it would be expected to exhibit high spatial and temporal variability when compared to areas with more suitable conditions.

Low levels of benthic enrichment can stimulate eelgrass growth; however, higher levels can be detrimental. Deposition of organic material can change sediment biogeochemistry and produce sediment sulfide concentrations that are toxic to eelgrass plants, inhibiting growth, and increasing plant mortality (Vinther and Holmer 2008). Increased sediment anoxia can, in initial stages, cause eelgrass to drastically reduce belowground biomass, reducing anchoring strength, and later stages can induce plant mortality. If in-feed drugs or pesticides are used, the

eelgrass beds could be exposed to the active ingredients and may influence the ecosystem associated with the bed. This may include changes to plant health (i.e., photosynthetic capacity, morphology, nutrient stores, etc.) that allow plants to persist in a non-optimal state or may result in plant mortality with bed contraction or complete loss. Eelgrass beds along the coast of Atlantic Canada typically occur in shallow water depths up to 12 m (DFO 2009), though Vandermeulen (2016) noted the presence of the majority of macrophytes in the Bras d'Or Lakes occurring in depths less than 3 m, possibly indicating the result of the suboptimal environmental conditions described above. This depth limitation means that eelgrass is unlikely to be present directly beneath the net-pens, as the proponent's plan suggests net-pens will only be in waters deeper than 14 m. This is consistent with the benthic feed-PEZ where the greatest intensity of organic deposition is expected to occur, encompassing only small areas of eelgrass (Figure 5a). Therefore, interactions within the benthic feed-PEZ will likely have few effects. On the other hand, benthic feces and fines and flocs will be transported further, potentially encompassing a significant portion of the eelgrass habitat identified in 2007 (Figure 5b,c); however, the organic deposition intensity outside of the benthic feed-PEZ is not expected to occur at levels where oxic state or sediment biogeochemistry changes are predicted.

If present in sufficient quantity, suspended particulates will also impact the underwater light climate for eelgrass plants, reducing light availability for photosynthesis. This may be a factor due to the presence of eelgrass habitat within the benthic feces- and fines and flocs-PEZ. Although concentrations and length of suspension are considered in PEZ estimations, reduction in the light climate will have immediate effects on plant physiology and photosynthetic capacity, should it occur (Wong et al. 2021). Prolonged light limitation will affect plant morphology and biomass as plants attempt to maintain carbon balance. Chronic low light will result in mortality and loss of eelgrass plants (Wong et al. 2020, Wong et al. 2021. Notably, no information about background light levels, turbidity, or suspended sediment concentration was available, so it is unknown if or how light availability is affected by the existing level of aquaculture at the site. The light regime may also be affected by the presence of dissolved organic matter of terrestrial origin, which can similarly damage eelgrass health through light reduction. Existing data are also insufficient for assessing the probability of sediment transport to specific areas within the benthic feces- and fines and flocs-PEZ. However, the majority of eelgrass habitat mapped in 2007 is separated from the existing and proposed farm sites by a shallow channel and the adjacent Indian Island, potentially limiting the spread of suspended particulates. Given these knowledge gaps, it is not possible to predict the effects of changes to the light regime on eelgrass habitat.

Predicted impacts from the expansion of aquaculture activities/leases are likely greater than those from the existing leases given the anticipated increase in organic loading over a larger area. Eelgrass in the area may also be particularly vulnerable to additional stressors and/or additional intensity of the same stressors given the frequently observed poor conditions of eelgrass beds in the Bras d'Or Lakes (Vandermeulen 2016). Conversely, given the documented suboptimal environmental conditions at the site, expanded aquaculture activities may not result in a measureable difference in eelgrass health and persistence.

The scale of potential changes to eelgrass in the surrounding area cannot be predicted given the lack of present-day distribution maps, as well as the lack of data representing factors known to affect eelgrass health and distribution, as described above. As a result of this knowledge gap, the spatial overlaps depicted in Figure 5 and associated potential impacts of the proposed site #0814x site expansion are uncertain. Eelgrass is known to be present throughout the Bras d'Or Lakes and is not particularly unique to Whycocomagh Bay itself.

Pelagic Predicted Exposure Zones and Interactions

Pelagic Predicted Exposure Zones for Pesticides

The pelagic-PEZ is an early screening step in a triage-based approach. A precautionary first-order estimate is used to predict the spatial scale of potential interactions between registered pesticides used in finfish aquaculture and susceptible species. These predicted exposure zones are conservative overestimates to determine whether a larger area of concern warrants further refinement of the spatial extent, intensity and/or duration of anticipated interactions. Otherwise, the PEZ analysis is considered sufficient for identifying, albeit at a larger spatial scale, potential impacts from the proposed activity.

The two pesticides available for use in bath treatments (e.g., tarp bath and well-boat) are azamethiphos and hydrogen peroxide. The size of the PEZ depends on the decay and/or dilution rate of the pesticide, a chosen concentration threshold, and choice of horizontal water current. The PEZ is estimated using toxicity information of azamethiphos, the most toxic registered pesticide. Health Canada Pest Management Regulatory Agency (HCPMRA) has assessed that neither of the two registered pesticides (hydrogen peroxide and azamethiphos), nor their breakdown products, are expected to remain in suspension since they do not bind with organics or sediments and do not accumulate in the tissues of organisms. Their half-lives are days to weeks, suggesting they will not persist in the environment at concentrations considered to be toxic (HCPMRA 2014, HCPMRA 2016a, HCPMRA 2016b, HCPMRA 2017).

The pelagic-PEZ for azamethiphos was calculated assuming the maximum near-surface current speed persists throughout the dilution or decay scale (Figure 6). A three-hour duration was used to estimate the time required for the maximum azamethiphos target treatment concentration of 100 µg/L to dilute to the HCPMRA environmental effects threshold of 1 µg/L (DFO 2013).

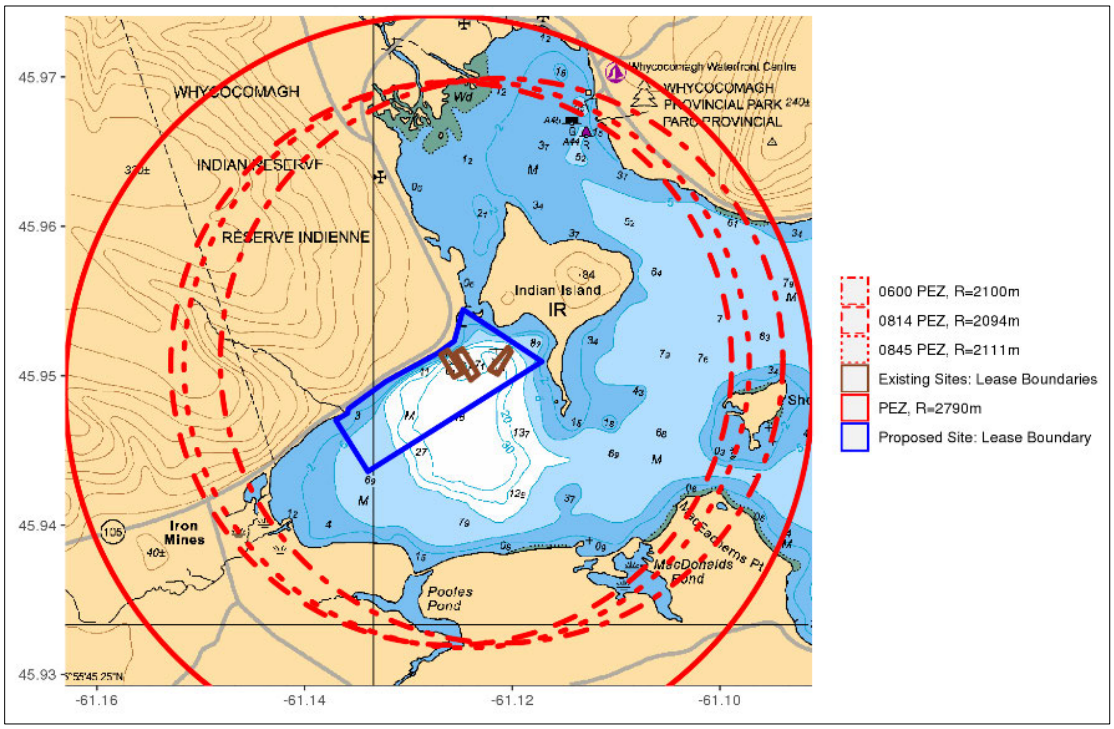


Figure 6. First-order estimation of the pelagic-PEZ for azamethiphos at site #0814x using the maximum near-surface current speed tracked for three hours overlaid on CHS chart #4278.

The near-surface current speed was used as the application of tarp bath treatments occurs in the surface waters. The pelagic-PEZ is calculated assuming tarp bath treatments, regardless of whether all net-pens would meet the treatment label conditions for application given the larger exposure zone anticipated to result from a tarp treatment versus a well boat.

Since the location of net-pens within the lease is unknown given the proponent's intent to move the net-pen arrays within the lease boundaries, a precautionary approach was taken in estimating the PEZ. The horizontal transport distance was added to the longest length scale of the proposed lease (i.e., half the length of the lease), rather than the length scale of the net-pen arrays, and the PEZ was centered on the lease.

The zone does not imply that areas within the pelagic-PEZ 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. While some areas of the lease are shallow enough that the HCPMRA restriction for shallow sites (no application to tarped net-pens in water depths ≤10 m) may apply, the proponent has stated that the net-pens will only be over water depths of at least 14 m. The exposure is expected to occur mainly in the pelagic zone, although the bathymetry and water currents at the proposed #0814x site suggest the shallow water (< 10 m) seabed within the pelagic-PEZ may also be at risk of exposure to toxic concentrations released from the proposed site. The low flushing rate of Whycocomagh Bay also makes it particularly sensitive to the input of chemical as they cannot be quickly dispersed by water movement (Parker et al. 2007), and may be more likely to deposit on the seabed and persist.

Using the same current meter record, the PEZs for the existing sites have also been estimated (Figure 6) and indicate that the pelagic-PEZ for the proposed #0814x site is likely larger than those of the current sites. The addition of net-pens to the site may also increase the duration of pesticide exposure within the pelagic-PEZ if the entire site requires treatment. This is based on the number of tarped net-pens that can be treated simultaneously (no more than two) according to HCPMRA application restrictions.

Estimates of cumulative exposures from multiple fish farms and other potential sources of pesticide loading have not been fully assessed in this report. The location of the proposed finfish sites #1430 Aberdeen North and #1431 Aberdeen South in the eastern end of the bay and the approximately 3 km pelagic-PEZ originating from the #0814x proposed site suggest there is unlikely to be exposure overlaps associated with pesticide releases.

Since 2015, *AAR* reporting indicates that the existing sites (#0814, #0845, and #0600) have not used pesticides. Information on historical pesticide use and knowledge of environmental site conditions suggest that the likelihood for azamethiphos treatments is low. This is further discussed in the Pest and Pathogen Interactions section below.

Susceptible Species Interactions

Species were considered to be susceptible within the pelagic-PEZ if they are known to have sensitivities to pesticide exposures, should treatment be required. Specific consideration was given to the potential for interactions with crustaceans due to their higher relative susceptibility to the pesticides used in aquaculture.

Analyses conducted by HCPMRA concluded that azamethiphos bath and well treatments pose risk levels that are below the established Level of Concern (LOC) for marine fish, marine mammals, and algae, but above the LOC for pelagic and benthic invertebrates. Azamethiphos is toxic to non-target crustaceans while in the environment, including all life stages of Lobster (HCPMRA 2016b, HCPMRA 2017, Burridge 2013).

Departmental holdings of biological data from Whycocomagh Bay are sparse and database searches of the PEZs returned no records. The ability to delineate spatial overlaps between species distributions and the pelagic-PEZ for site #0814x is limited. A 2007 survey identified eelgrass within the pelagic-PEZ. While eelgrass is subject to high spatial and temporal variability, and this distribution may have changed in the subsequent years, proponent-submitted baseline data collected in May 2020 found the presence of eelgrass at 4 out of 21 locations sampled throughout the proposed lease (Figure 7). Though there is no evidence for a direct effect of pelagic pesticides on eelgrass, indirect effects could occur through changes to its associated mesograzer communities. Though available data are insufficient for quantifying the magnitude and likelihood of deleterious effects, the presence of eelgrass within the pelagic-PEZ is of concern given the importance of eelgrass as an ESS in Atlantic Canada.

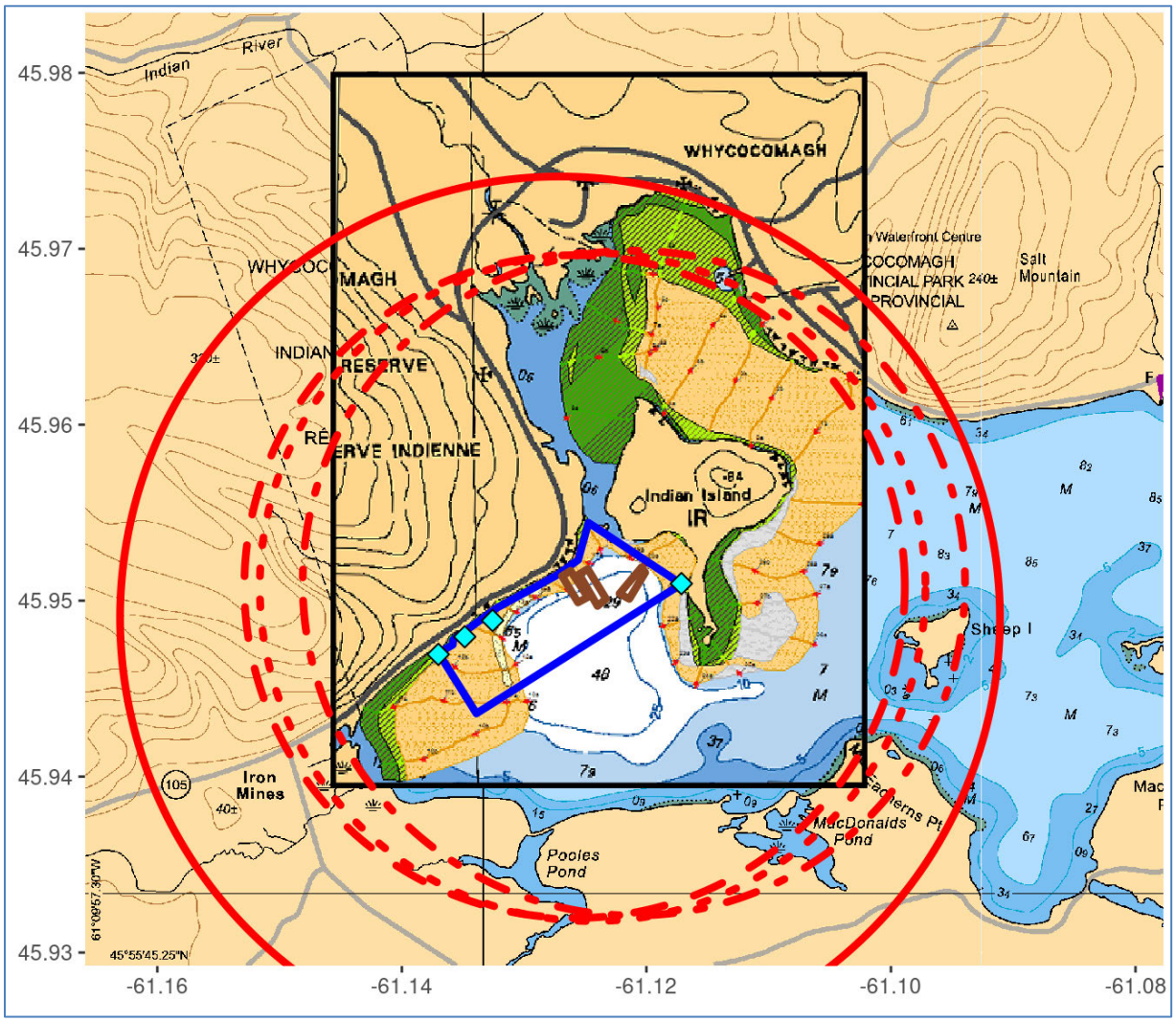


Figure 7. Map of eelgrass coverage in 2007 in the western end of Whycocomagh Bay (Vandermeulen 2016) overlaid on CHS chart #4278. The area of eelgrass survey coverage is restricted within the black border. Dark and light green represent areas of continuous and patchy eelgrass coverage, respectively. The existing leases are represented by brown polygons and proposed lease by blue polygons. The pelagic-PEZs are shown in dotted and solid red circles for the existing and proposed sites, respectively. Locations of baseline stations where eelgrass was present are shown in cyan.

There is limited literature describing the effects of aquaculture pesticides on seagrasses. Like most aquatic plants, seagrasses concentrate nonessential chemicals in their tissues (Lewis and Devereux 2009). The targeted nature of azamethiphos treatments on crustaceans suggests the diverse mesograzer communities associated with the eelgrass, such as amphipods and isopods, may be impacted (Wong 2018). A loss of grazers could result in higher plant fouling that shades plants and leads to reduced growth or increased mortality. Mesograzers are also an important food source for fish, and a loss of grazers could have cascading trophic effects for fish that use eelgrass beds as nurseries and feeding grounds. Crustacean-specific pesticides could also have an effect on the invasive Green Crab.

Given the potential for wide distribution of pesticides throughout the bay, eelgrass beds, and/or their trophic components could possibly be impacted. The scale of the described changes relative to eelgrass in the surrounding area cannot be quantified given the lack of current distribution maps and lack of data representing macrofauna and epiphytes and the ecological complexity of linkages between eelgrass and its associated faunal communities. Eelgrass is known to be present throughout the Bras d'Or Lakes and is not unique to Whycocomagh Bay itself.

Oxygen Interactions

Pelagic

Dissolved oxygen (DO) dynamics in Whycocomagh Bay are complex. Dissolved oxygen levels in the deeper areas can be anoxic at 0 mg/L (Petrie and Bugden 2002), whereas DO in the upper six meters of the water column range from 2.75–5.16 mg/L. Over the entire water column, oxygen extremes of 0 mg/L and 13.58 mg/L have been recorded (DFO[1] unpublished data, Appendix B). The optimal DO level for Rainbow Trout has generally been poorly studied. Research indicates that 5–6 mg/L is the minimum DO concentration to avoid sub-lethal negative effects, such as reduced swimming speeds and growth rates in farmed trout. It also indicates a lethal limit of 2–3 mg/L but that mortality can result from 4 mg/L (Welker et al. 2019).

The oxygen depletion index (Page et al. 2005) provides an indicator of the potential for farmed fish to generate oxygen depletions on scales of a net-pen, farm, or bay, and was applied to the proposed #0814x fish farm at the localized net-pen scale. The index considers fish respiration rates, flushing times, DO levels, and minimum threshold levels for sub-lethal and mortality effects. An index value of 1 indicates the respiration time is equal to the flushing time, under ideal circumstances. A value of 1 may indicate a potentially problematic situation since additional factors that have not considered may be important. Index values less than 1 indicate the potential for DO depletion and consequent impacts. The index was calculated for five different scenarios based on combinations of current speeds, respiration rates, and sub-lethal or mortality-based thresholds. These scenarios are reported in Appendix C.

Using a representative mean current, it is estimated DO depletion will occur at the net-pen scale. The scenarios illustrate that sub-lethal negative effects that impact fish health and growth rates onsite are anticipated due to low DO even in optimal site conditions. Mortality conditions were examined by changing the oxygen threshold and respiration rate (i.e., oxygen consumption rate). Under average current speed and respiration rate conditions, DO levels may be depleted to a level that cause fish mortalities on site. In the absence of currents (as was observed at times in the proponent's current meter record), DO levels within a net-pen at the

[1] DFO. Data collected through the Bras d'Or Lakes Monitoring Program 2014–2020.

#0814x site can be depleted to sub-lethal and mortality levels within less than 5 minutes and 17 minutes, respectively.

Estimations at the individual net-pen scale are anticipated to be exacerbated with each net-pen downstream. Although DO depletion at the site is not anticipated to spread to the bay-scale, it is a compounding factor in a naturally-stressed environment. Ambient DO levels throughout the water column near the site are periodically below the Canadian Council of Ministers of the Environment (CCME 2021) guidelines for DO of 8.0 mg/L in marine and estuarine waters.

In addition, any increased organic deposition from the site that accumulates in the deeper hypoxic and anoxic water will continue to contribute to suppressed oxygen levels as it is decomposed. This anoxic deep-water that is rich in hydrogen sulfide from bacterial activity can periodically be pushed into the shallower waters and impact the net-pens situated near the anoxic hole, resulting in fish-kill events of the farmed fish (Dalhousie University 2017). The DFO monitoring data from 2009–2012 in the Bras d'Or Lakes has shown the occurrence of cold anoxic water being brought up into shallow regions, although the mechanism for this process is still not well understood (Drozdowski et al. 2014). It is not known whether any wild fish have been impacted during these events.

The proponent's mitigation measure of supplementing pure oxygen into the water at the depth of the net-pen is only proposed during times of particularly reduced gas exchange (i.e., during winter ice cover) and appears to be aimed at mitigations for the farmed fish. However, periods of reduced DO levels may not be confined to times of ice cover and may impact wild populations in the vicinity of the site.

Benthic

An increased sediment oxygen demand is anticipated from the proposed #0814x expansion due to the increased flux of Biochemical Oxygen Demanding (BOD) matter to the seabed and the restricted flushing within the bay. This is a concern as benthic communities respond to both persistent hypoxic effects of low DO concentrations that inhibit respiration, as well as to the direct toxicity of sulfides themselves (Diaz and Rosenberg, 1995, Hargrave et al. 2008). At historical stocking levels, elevated sulfide levels that are reflective of oxygen-poor sediment conditions have been consistently reported during EMP sampling throughout the existing sites (Figure 3).

Bannister et al. (2014) measured benthic oxygen consumption rates associated with sediment collected under fish net-pens and at reference sites. Over a 48-hour period, oxygen consumption rates from sediments collected under net-pens (average of 60 mmol/m^2/day) were significantly higher than from reference sites (average of 10 mmol/m^2/day).

Based on these numbers, first-order calculations (Appendix C) indicate that if the water immediately above the seabed is not being replaced (as has been observed in the proponent current meter record), benthic respiration could deplete the oxygen within the bottom water layer in less than four days. With low water currents of 1 cm/s, it is estimated that the time to deplete the oxygen in the near-bottom layer is similar to the time to refresh the oxygen. Therefore, the near-bottom oxygen concentration is likely to be low and sensitive to additional oxygen demand from the sediments, water current speeds, vertical mixing within the site boundaries, and advection of low oxygen waters located in the deeper water within and beyond the site.

A range of benthic oxygen consumption rates have been observed between different bottom types, with finer sediments such as mud demonstrating rates that are up to 3 times greater than coarse sediments (Grant et al. 1991). The silty nature of the sediment at the reference site in

the Bannister et al. (2014) study is similar to sediment type of Whycocomagh Bay; however, the sediment under the net-pens was coarser compared to that of Whycocomagh Bay. Findings from both studies suggest that oxygen consumption under the net-pens at the Whycocomagh site could be substantially higher than that observed under the net pens in the Bannister et al. (2014) study.

Escapee Interactions

Interactions between farm escapees and wild populations can be both genetic and ecological. Genetic interactions result from exchange of genetic material (hybridization) and/or the alteration of selection pressures (indirect genetic effects) (Lacroix and Fleming 1998). Ecological interactions can involve the transfer of diseases, predation, or competition for space, food, or mates between wild and escaped farm fish (Lacroix and Fleming 1998). These ecological interactions can result in negative genetic impacts on wild populations (reviewed in Bradbury et al. 2020).

While not native to Eastern Canada, Rainbow Trout have been stocked by the Province of Nova Scotia since the early 1900s, and there is now a successfully reproducing feral population in the Bras d'Or Lakes and the rivers and streams that flow into it (Madden et al. 2010). There are multiple reports of escapes from the existing #0814, 0845, and 0600 aquaculture sites. Madden et al. (2010) noted that since Rainbow Trout aquaculture was introduced to the Bras d'Or Lakes in 1972, large escape events have been associated with an increased popularity of the Rainbow Trout fishery in the area.

Crosses between Atlantic Salmon and Rainbow Trout have not produced any viable offspring (Refstie and Gjedrem 1975, Sutterlin et al. 1977, Blanc and Chevassus 1982). Therefore, direct genetic effects due to interbreeding between escaped Rainbow Trout and the native Atlantic Salmon population is not a concern.

Ecological interactions can occur between escaped Rainbow Trout and native Atlantic Salmon, regardless of life stage. Ecological interactions and deleterious effects on wild salmon from competition from introduced invasive Rainbow Trout are well documented and show that Rainbow Trout have stronger competitive abilities over Atlantic Salmon (Houde et al. 2017, van Zwol et al. 2012a). There is a growing body of evidence linking low marine survival to delayed effects from the physical and biological interactions experienced by juvenile salmon in rivers (Russel et al. 2012, Blanchet et al. 2007). At the individual level, behavioural strategies and dominance hierarchies of salmon have been shown to be strongly disrupted by invasive Rainbow Trout, such that growth trajectories are affected (Blanchet et al. 2007, van Zwol et al. 2012b). Some of these effects were linked to elevated stress hormones in salmon when invasive trout were present (van Zwol et al. 2012c). Rainbow Trout have also been shown to displace Atlantic Salmon out of preferred habitat and into increased competition with other native salmonids, even at low trout densities (Hearn and Kynard 1986, Thibault and Dodson 2013).

These types of ecological interactions have been shown to change the selective landscape, resulting in changes to fitness-related allele frequencies (Bradbury et al. 2020). Ecological interactions can also lead to reduced Atlantic Salmon population size and consequently reduce their genetic diversity. Reduced population size and genetic diversity would in turn lead to increased susceptibility to genetic drift and impact of stochastic events. Given the known ecological interactions between Rainbow Trout and wild Atlantic Salmon, there is no reason to believe that the genetic outcome from interactions with escaped farmed Rainbow Trout would differ from that described in Bradbury et al. (2020).

The above interactions and potential impacts are of particular concern to Eastern Cape Breton (ECB) Atlantic Salmon, which have been assessed as Endangered by COSEWIC since 2010. Eastern Cape Breton salmon support the last remaining recreational fishery and First Nations allocations in DFO Maritimes Region. There are ongoing monitoring efforts in Middle, Baddeck, and Skye rivers, which enter the Bras d'Or Lakes at distances between 2–25 km from the proposed #0814x aquaculture site. Both Middle and Baddeck rivers were below their conservation egg requirement in 2019 and have been for the previous 20 years (DFO 2020b), and the 2018 smolt estimate on Middle River was estimated among the lowest in recent years (albeit with large uncertainty) (DFO 2020b).

In recent years, adult and juvenile Rainbow Trout have been observed in both Middle and Baddeck rivers during DFO assessment unit swim counts for ECB salmon. In 2019, some observations of Rainbow Trout were well upstream of the estuary (> 10 km river distance), and the presence of juvenile trout confirms that natural reproduction is occurring. This heightens concerns about the continued use of diploid Rainbow Trout in both stocking and aquaculture. Gibson et al. (2014) identified commercial salmonid aquaculture as a threat in both the marine and freshwater environment to the recovery potential for ECB Atlantic Salmon. While there are ongoing monitoring efforts and available information specific to the Middle, Baddeck and Skye rivers, all other known ECB salmon rivers are also within 250 km of the proposed #0814x site (Figure 8), a range within which farmed Atlantic Salmon have been documented to travel following escape from aquaculture sites.

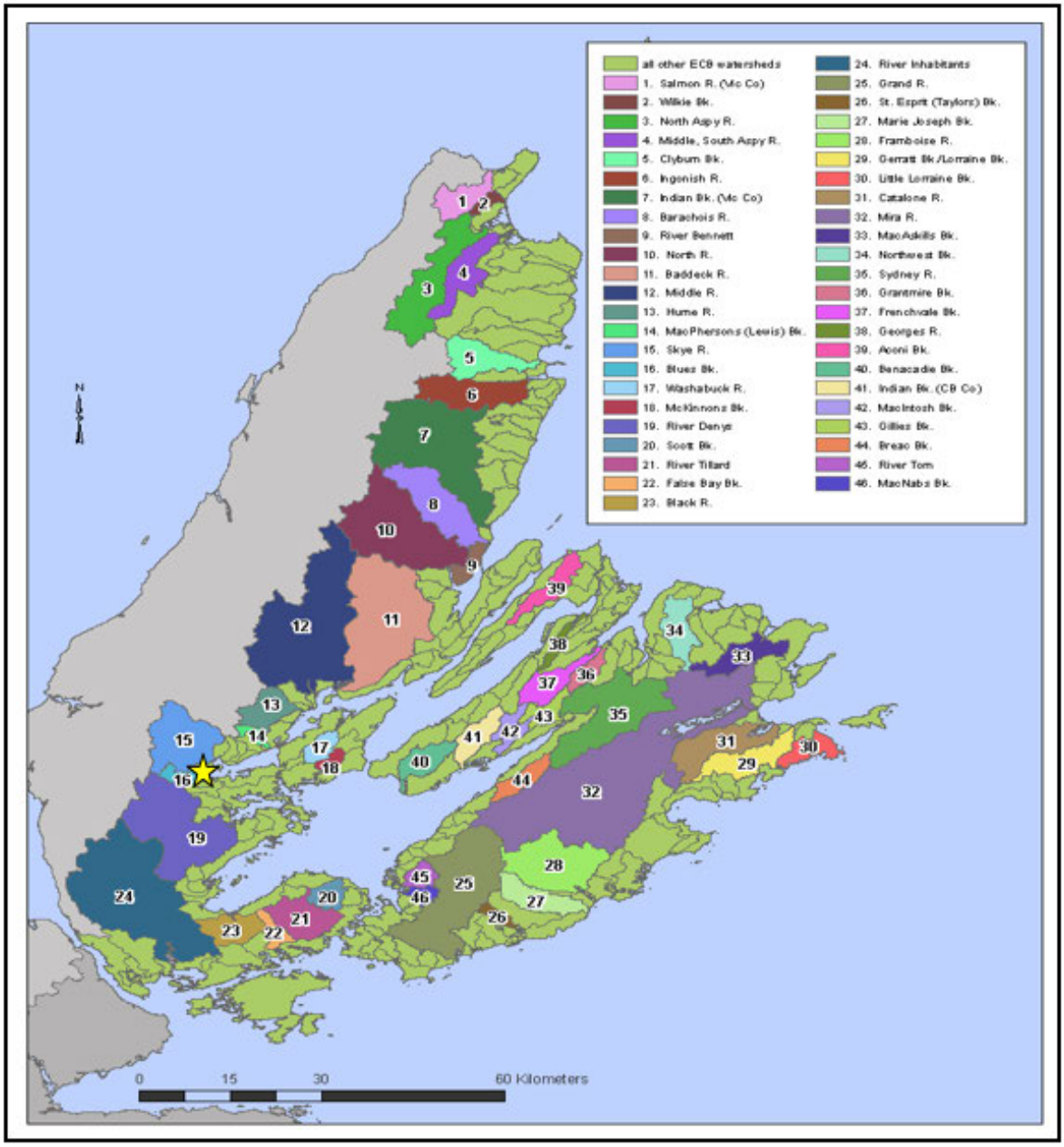


Figure 8. Location of known major watersheds associated with Eastern Cape Breton Atlantic Salmon rivers (Gibson et al. 2014). The yellow star represents the location of the proposed #0814x aquaculture site expansion.

The use of sterile fish in marine cage aquaculture has been recommended in Newfoundland (DFO 2016). Additionally, the Province of New Brunswick prescribes the use of sterile triploid Rainbow Trout only in cage aquaculture as part of a process to mitigate risk to wild stocks as outlined in the New Brunswick Rainbow Trout Aquaculture Policy (NBDERD and NBDAAF 2016). Although not specific to Nova Scotia, these examples reinforce the use of sterile salmonids in aquaculture to minimize adverse effects to wild salmon from aquaculture. While sterile Rainbow Trout could still escape and interact with wild salmon populations, they would

not contribute to the feral reproducing population of Rainbow Trout in rivers leading into the Bras d'Or Lakes.

While the risks to ECB Atlantic Salmon exist at the current leases, they are expected to be at least proportional to the intensity of the farming activities in the area. Therefore, any increase in the total number of farmed trout in the area associated with the proposed #0814x site will also represent an increased risk to ECB salmon. These concerns also need to be contextualized by other cumulative potential pressures, such as the presence of other introduced salmonids (Brown Trout) and the additional continued stocking of diploid Rainbow Trout in the area for the purpose of sportfishing.

Pest and Pathogen Interactions

Cultured fish may acquire endemic diseases and/or sea lice infestations from wild fish or from other farmed fish in the area (DFO 2014b). Given density-dependent transmission is observed in many host-pathogen systems, including sea lice on salmonid farms (Kristoffersen et al. 2013, Frazer et al. 2012), this can pose a significant health risk to farmed and wild fish when present at certain host density threshold levels (Krkošek 2010).

Sea lice development and survival are influenced by salinity and water temperature. Studies have demonstrated that low salinity may prevent sea lice from thriving, as they actively avoid low salinities (< 27 ppt), and that even short-term exposures to low salinity water significantly compromises survival and host infectivity (Bricknell et al. 2006). The proposed #0814x site is located in lower salinity brackish waters, which can be expected to influence the occurrence of sea lice.

The low flushing rate of Whycocomagh Bay may contribute to the occurrences of outbreaks, given that pests and pathogens cannot be quickly dispersed by water movement and, therefore, may persist longer, if present.

Since 2015, available *AAR* data confirm that no pest control products have been used at the existing sites in Whycocomagh Bay. However, historical use of approved drugs and pesticides may not be a predictor of future disease outbreaks as production within the bay increases or as other influencing factors change. The addition of farmed fish to an area is expected to amplify both endemic pathogens and pests in that area, due to the increase in the number of host fish. The impact on wild susceptible fish species will depend on the duration and extent of their exposure to the farm, the increased concentration of pathogens and parasites, and their relative susceptibility to infection and disease within the environmental conditions found in Whycocomagh Bay.

Physical Interactions

Bycatch or entanglement of wild species (e.g., wild fish, marine mammals, turtles, and sharks) associated with the placement of infrastructure are also potential interactions associated with aquaculture sites.

Available information indicates that Harbour and Grey Seal are present in Whycocomagh Bay and may be present around the #0814x proposed site. Ice cover in Whycocomagh Bay from mid-December through April is anticipated to limit their presence in the western end of the bay around the site infrastructure during the winter months when they are known to be in the Bras d'Or Lakes for feeding (Parker et al. 2007).

Recreational and Aboriginal fisheries in the area that may experience displacement associated with the placement of infrastructure in the water include American Eel (assessed as Threatened

by COSEWIC and under consideration for *SARA* listing), Atlantic Herring, Mackerel, Atlantic Cod, Winter Flounder, Smelt, and Atlantic Salmon. Estuaries associated with rivers containing freshwater habitats are also considered to be important habitat for ECB Atlantic Salmon, as successful migration through these areas is required to complete the life cycle. Traditional Ecological Knowledge also indicates that, in addition to serving as a migratory pathway, the Bras d'Or Lakes also serve as a staging area for returning adults and as an over-wintering area for kelts (DFO 2014a). It is not known what possible impacts the aquaculture site has on use of the area by these fish. To date, there have been no reports of entanglements of wild species at the existing sites.

Shading from aquaculture infrastructure can limit light availability, reducing density, biomass, growth and survival of eelgrass (Rumrill and Poulton 2004, Skinner et al. 2013, Wisehart et al. 2007). Direct shading from net-pens is considered unlikely, as the proponent's submission indicates that net-pens will only be situated at a minimum depth of 14 m. Propeller scarring from boat activity is also anticipated to be low risk, as site infrastructure includes a nearby wharf, precluding the need for boat use in shallow-water eelgrass habitat.

The exact magnitude of exposure and physical interactions of the species above with the #0814x site are unknown. However, the sheer increase in size and infrastructure alone suggest that the proposed site may increase the risk of bycatch, entanglement, physical displacement, and/or destruction to these species and habitats above the risks already posed by the existing sites.

Potential Cumulative Interactions

The entire area of interest surrounding the #0814x proposed finfish site is influenced by human activity, with most human activities concentrated near the community of Whycocomagh. The larger, widespread PEZ (pelagic-PEZ) of the proposed site results in overlap with most other human activities occurring in the area. The number of overlapping activities is moderate, with the majority (approximately 70%) of the area of interest being influenced by at least two co-occurring human activities (Figure 9). The greatest overlap in co-occurring human activities occurs in northern areas of the bay, particularly between Indian Island and the town of Whycocomagh. Overlap in human activities declines as you move eastward through the bay and away from the point sources of stress. Appendix D provides methodology details of this analysis.

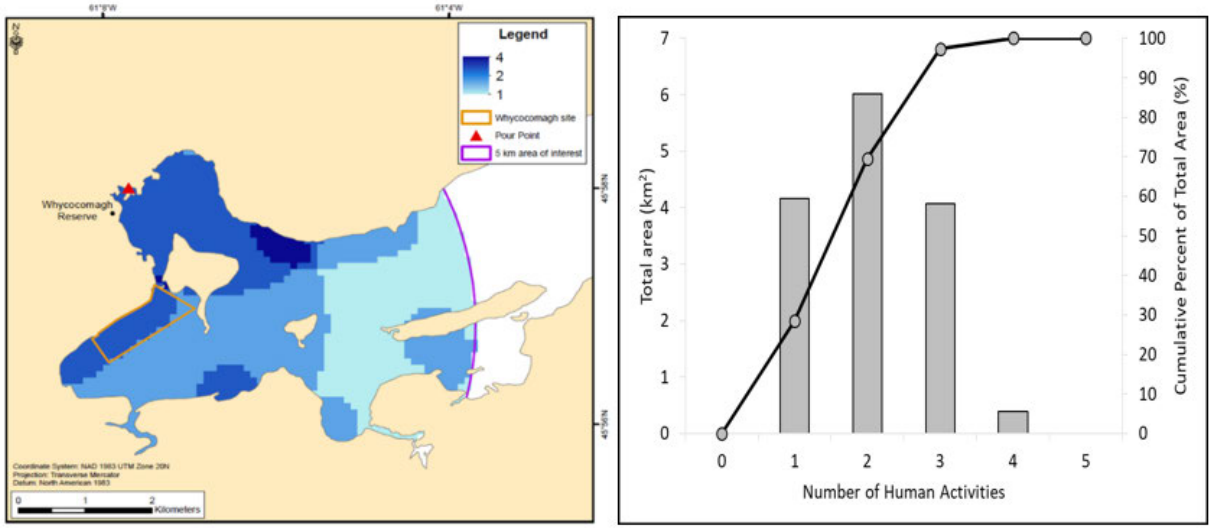


Figure 9. Left: Number of overlapping human activities in each 0.01 km^2 grid cell. The #0814x lease boundary amendment is represented by the orange rectangle. The red triangle is the pour point location (i.e., the location where the Skye River drains into the coastal zone). Right: Total area (km^2; grey bars), and the cumulative percentage of the total area (%; black line), in all grid cells with the corresponding number of human activities.

The stressors linked to human activities in the marine environment can be grouped into three main categories: physical (direct alteration to habitats), chemical (effects on water and sediment quality), and biological (changes to non-target species). All human activities considered within this analysis have been linked to > 1 stressor impact, and all activities have influences across all three categories (Table 5).

Table 5. Comparison of stressors associated with human activities identified in this analysis. Stressors linked to finfish aquaculture, shellfish aquaculture, recreational boating, and land-based activities were summarized from Ban et al. (2010), while those linked to the Trans-Canada highway were summarized from Trombulak and Frissell (2000).

Stressors		Activities				
		Finfish aquaculture	Shellfish aquaculture	Recreational boating†	Land-based activities*	Highway
Physical (direct alteration to habitats)	Benthic disturbance	X	X	X	X	-
	Collisions	-	-	X	-	-
	Freshwater input/decrease	-	-	-	-	X
	Change in currents/circulation	X	X	X	-	-
	Light	X	-	X	-	-
	Marine debris	-	X	X	X	X
	Noise	X	X	X	X	X
Chemical (water and sediment quality)	Bacteria	X	-	X	X	-
	Contaminants	X	-	X	X	X
	Nutrients	X	X	X	X	X
	Oil/waste	X	X	X	X	X
	Organic waste	X	X	X	X	X
	Sediment transport (turbidity)	X	X	X	X	X
Biological (changes to non-target species)	Changes in behaviour (predator or prey)	X	X	X	-	-
	Biomass removal (incidental mortality)	X	X	X	X	X
	Diseases and parasites	X	-	-	-	-
	Genetic interactions	X	-	-	-	-
	Invasive species	X	X	X	X	-

**combined stressors from human settlements, onshore mining, and agricultural activity categories to reflect known activities within the Whycocomagh Bay watersheds*
†combined stressors from small docks, ramps, wharves, pleasure boating, and kayaking activity categories to reflect the known and assumed activities with Whycocomagh Bay

Overall, finfish aquaculture activities and recreational boating are associated with generating the largest proportion of stressor effects on these ecosystems, followed by land-based inputs and highways, respectively (Table 5). Shellfish aquaculture, while in general could be more impactful than land-based inputs and highways, is unlikely to cause impacts at this time, as oyster culture in the bay is not currently active.

The overlap of finfish aquaculture and recreational boating appear to have the most potential to impact Whycocomagh Bay; however, there is a larger spatial overlap of finfish aquaculture with land-based inputs. The cumulative effect of all three activities (finfish aquaculture, recreational boating, and land-based inputs) likely has the most significant anthropogenic footprint. Given its minimal water circulation and low flushing rate, Whycocomagh Bay may be particularly sensitive to the additive, cumulative, or interactive effects of runoff (excess nutrients and sediment),

pollution, and human waste generated from recreational boating activities and land-based inputs, in combination with those generated by finfish aquaculture.

While the magnitude of recreational boating in Whycocomagh Bay is currently unknown, it is likely highly seasonal, following the typical tourist season for Nova Scotia. Individually the impacts of marine tourism and recreational activities are considered minor, but their cumulative impact, often concentrated over short periods of time and in localized areas, may result in detrimental effects on species and/or habitats. Effects may potentially include pollution due to leakage of fuels and oils, and human waste (Leon and Warnken 2008), prop scarring and/or benthic disturbance and destruction due to anchoring (Bishop 2008, Lewin et al. 2019), and the secondary spread of non-native species (Clarke Murray et al. 2011, Burgin and Hardiman 2011). The addition of aquaculture activities in the bay may also compound these inputs. For example, the addition of physical structures at the #0814x site may create more artificial habitats for colonization by invasive tunicates, some of which are already present in Whycocomagh Bay (Sephton et al. 2015). These combined effects may contribute to the spread and subsequent establishment of other non-native species already present elsewhere in the Bras d'Or Lakes.

Runoff and sediment erosion impacting water quality due to human land use is already ranked as a high threat for the surrounding two watersheds that drain into Whycocomagh Bay (Sterling et al. 2014). While the extent of the total spatial overlap is small, the direct occurrence of the #0814x site immediately adjacent to the highway may lead to periodic and intense, yet localized, deposition and/or water quality issues. This could result in cumulative stress on benthic species and habitats, if occurring at the same time as pesticide/drug application or restocking of fish in pens in close proximity to the road during times of the year when road runoff peaks. The proposed increase in finfish aquaculture within the bay is also expected to increase sedimentation, leading to the potential for additive sediment and nutrient inputs at least in the immediate area surrounding the #0814x site. Excess nutrients from land runoff contribute sources of nitrogen (N) to Whycocomagh Bay (Williamson et al. 2017, Nagel et al. 2018), and the addition of more finfish aquaculture to Whycocomagh Bay will also add to the existing anthropogenic total N loading in the bay, which may increase the risk of eutrophication.

Sources of sewage pollution in Whycocomagh Bay include malfunctioning sewage or treatment systems, residential septic tanks and fields, and outhouses (EDM 2008). As of February 2019, Environment and Climate Change Canada (ECCC) ordered the closure of all shellfish harvesting in Whycocomagh and in sections along the coastline adjacent to the town, citing a sanitary pollution source (ECCC 2020). These sections overlap with the location of the proposed #0814x lease and point to human sewage effluent being present in the area. In addition to contributing to bacterial contamination of the bay, such inputs may also exacerbate the reduced oxygen concentrations experienced in Whycocomagh Bay, for which finfish aquaculture is also a contributor.

While many of these cumulative interactions are likely to have already been occurring with the presence of the existing #0814, 0845, and 0600 finfish sites, the addition of more farm infrastructure, more fish, and more operational boating activity are anticipated to further intensify interactions with the other human activities in the bay.

The scope of this review does not specifically weigh the relative magnitude of each stressor effect listed above. Many of these impacts will vary spatially and temporally, and information available on the acute versus chronic effects of these stressors is complex. Ongoing work is being completed on how such impacts accumulate and interact to produce cumulative effects, and it is an area of ongoing research and analysis within DFO.

Conclusions

Question 1. *Based on available data for the site and scientific information, what is the predicted exposure zone from the use of approved fish health treatment products in the marine environment, and the potential consequences to susceptible species?*

- The benthic-PEZ from the use of in-feed fish health treatment and the pelagic-PEZ from the use of approved bath pesticides are within a radius of 860 and 2790 m from the center of the proposed site, respectively. The intensity of exposure is expected to be highest near the net-pen arrays and decrease as distance from the net-pens increases.
- The proposed site location is likely to result in the benthic environment in shallower areas around the site being exposed to concentrations of drugs and pesticides that are toxic to sensitive benthic life stages and species, if present.
- The addition of net-pens may lead to an increase in duration of exposure to pesticides at toxic levels if the site in its entirety requires treatment.
- The low flushing rate of Whycocomagh Bay makes it particularly sensitive to chemical inputs that are passive and persistent, if used.
- Available information suggests that there is little evidence of species that are directly susceptible to fish health treatment products within the benthic- and pelagic-PEZ.
- Since 2015, *AAR* reporting indicates the existing sites have not used fish health treatment products. This may in part be related to the low occurrence of sea lice due to environmental conditions at the site.

Question 2. *Based on available information, what are the Ecologically and Biologically Significant Areas (EBSAs), SAR, fishery species, Ecologically Significant Species (ESS), and their associated habitats that are within the predicted benthic exposure zone and vulnerable to exposure from the deposition of organic matter? How does this compare to the extent of these species and habitats in the surrounding area (i.e., are they common or rare)? What are the anticipated impacts to these sensitive species and habitats from the proposed aquaculture activity?*

- The benthic-PEZ from deposition of organic matter due to waste feed is within a radius of 860 m from the centre of the proposed site. The intensity of exposure is expected to be highest near the net-pen arrays and decrease as distance from the net-pens increases.
- The low flushing rate of Whycocomagh Bay makes it particularly sensitive to deleterious substance inputs.
- Whycocomagh Bay is part of the Bras d'Or Lakes EBSA; however, ranked as the second least significant basin given its limited habitat diversity and ability to support a diverse and productive biota.
- Eelgrass has been identified within the benthic-PEZs related to all particle types. Interactions between eelgrass and deposition of waste feed are anticipated to have few effects. Feces and fines and flocs will be transported further and potentially encompass a significant portion of the eelgrass habitat; however, deposition is not anticipated to occur at levels where oxic state or sediment biogeochemistry changes are predicted.
- Eelgrass habitat may experience a reduction in the light climate due to suspended feces and fines and flocs. It is not possible to predict the likelihood or magnitude of effects or changes

to the light regime on eelgrass habitat due to the lack of existing data on current light levels and on sediment transport.

- Significant spatial and temporal variability in eelgrass distribution and condition is expected due to natural factors within the region that are suboptimal for eelgrass.
- Eelgrass habitat is not unique to Whycocomagh Bay within the Bras d'Or Lakes.

Question 3. *How do the impacts on these species from the proposed aquaculture site compare to impacts from other anthropogenic sources (including existing finfish farms)? Do the zones of influence overlap with these activities and if so, what are the potential consequences?*

- The entire area of interest around the site is influenced by human activities with significant overlap.
- Overlaps in predicted exposure zones from the proposed aquaculture activities at site #0814x and new sites #1430 North and #1431 South Aberdeen are not anticipated.
- Stressors such as invasive species, increased water quality issues, and reduced oxygen that stem from the activities associated with finfish aquaculture, recreational boating, and land-based inputs are anticipated to have the largest cumulative effects in Whycocomagh Bay.
- The significance of these potential cumulative interactions has not been assessed.

Question 4. *To support the analysis of risk of entanglement with the proposed aquaculture infrastructure, which pelagic aquatic species at risk make use of the area, and for what duration and when?*

- Species within Whycocomagh Bay include wild Atlantic Salmon, Harbour and Grey Seal, American Eel, Atlantic Herring, Mackerel, Atlantic Cod, and Smelt.
- Ice cover in the western end of Whycocomagh Bay is anticipated to limit the presence of Harbour and Grey Seal around the site infrastructure during the winter months when they are known to be present in the Bras d'Or Lakes for feeding.
- Eastern Cape Breton Atlantic Salmon that use the area during various stages of their life cycle and/or as a migratory pathway may experience displacement due to the significant increase in total leased area and site infrastructure. It is not known what magnitude of impact this may have.

Question 5. *Which populations of salmonids are within a geographic range that escapes are likely to migrate to? What is the size and status trends of those conspecific populations in the escape exposure zone for the proposed site? Are any of these populations listed under Schedule 1 of SARA?*

- All ECB Atlantic Salmon rivers are within potential dispersal distances of Rainbow Trout escapees The ECB salmon populations are assessed as Endangered by COSEWIC and are the last remaining recreational fishery and First Nations allocations in the Maritimes Region.
- There is no evidence of direct genetic interactions between Rainbow Trout and Atlantic Salmon. Therefore, direct genetic effects due to interbreeding between escaped Rainbow Trout and the native Atlantic Salmon population is not a concern.
- Ecological interactions and deleterious effects on wild salmon from competition from introduced invasive Rainbow Trout are well documented. There is evidence that these types of ecological interactions can lead to indirect genetic effects that ultimately reduce Atlantic Salmon population size and, consequently, reduce their genetic diversity.

- While the risks to ECB Atlantic Salmon already exist at the current leases, any increase in the total number of farmed trout in the area associated with the proposed #0814x site will also represent an increased risk to ECB salmon

Question 6. *The existing sites have been known to experience benthic and pelagic oxygen issues in the past. Given the proposed approach to managing this site and the increased numbers of fish to be cultivated in this area, does science have a sense of the oxygen demand for the area and what this means for the balance of oxygen in the area (i.e., will the demand for oxygen exceed the supply of oxygen)?*

- Dissolved oxygen depletion within the net-pens is estimated to reach levels that may cause sub-lethal effects to the farmed fish, and mortality conditions may also be feasible at certain times.
- Near-bottom DO levels are likely to be low and sensitive to factors such as additional organic matter inputs that cause increased benthic oxygen demand, water current speeds, vertical mixing, and advection of the hypoxic and anoxic, deep waters within and beyond the site.
- This anoxic, deep water can periodically be pushed into the shallower waters and impact the farmed fish, as well as any wild populations in the vicinity.
- These predicted net-pen scale effects are compounding factors that are likely to exacerbate the hypoxic and anoxic conditions that already occur in Whycocomagh Bay.

Sources of Uncertainty

Predicted Exposure Zones and Oxygen Estimates

Results of calculations based on the proponent's data are a subset of the full range of potential calculation outputs. The PEZs are based on current meter data provided by the proponent. The minimal availability of additional oceanographic data for Whycocomagh Bay contributes to uncertainty in the representativeness of the current meter record and dependent analyses. The proponent-provided current record is from a single location over a 30-day time window. This means that the precautionary scoping PEZ estimates do not account for seasonal and spatial variation in the currents, they and are unlikely to be fully representative of the temporal and spatial variability that may be of relevance to estimating exposure and deposition zones. All oxygen considerations are subject to uncertainty in several factors including the variability of water currents and flushing, oxygen concentrations, and oxygen consumption (by fish and the seabed). Available current meter data did not include information on near-bottom (i.e., within 1 m of seabed) currents, which may contribute to uncertainties in simple seabed oxygen estimations. Additionally, the mechanism and impacts surrounding the periodic upwelling of anoxic, contaminant-rich water within Whycocomagh Bay are not well understood. The state of knowledge in relation to refining the assessment of the potential for in-feed drugs and pesticides impacts is evolving. Therefore, a more detailed assessment of potential pesticide and drug impacts was not conducted.

Species and Habitat Distributions

Coastal areas are generally not adequately sampled on spatial and temporal scales of most relevance to aquaculture (i.e., tens to hundreds of meters and hours to months). Information on these space and time scales is typically not contained within the various data sources available to DFO to evaluate presence/use of species and habitats in those areas. Survey based data do

not fully sample the area spatially or temporally and, therefore, additional information on presence and habitat use (i.e., spawning, migration, feeding) are drawn from larger-scale studies. Therefore, there is uncertainty as to the distribution of species in the area of the existing site and proposed expansion.

Farmed-Wild Interactions

Information is generally lacking on the size and distribution of wild Atlantic Salmon populations. Improved estimates of wild Atlantic Salmon population size and the presence of escapees in salmon-bearing rivers within the Maritimes Region would improve the assessment of genetic and demographic risk. Significant knowledge gaps also exist regarding disease and sea lice infestation levels in wild and farmed Atlantic Salmon, and monitoring and reporting of these levels would be informative. The sensitivity of many wild species to the potential effects of aquaculture operations are also largely unknown.

Potential Cumulative Interactions

Human activity maps should be considered a preliminary and conservative estimate of human uses within the area of interest. Many regional and global-scale human activities that may overlap with local-scale activities were excluded from this analysis, due to limits on data availability and/or spatial resolution. Historical activities that may have legacy effects (e.g., sedimentary contamination), impacts from natural disturbances (e.g., storms, marine heat wave), or episodic activities that can create infrequent but intense disturbances (e.g., oil spill) were also not included. Buffer distances used in the analysis may be a conservative estimate. Assumptions that the influence of human activities diffuse equally in all directions was also used, although it is more likely that alongshore currents and river plumes influence the diffusion of impacts, particularly close to the coastline. While there is evidence that different interaction types (e.g., synergistic, antagonistic) are common, more research is required to determine the types and magnitude of interactions between key activities. Moreover, there is currently not enough information to know what effects all included human activities in the area may have on different components of the marine environment, or their appropriate decay of impacts.

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Appendix A: Organic Enrichment Interactions

Benthic condition[a]	Geochemical status[b]	Oxygen stress[c]	Sediment condition[d]	Geochemical category[e]	Macrofauna diversity[f]	Oxic category[g]	'Free' S (µM)	Eh_{NHE} (mV)
Normal	Oxic	Pre-hypoxic	Very good	Normal	High	Oxic A	100	225
							150	200
							250	175
							400	150
							625	125
						Oxic A/B threshold	**750**	**100**
Normal	Post-oxic	Aperiodic	Good	Oxic	Good	Oxic B	875	75
							1250	25
						Oxic B/ hypoxic A threshold	**1500**	**0**
Transitory	Sulfidic	Moderate	Less good	Hypoxic	Moderate	Hypoxic A	1750	−25
							2500	−75
						Hypoxic A/B threshold	**3000**	**−100**
Polluted	Sulfidic	Severe	Bad	Hypoxic	Poor	Hypoxic B	4000	−150
							5000	−175
						Anoxic threshold	**6000**	**−185**
Grossly polluted	Methanic	Persistent anoxia	Very bad	Anoxic	Bad	Anoxic	7000	−195
							8500	−200
							10000	−210

[a]Pearson & Rosenberg (1978), [b]Berner (1981), [c]Diaz & Rosenberg (1995), [d]Hansen et al. (2001), [e]Wildish et al. (2001), [f]Rosenberg et al. (2004), [g]Hargrave et al. (2008)

Figure A1. Nomenclature for gradients in benthic organic enrichment from Hargrave (2010).

Appendix B: Physical Data

Additional information on physical characteristics (temperature, salinity, dissolved oxygen) of the area surrounding site #0814x in Whycocomagh Bay was obtained from the following sources (locations shown in Figure B1):

- Strain et al. (2001) stationary oxygen measurements recorded from 1995–1997 in spring, summer and fall (six stations)
- DFO unpublished data collected through the Bras d'Or Lakes Monitoring Program
    - vertical profile data from May 2014 (three stations)
    - near-bottom time series data from November 2014–May 2015 (two stations)
    - vertical profile data from March 2020 (one station)



Figure B1. Location information for available dissolved oxygen data in Whycocomagh Bay used in this review. Anchors represent station locations, and the orange polygon represents the proposed #0814x site boundaries.

The data shown in the above figure (Figure B1) illustrate the spatial sparsity of available data and the data shown below (Figures B2 and B3) highlight the temporal sparsity in the records available for an overall understanding of the area and the consequent uncertainties in variability.

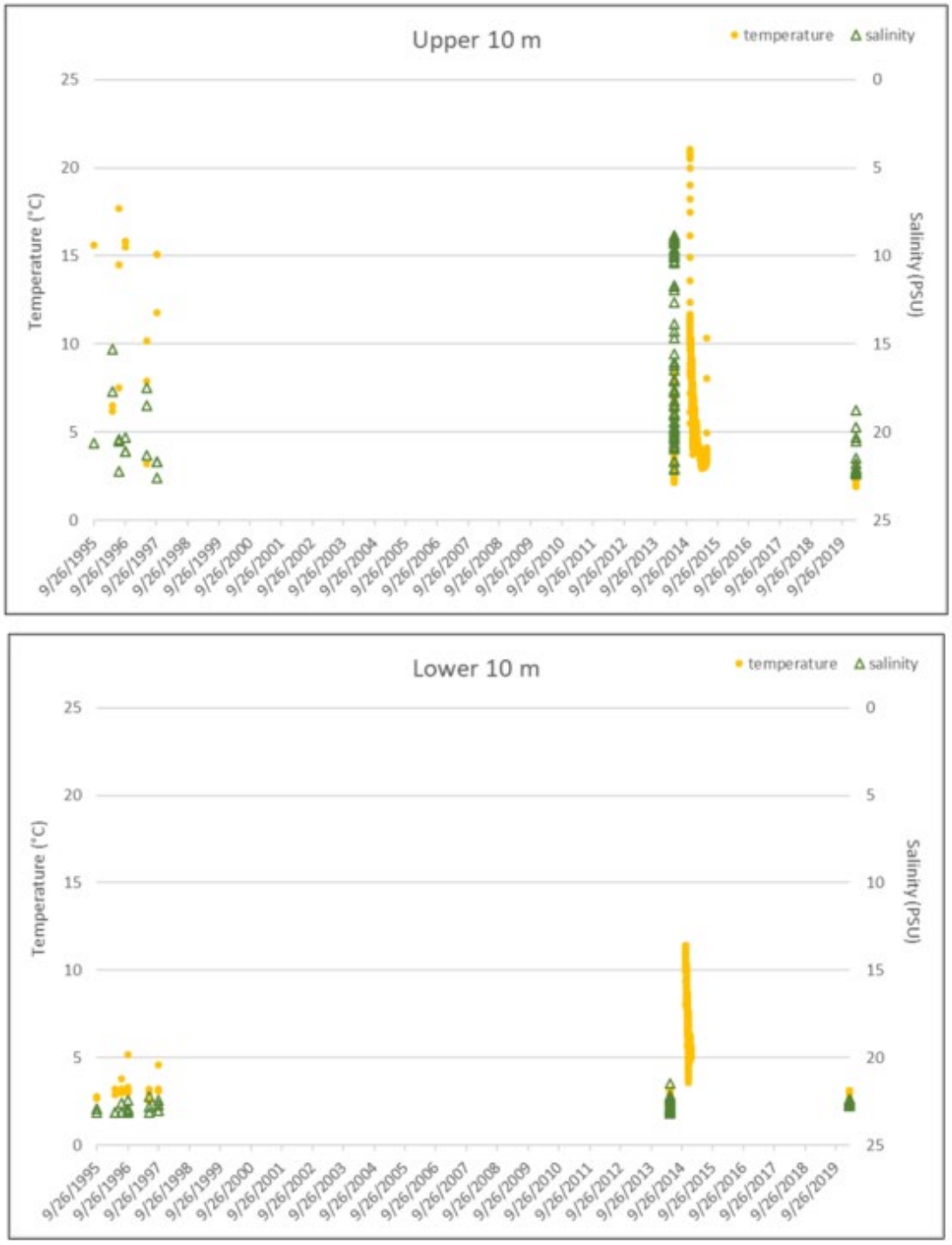


Figure B2. Temperature (yellow) and salinity (green) records available over time at locations near the proposed #0814x site. Data have been divided into near-surface waters in the upper 10 m (top panel) and water depths below 10 m (bottom panel).

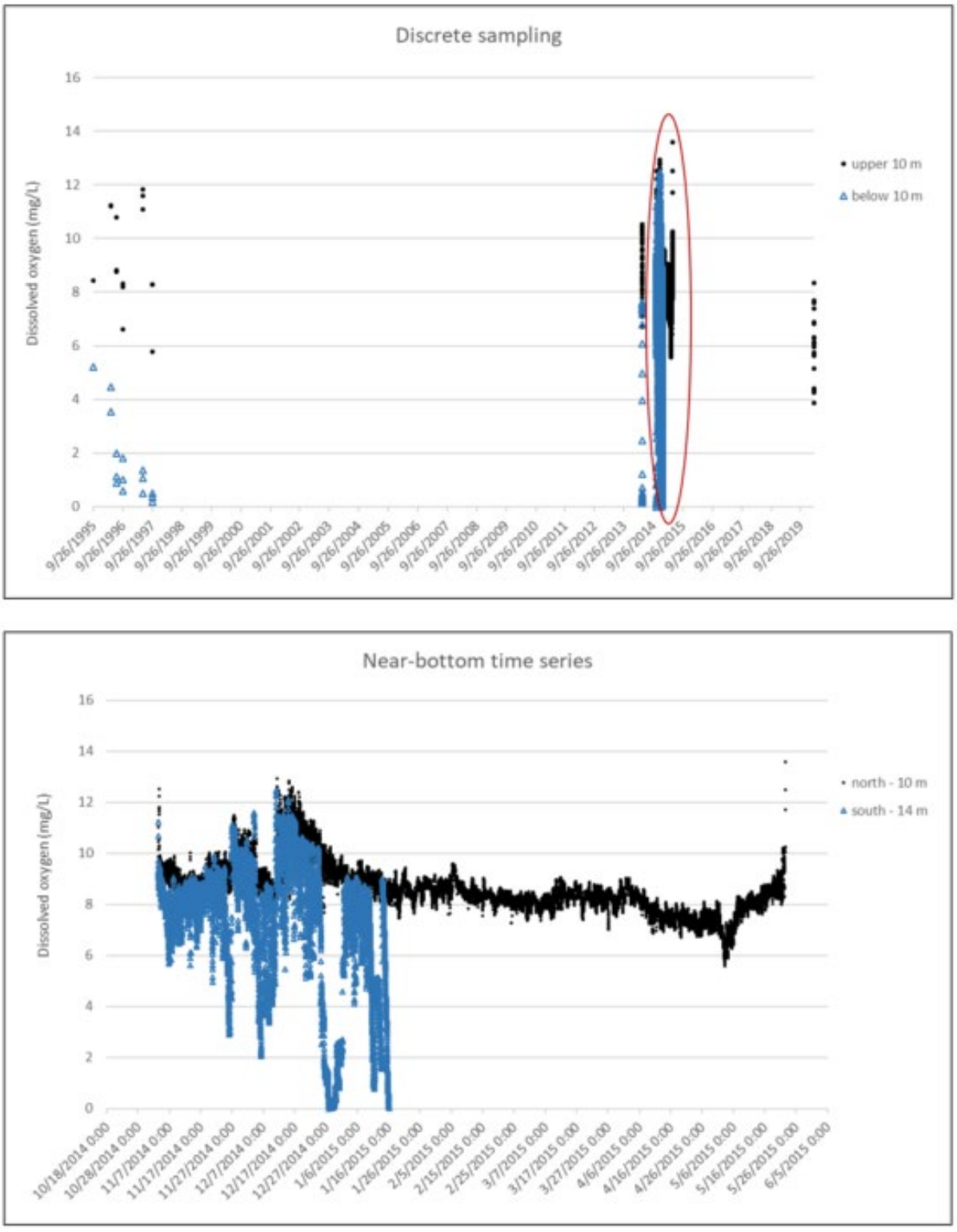


Figure B3. Dissolved oxygen (mg/L) data available at locations near the proposed #0814x site. Circled data in the top panel represent the time-series data collected near the site and shown in the bottom panel. The south side instrument stopped working on January 16, 2015.

Appendix C: Oxygen Calculations

Pelagic

The oxygen depletion index (Page et al. 2005) is an indicator of the potential for farmed fish to generate oxygen depletions on scales of a net-pen, farm or bay. The oxygen depletion index (I_{DO}) is defined as the ratio of the time required to reduce the oxygen concentration to a specified threshold with no flushing, $T_{\mathrm{thres}}(s)$, and the appropriate flushing time, T_{fl} (s):

$$I_{\mathrm{DO}} = \frac{T_{\mathrm{thres}}}{T_{\mathrm{fl}}}$$

with

$$T_{\mathrm{thres}} = \frac{C_0 - C_{\mathrm{thres}}}{\frac{R}{3600}\,\frac{\rho_{\mathrm{fish}}}{1000}}$$

where C_0 is the concentration of dissolved oxygen away from the farm (mg/L), C_{thres} is the minimum required concentration (mg/L), R is the respiration rate of the fish per volume of water (mg/kg/hr), and ρ_{fish} is the fish net-pen stocking density (kg/m^3) (Page et al. 2005). Here, the flushing rate is calculated as

$$T_{\mathrm{fl}} = \frac{D_{\mathrm{cage}}}{U}$$

where $D_{\mathrm{cage}}$is the fish cage diameter (m) and U is the ambient current speed (m/s). An index value of 1 means that the respiration time is equal to the flushing time, under ideal circumstances. Index values less than 1 indicate the potential for oxygen depletion and consequent impacts.

For Whycocomagh, the oxygen depletion index for a fish net-pen was calculated for various scenarios (Table C1) using a range of parameter values obtained from data submitted by the proponent, collected by DFO, and extracted from the literature. Data collected by DFO suggest that the composition of Dissolved Oxygen (DO) in Whycocomagh is complex. Deeper areas can be perfectly anoxic (i.e., DO concentration of 0 mg/L). In the top six meters of the water column, the DO concentration ranged from 2.75–5.16 mg/L with a mean of 4.29 mg/L. Over the entire water column, oxygen extremes of 0 mg/L and 13.05 mg/L have been recorded. Current speeds were estimated from the data submitted by the proponent: in the upper six meters of the water column, the current speed varied between 0–18.4 cm/s and had an average of 3.16 cm/s. Rainbow Trout consume DO at an average rate ranging from 213 to 233 mg/kg/hr with values as low as 108.6 and as high as 362.8 (Kindschi et al. 1991, Taguchi and Liao 2011, Svendsen et al. 2012). The optimal DO concentration for Rainbow Trout is poorly studied. Raleigh et al. (1984) reported that the optimal DO concentration is at least 7 mg/L at temperatures of 15°C or less. For temperatures greater than 15°C, the optimal DO concentration is at least 9 mg/L. Rainbow Trout will avoid water with DO concentrations less than 5 mg/L, and levels approximately 3 mg/L and less are known to be lethal (Raleigh et al. 1984). Newer research indicates that, in order to avoid negative effects, farmed trout require a minimum DO concentration of 5–6 mg/L; the lethal limit is 2–3mg /L and mortality can occur at 4 mg/L (Welker et al. 2019).

Table C1. Oxygen depletion index calculations at the proposed #0814x site for five scenarios. Current speed ranges are based on the proponent's data for the upper six meters of the water column and DO levels on DFO data also for the upper six meters of the water column. Respiration rates for Rainbow Trout are taken from the literature (Kindschi et al. 1991, Taguchi and Liao 2011, Svendsen et al. 2012).

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Current speeds 0–18.6 cm/s	18.6	3.16 (mean)	3.16 (mean)	0	0
Ambient DO levels 2.75–5.16 mg/L	5.16	5.16	5.16	5.16	5.16
Respiration rates 108.6–362.8 mg/kg/hour	108.6	108.6	223 (mean)	108.6	223 (mean)
Sub-lethal threshold DO 5–6 mg/L	5	5	-	5	-
Mortality threshold DO 2–4 mg/L	-	-	4	-	4
Oxygen depletion index value	2.84	0.49	1.72	n/a	n/a

Benthic

To assess the potential impact of a fish farm on benthic oxygen levels, it is assumed that a benthic oxygen consumption rate of 60 mmol·m-2·d^{-1} (1,343.46 ml·m-2·d^{-1}) is representative of conditions under a fish net-pen and 10 mmol·m-2·d^{-1} is a representative reference rate. Thus, a farming operation could increase benthic oxygen consumption by about 50 mmol·m-2·d^{-1}. Assuming the water within the first 1 m above the sediment has an ambient dissolved oxygen concentration of 5 ml·L^{-1} (5,000 ml·m^{-3}) and the water is not moving, i.e., the water is not replaced, the benthic respiration would deplete the oxygen within the bottom 1 m of water under the net-pens within about 3.7 d. If the ambient dissolved oxygen concentration was lower than 5 ml·L^{-1} or if the depletion was to a threshold rather than zero, this time would be shorter. For example, if the threshold were 4 ml·L^{-1}, the depletion time would be less than 1 day (0.7 d). However, since the water under the net-pens is moving, oxygen is being replenished at the same time as it is being consumed. For a representative bottom current speed and farm length of 1 cm·s^{-1} and 1,000 m, respectively, the time for a parcel of water to transit the site is about 1.2 d. Thus, the time to deplete the oxygen in the near-bottom layer is of the same order of magnitude as the time to refresh the oxygen. Therefore, the near-bottom oxygen concentration could be low and is sensitive to oxygen demand, water current speed, vertical mixing within the site, and horizontal advection of low oxygen waters located in the deeper water within and beyond the site.

Appendix D: Cumulative Occurrence of Human Activities

A visual representation of the pattern of human use can help illustrate the distribution of human activities in the ocean and identify overlaps among them. Spatial data for marine activities within a 5 km radius of site #0814x (hereafter the "area of interest") were collated from a larger inventory of human activities developed for the Maritimes Region (Province of Nova Scotia 2021). Human activities that occurred on a "local" scale were selected, defined as those operating over small spatial scales (i.e., < 10 km) or from point-sources that could produce a localized zone of impact, such as marine recreation, aquaculture, or benthic structures. The most recent years of data or up-to-date information were included when possible.

The impact of human activity in the marine environment often extends beyond their immediate occurrence. A "zone of influence" was used to estimate the actual footprint of the stressor(s) (assumed to be) caused by an activity. To estimate the geographical extent of each activity beyond its location of occurrence, a buffer was added that radiated from the point source of the activity. The furthest distance from the activity's origin was determined for the same or most similar activity based on extensive reviews presented in Ban and Alder (2008), Ban et al. (2010), and/or Clarke Murray et al. (2015) ("buffer radius"; see Table D1). The radius for the proposed finfish site was taken from the pelagic-PEZ, as it also overlaps with the benthic-PEZ and, therefore, represents the maximum occurrence of both benthic and pelagic stressors.

The zone of influence of land-based activities on coastal environments is more difficult to determine than for activities that occur directly in marine waters. Land-based human activities occurring in the watersheds surrounding Whycocomagh Bay are described earlier in the document. To estimate a zone of influence for the potential effects of runoff and pollution from these land-based sources, the location pour point of the Skye River draining into Whycocomagh Bay within the area of interest was used, and the buffer radius was based on the stream order of the river (after Clarke Murray et al. 2015). While the majority of effects of roads within the watershed are included from the pour-point buffer, there are several sections of the bay where the Trans-Canada Highway comes in very close proximity to the shoreline; runoff from this source would drain directly into Whycocomagh Bay, instead of first flowing through the watershed. Using information from Forman and Deblinger (2000), the effects resulting from the close proximity of the highway were estimated along sections of the shoreline where the highway is ≤ 30 m away and by setting a rectangular buffer extending 500 m into the bay from the shoreline.

A GIS approach (ESRI ArcGIS version 10.6.1) was used to map each activity and its associated buffer. The map was then converted to a raster (100 m x 100 m grid). Where activities (and their buffers) overlapped, the values in the grid cell were summed to estimate the total number of overlapping human activities per grid cell.

Table D1. Human activities occurring in the area of interest and buffer radius applied beyond location of activity occurrence. The buffer radius is the furthest extent an activity's impact extends from its origin.

Activity category	Activity	Buffer radius (m)
Aquaculture	Finfish sites	2,790
	Shellfish sites	500
Boat traffic	Recreational (boating, kayaking)*	2,000
Land	Wastewater inputs and runoff from land-use (i.e., industry, agriculture, urban cover, roads)	5,873
	Trans-Canada Highway	500

*impact of small docks, ramps, wharves contained within this buffer as well

This Report is Available from the:

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Aussi disponible en français :

MPO. 2021. Examen par la Région des Maritimes du MPO de la modification proposée des limites de la pisciculture marine dans la baie Whycocomagh des lacs Bras d'Or, en Nouvelle-Écosse. Secr. can. de consult. sci. du MPO. Rép. des Sci. 2021/041.

From: Feehan, Jennifer
Sent: December 6, 2021 3:49 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: AQ#1430 & 1431 - Additional Info Response

Hi Ed,

This is a follow up to AQ#1430 and AQ#1431 new marine finfish applications in North and South Aberdeen, Whycocomagh Bay.

DFO's feedback to date was provided to the applicant and they submitted the attached responses regarding small craft harbour use and additional context on the amended development plans and experimental site.

Please let me know if you have any additional questions.

Kind regards,
Jennifer

Jennifer Feehan
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2021.04.21-Applica nt response to Netv

2021.04.21-Applica nt response to Netv

NOTE: Please refer to correspondence above (see April 21, 2021) for the attachments in this email.

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Friday, February 4, 2022 2:28 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

Hi Ed,

I am wondering if you could provide an update on the status of DFO's network review for aquaculture applications AQ#1430 and AQ#1431.

Many thanks,
Jennifer

Jennifer Feehan

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From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
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Subject: RE: AQ#1430 & 1431 - Status Update

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Hi Jennifer,

We are waiting for departmental approval of the CSAS Report to proceed with finalization of our advice. Sorry for the delay.

Thanks,
Ed

Edward Parker (he/him | il/lui)
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From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: February 4, 2022 3:41 PM
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Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

Hi Ed,

Thank you for the update.

Cheers,
Jennifer

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Tuesday, March 22, 2022 9:56 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

Hi Ed,

Just wanted to check in to see if there are any updates on DFO's advice for AQ#1430 and AQ#1431.

Thanks,
Jennifer

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: March 22, 2022 1:32 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

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Hi Jennifer,

Unfortunately, we are still waiting for departmental approval of the CSAS Report to proceed with finalization of our advice. Sorry for the delay.

Ed

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From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
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To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

Thanks, Ed. Appreciate the quick response.

Cheers,
Jennifer

From: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Sent: Tuesday, June 14, 2022 10:51 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

Hi Ed,

Just checking in to see if there are any updates on the CSAS Report and DFO's advice for AQ#1430 and AQ#1431.

Thanks,
Jennifer

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: June 14, 2022 11:09 AM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>
Subject: RE: AQ#1430 & 1431 - Status Update

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Hi Jennifer,

The CSAS report can be found here: https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2022/2022_022-eng.html

I am awaiting advice from FFHPP which is undergoing review and approval.

Thanks,
Ed

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Ecosystems and Oceans Science | Sciences des écosystèmes et des océans

Canadian Science Advisory Secretariat
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DFO MARITIMES REGION SCIENCE REVIEW OF THE PROPOSED MARINE FINFISH AQUACULTURE NEW SITES, WHYCOCOMAGH BAY, BRAS D'OR LAKES, NOVA SCOTIA

Context

We'koqma'q First Nation has made an application to the Province of Nova Scotia for the addition of two new sites (#1430 and #1431) in Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia. This is in addition to their existing sites (#0814, #0845, and #0600), for which boundary amendment proposals were previously reviewed (DFO 2021b).

As per the Canada-Nova Scotia Memorandum of Understanding on Aquaculture Development, the Nova Scotia Department of Fisheries and Aquaculture (NSDFA) has forwarded this application to Fisheries and Oceans Canada (DFO) for review and advice in relation to DFO's legislative mandate. The application was supplemented by information collected by the proponent as required by the *Aquaculture Activities Regulations* (AAR).

To help inform DFO's review of this application, the Regional Aquaculture Management Office has asked for DFO Science advice on the Predicted Exposure Zones (PEZs) associated with the proposed range of aquaculture activities, and the predicted impacts on susceptible fish and fish habitat, including sensitive Species at Risk (SAR) listed species, susceptible fishery species and the habitats that support them.

Specifically, the following questions are addressed:

Question 1. Based on available data for each site and scientific information, what is the predicted exposure zone from the use of approved fish health treatment products in the marine environment, and the potential consequences to susceptible species?

Question 2. Based on the available information for each site, what are the Ecologically and Biologically Significant Areas, Species listed under Schedule 1 of the *Species at Risk Act*, fishery species, Ecologically Significant Species, and their associated habitats that are within the predicted benthic exposure zone and vulnerable to exposure from the deposition of organic matter? How does this compare to the extent of these species and habitats in the surrounding area (i.e., are they common or rare)? What are the anticipated impacts to these sensitive species and habitats from the proposed aquaculture activity?

Question 3. How do the impacts on these species from the proposed aquaculture sites compare to impacts from other anthropogenic sources (including existing finfish farms)? Do the zones of influence overlap with these activities and if so, what are the potential consequences?

Question 4. To support the analysis of risk of entanglement with the proposed aquaculture infrastructure, which pelagic aquatic Species at Risk make use of the area, and for what duration and when?

Question 5. What populations of Salmonids are within a geographic range that escapees are likely to migrate to? What are the size and status trends of those populations in the escape exposure zone for the proposed sites? Are any of these populations listed under Schedule 1 of the *Species at Risk Act*?

This Science Response Report results from the regional Science Response Process on June 21–22, 2021, DFO Maritimes Region Review of the Proposed Marine Finfish Aquaculture Sites, Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia.

Background

We'koqma'q First Nation is requesting the addition of two new Rainbow Trout (*Oncorhynchus mykiss*) sites, #1430 North Aberdeen and #1431 South Aberdeen. The proposed sites are located in Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia, to the east of Indian Island and Aberdeen. The proponent's overall development plan for Whycocomagh Bay also includes the amalgamation of the existing #0814, #0845, and #0600 sites into an expanded #0814x site to the west of Indian Island, which has already been reviewed separately from sites #1430 and #1431. The existing sites have operated for over a decade in the area. The location of the proposed #1430 North and #1431 South Aberdeen sites, and proximity to the #0814x site, is shown in Figure 1.

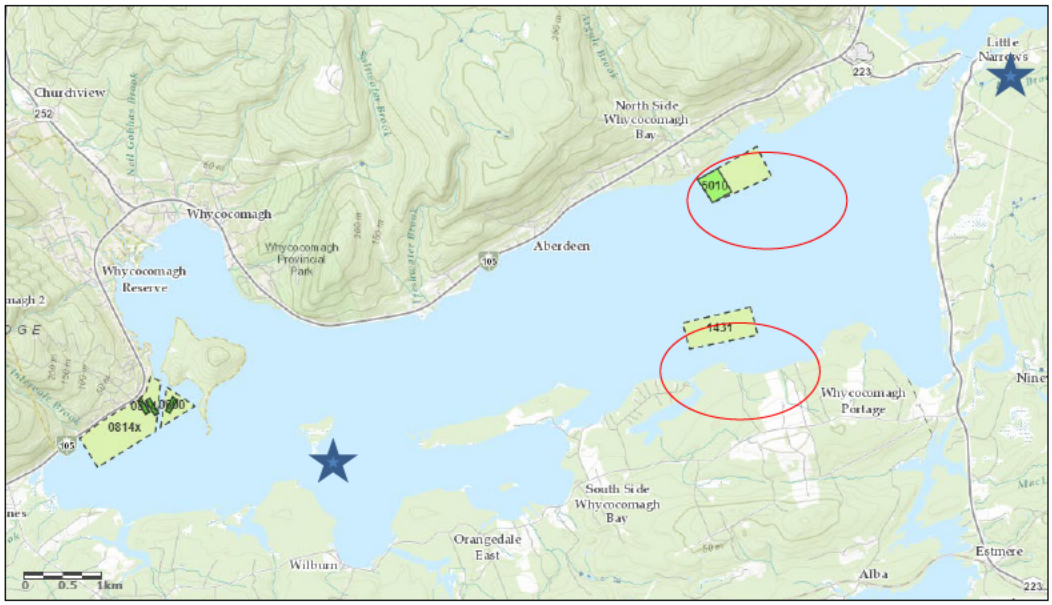


Figure 1. Map of finfish aquaculture site leases in Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia. Light green polygons represent proposed finfish leases requested by We'koqma'q First Nation. Sites #1430 and #1431 are circled in red, and the others represent the proposed #0814x site. Experimental site #5010 is also shown as occupying a portion of the proposed #1430 site. Maps were retrieved from the Nova Scotia Department of Fisheries and Aquaculture Site Mapping Tool website on February 11, 2021. The stars denote an approximate location of shallow sills.

An experimental site (#5010) to evaluate the use of different sized polar circle cages has been operating in the location of the proposed #1430 North site since 2019, covering approximately 10 ha. The proposed #1430 and #1431 site additions would increase the total area under lease in the eastern end of the bay to approximately 68 ha. The lease infrastructure is currently proposed as one row of 10 cages at both #1430 and #1431; however, the cage array placement and configuration may not be static. The intent is for the stocked net-pen arrays to be variable in location within the lease boundaries to allow for fallowing of sections, based on results from environmental monitoring, while other sections within the leases are stocked. Figure 2 shows the site development plans with bathymetry.

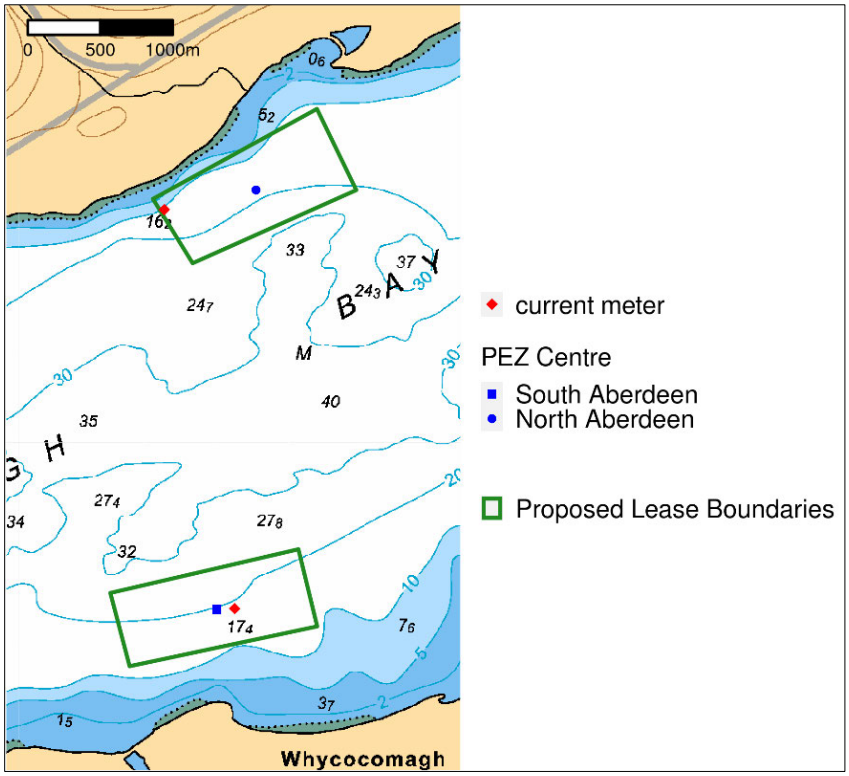


Figure 2. Proposed lease area (green) overlaid on CHS chart #4278 (depth is in metres). The centres of each lease for predicted exposure zone calculations and locations of proponent-deployed current metres are also shown in blue and red, respectively.

The sites are located in an area with a relatively homogenous bottom type. The proponent's baseline survey was conducted in October 2018. Sediment sampler log sheets of data describe the seabed as consisting predominantly of black to brown mud (n = 6 stations for North Aberdeen; n = 5 stations for South Aberdeen). Linkages between sediment sulfide concentrations and overall sediment conditions such as oxic state and macrofauna diversity at aquaculture sites are well documented (Pearson and Rosenberg 1978, Hansen et al. 2001, Wildish et al. 2001, Hargrave et al. 2008). Although described as consisting of black mud, sediment sulfide concentrations measured during the baseline survey ranged from 2–79 µM, indicating Oxic A levels based on Hargrave (2010) oxic categories.

The proposed maximum number of Rainbow Trout anticipated to be on each site at any one time is 550,000 based on the proposed maximum number of fish per net-pen, for a total of 1,100,000 fish between the two sites. This is in addition to the 720,000 Rainbow Trout at the proposed #0814x site, for a potential maximum of 1,820,000 farmed Rainbow Trout in Whycocomagh Bay. The staggered and complex nature of stocking throughout the year due to factors such as ice cover and grow-out periods of 5–10 months make it challenging to know how many fish will be on each site at any given time throughout the year.

All basins within the Bras d'Or Lakes, including Whycocomagh Bay, are part of the Bras d'Or Lakes Ecologically and Biologically Significant Area (EBSA). The Bras d'Or Lakes EBSA is a unique inland sea of special importance for Atlantic Herring, Atlantic Cod, sea urchin, and eelgrass (DFO 2006). Given the significant heterogeneity of ecosystems within the Bras d'Or Lakes, bays were evaluated separately. While Whycocomagh Bay is a unique area of the Lakes, it does not have the habitat diversity or qualities to support a diverse and productive biota, and the enclosed nature of Whycocomagh Bay further limits the impact that it has on the Bras d'Or Lakes ecosystem as a whole (DFO 2006). For these reasons, Whycocomagh Bay was ranked as the second least significant EBSA of the Lakes. Regardless, DFO (2004) states that EBSAs are intended as a tool for calling attention to an area that has particularly high ecological or biological significance to facilitate provision of a greater-than usual degree of risk aversion in management of activities in such areas.

Biological surveys conducted in the Bras d'Or Lakes of fish, algae, copepods, polychaetes, and foraminifera show Whycocomagh Bay as one of two areas with the least variety of species (Parker et al. 2007). Currently, Whycocomagh Bay also has limited fisheries. Lobster, Oyster, Scallop, and Rock Crab are the most significant commercial benthic invertebrate species in the Bras d'Or Lakes. Of these species, only wild Oyster production has been significant in Whycocomagh Bay (Parker et al. 2007), but they have been over fished in their native habitats within the Lakes and only small wild pockets still exist (Lambert 2002). The proposed sites are located in statistical reporting grid 363 of Lobster Fishing Area (LFA) 27, where the commercial season runs from May 15–July 15. Over the last five years, there have been up to five licenses that have reported fishing in grid 363, representing 0.1–0.4% of total annual landings in LFA 27. Within grid 363, Lobster is known to be caught as close to the proposed site as Little Narrows (Figure 1). Commercial groundfish and pelagic fisheries within the Bras d'Or Lakes have included Winter Flounder, Cod, and Herring. Of these species, trawl surveys conducted from 1952–2000 identified Cod and Winter Flounder in Whycocomagh Bay (Parker et al. 2007). The Winter Flounder fishery ended in 1992, and directed fisheries for 4VsW and 4Vn Cod were both closed in 1993 due to the depleted status of the stocks (Fanning et al. 2003, DFO 2002). The Skye River estuary in Whycocomagh Bay supports limited recreational fisheries for American Eel, Mackerel, and Smelt. The Unama'ki Institute of Natural Resources has identified that the area is important for American Eel, Atlantic Salmon, Herring, Mackerel, Cod, Smelt, Oyster, Painted and Snapping Turtle, and Otter trapping (S. Coffen-Smout, DFO, pers. comm.). A workshop sponsored by the Bras d'Or Collaborative Environmental Planning Initiative (CEPI) was held in 2006 to gather information about the environment of the Bras d'Or Lakes and watershed lands based on traditional ecological knowledge. Traditional ecological knowledge was considered the knowledge held about the environment of the Bras d'Or by local people who are familiar with it from their experiences living and working in the area over a number of years.

It was also anticipated that knowledge passed down from previous generations to the participants could be captured (CEPI 2006). During the workshop, it was noted that the majority of these populations have declined (CEPI 2006). Additionally, comments from DFO Resource Management note Food, Social, and Ceremonial (FSC) Lobster fishing efforts along the shoreline near the proposed sites.

American Eel is currently assessed as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and is under consideration for listing under the *Species at Risk Act* (*SARA*). Eastern Cape Breton (ECB) Atlantic Salmon occupy rivers in Eastern Cape Breton that drain into the Bras d'Or Lakes (DFO 2014a) and are located in Salmon Fishing Area (SFA) 21. Traditional ecological knowledge indicates that wild Atlantic Salmon in the area have declined in numbers and size (CEPI 2006, Parker et al. 2007). ECB Atlantic Salmon were assessed as Endangered by COSEWIC during the most recent Salmon assessment in 2010. In 2019, all rivers within SFA 19 were closed to Salmon fishing all year, with the exception of the Middle, Baddeck, and North rivers. These three rivers were open to catch-and-release angling during certain times of the year. Food, Social, and Ceremonial (FSC) allocations were available to First Nations on these three rivers; however, FSC harvest was discouraged where rivers are not expected to exceed their conservation egg requirement in a 2019–2020 Atlantic Salmon, Plamu, Conservation Harvesting Plan, and no harvest of returning Salmon was reported by Indigenous communities in ECB for 2019 (DFO 2020a).

Rainbow Trout are an introduced species to the Atlantic coast. Historically, escape events totaling over one million individuals from commercial Rainbow Trout aquaculture operations in the Bras d'Or Lakes have been recorded. These escapees were observed to have formed a feral, reproducing population in the late 1980s (Sabean. 1983 cited in Alexander et al. 1986), which still exists today. There have been escape events at the existing sites within Whycocomagh Bay. Available information on reported escapes in recent years indicates single escape events in 2017 and 2018, and multiple escapes in 2019, with numbers ranging from hundreds to tens of thousands.

The proponent's submission indicates that Grey Seal and Harbor Seal are the only marine mammals known to transit Whycocomagh Bay. Baseline data collected in 2018 at the proposed #1430 and #1431 sites denoted the common presence of Sea Stars. This is consistent with knowledge that echinoderms have been a dominant invertebrate biomass collected during surveys of the Bras d'Or Lakes (Tremblay 2004). Also commonly noted at baseline survey stations were bivalve shells and "strands of", "loose", "sparse" or "dead" eelgrass.

Whycocomagh Bay is noted for its high salt marsh concentration within the Bras d'Or Lakes (Hastings et al. 2014). These wetland habitats support a number of important ecological functions and host a diversity of species not typically found in other habitats (Parker et al. 2007). Little is known about the present abundance and distribution of eelgrass in Whycocomagh Bay, and in the broader Bras d'Or Lakes. Video surveys conducted in 2007, 2009, and 2010 indicated locations of eelgrass presence in parts of Whycocomagh Bay (Vandermeulen 2016). Eelgrass is known to have historically provided important spawning grounds for Herring (Denny et al. 1998) and may also have a significant contribution to the productivity of the Bras d'Or Lakes. Eelgrass is designated as an Ecologically Significant Species (ESS) because of the numerous ecological functions it provides, including habitat for fish and their prey.

Other human activities with potential impacts on habitats and species in the area include anthropogenic nutrient loading, coastal highway runoff, boating traffic, Lobster fishing, and additional aquaculture activities. Land-based inputs from the sub-watershed stem from forestry and agricultural activities, parks and trails (and other tourism), abandoned mines, transmission lines, suspected contaminated sites, and an increasing population and road density (Parker et al. 2007, Kelly et al. 2021).

Key oceanographic, farm infrastructure, and grow-out characteristics of the new sites considered in the following analyses are summarized in Table 1.

Table 1. Key oceanographic, farm infrastructure, and grow-out characteristics of the proposed sites (n/a = not applicable).

Characteristic	#1430 North Aberdeen	#1431 South Aberdeen	Additional Information	Source
Sea-level elevation range (m)	0.57	0.57	n/a	• Drozdowski et al. (2014)
Depth of tenure (m)	5.0–28.0 18.0 m (at centre)	11.0–28.0 20.0 m (at centre)	• Relative to vertical chart datum (lowest normal tide) • PEZ calculation depth = 37 m (North) and 32 m (South)	• CHS chart #4278 (2016) • Proponent submission
Current speed (cm/s) • **Surface**	0.1–42.0	0.0–22.6	• Surface currents measured at 13.7 m (North) and 15.7 (South) m above the bottom • Midwater currents measured at 9.7 m above the bottom • Bottom currents measured at 2.7 m above the bottom • Dominant flow directionality to the SW (North), and E–W (South)	• Proponent submissions (41-day records each) • July–August 2018 (South) • October–December 2018 (North)
• **Midwater**	0.1–40.8	0.0–10.2		
• **Bottom**	0.1–35.4	0.0–7.7		
Salinity (PSU)	8.8–23.2	8.8–23.2	• A lower salinity surface layer is present in spring (8.8–17 PSU) • Values in proponent submission were from Tremblay 2002 (not site-specific)	• Strain et al. (2001) • DFO data collected in 2014 and 2020 from < 10 km away (Appendix A)

Characteristic	#1430 North Aberdeen	#1431 South Aberdeen	Additional Information	Source
Temperature (°C)	-0.6–25.0	-0.6–25.0	• Ice cover experienced in winter months (maximum in early March) • Values in proponent submission were from data collected by NSDFA at site #1430	• Strain et al. (2001) • DFO data collected in 2014 and 2020 from < 10 km away (Appendix A) • Proponent submission
Dissolved oxygen (mg/L)	0–13.6	0–13.6	• Typically anoxic below 25 m	• Strain et al. (2001) • DFO data collected in 2014 and 2020 from < 10 km away (Appendix A)
Substrate type	Mud	Mud	n/a	• Proponent submission
Net-pen array configuration	1 x 10 array	1 x 10 array	• Arrays will not be static within lease boundaries	• Proponent submission
Individual net-pen circumference (m)	100	100	n/a	• Proponent submission
Net-pen depth (m)	8	8	n/a	• Proponent submission
Grow-out period (months)	5–10	5–10	n/a	• Proponent submission
Maximum number of fish on site	550,000	550,000	n/a	• Proponent submission

Characteristic	#1430 North Aberdeen	#1431 South Aberdeen	Additional Information	Source
Initial stocking number (fish/pen)	55,000	55,000	n/a	• Proponent submission
Average harvest weight (kg)	2.0	2.0	n/a	• Proponent submission
Expected maximum biomass (kg)	1,100,000	1,100,000	n/a	• Proponent submission
Individual net-pen volume (m^3)	6,350	6,350	n/a	• Proponent submission
Maximum stocking density (kg/m^3)	18.0	18.0	n/a	• Proponent submission

Sources of Data

Information to support this analysis includes data and information from the proponent, data holdings within DFO, publicly available literature, and registry information from the *SARA* database. Additionally, supporting information files submitted to DFO for consideration and used in its review are shown in Table 2.

Table 2. Summary table of information files submitted to DFO.

Description	Filename
Proposed development plan package	1) North Aberdeen Development Plan FINAL.pdf 2) AQ1431Application, Development Plan, Appendix A–E.pdf 3) Revisions to 1430 1431.pdf
Proponent-collected raw current meter data	1) North Aberdeen - Speed Direction and Waves.xlsx 2) South Aberdeen - Current Speed and Direction.xlsx
Baseline survey data submission	1) Waycobah new lease coords and maps with depths.xlsx 2) WBN A3_Video and sediment sampler log sheet.docx 3) WBS A4_Video and sediment sampler log sheet.docx 4) B2 Video Monitoring Summary of Observations for Baseline sample Site WBN.docx 5) B2 Video Monitoring Summary of Observations for Baseline sample Site WBS.docx 6) WBN A4 Video Monitoring Transect_Summary of Observations for Station.docx 7) WBS A4 Video Monitoring Transect_Summary of Observations for Station.docx 8) Data for Organix North Aberdeen.xlsx 9) Data for Organix South Aberdeen.xlsx 10) WBN_10_10_18.xlsx 11) WBN_10_23_18_2016_NSDFAAudit_Data_Check.xlsx 12) WBS_10_23_18_2016_NSDFAAudit_Data_Check.xlsx

The following DFO databases were searched for species records within the Predicted Exposure Zones (PEZs) of the proposed sites #1430 and #1431 and returned no records:

- Ecosystem Research Vessel (RV) Survey
- Industry Survey Database (ISDB)
- Maritime Fishery Information System (MARFIS)
- Whale Sightings database

Site Description

Whycocomagh Bay is separated from the remainder of St. Patrick's Channel to the east by a shallow sill (approximately 12 m deep) at Little Narrows. A mid-bay sill (approximately 7 m deep) that further separates a pair of deep basins (40 and 48 m) also exists. The #1430 and #1431 sites are located in the eastern portion of the bay in an area that displays both shallow and deep characteristics. The sites are located to the north and south of the 40 m deep basin. The approximate location of these sills are shown in Figure 1.

The sills at Little Narrows and mid-bay effectively isolate the deep areas of the bay from the rest of the Bras d'Or Lakes and restrict flushing. This bathymetric isolation means there is no direct horizontal connection to other deepwater areas, and it has resulted in an environment of limited mixing and the longest flushing time (approximately two years) in the Lakes. This slow-water exchange facilitates the hypoxic and anoxic characteristics of these water bodies below the surface layer (Petrie and Bugden 2002, Gurbutt and Petrie 1995, Gurbutt et al. 1993). The deep basin of the western half of Whycocomagh Bay is typically anoxic below 25 m, a characteristic that is naturally-occurring and appears consistent over time. Data have also indicated that the deep portion of the eastern half has oxygen concentrations reduced by as much as 70% of their maximum potential value (Krauel 1975, Lambert 2002, Petrie and Bugden 2002, Strain and Yeats 2002). This deep hypoxic and anoxic water has periodically been known to be pushed into the shallower waters during phenomena, such as large storm events, although the exact mechanism is not well understood. The existing sites within the western end of Whycocomagh Bay have experienced oxygen issues in the past, including reported kills of on-site farmed fish.

Wave information provided by the proponent was collected at the proposed #1430 North Aberdeen site in the eastern end of Whycocomagh Bay. It is reasonable to assume waves experienced at the #1431 South Aberdeen site would be similar based on proximity within 2 km of each other. The maximum wave height measured at the site was 1.08 m during the late fall and early winter.

Current meters were deployed in 18 m of water over 41 days each at the #1430 North and #1431 South sites. Preliminary evaluation of the current data for #1430 identified some potential anomalous data in the upper three depth bins, so near-surface current data were taken from the bin 13.7 m from the seabed, approximately 4.5 m from the surface. Data were collected from July–August 2018 and October–December 2018 at the #1431 South and #1430 North sites, respectively. The difference in timing likely accounts for the differences in maximum observed current speeds, with measured current speeds at the #1430 North site being larger than those at the #1431 South site (Table 1). This presents a unique opportunity to consider seasonality influences in the potential spatial extent of exposure, and demonstrates that current speeds vary with complexities of seasonal, wind, and storm influences that may or may not be captured in the records. Based on proximity of the sites, it is not unreasonable to assume that, at any given time, current speeds at both sites would be similar.

At the #1431 South site, at all depths, 64–97% of observed current speeds were from 0–5 cm/s and less than 1% were greater than 15 cm/s. Although the current speeds recorded at #1430 North were faster than those measured at #1431 South, with a much smaller proportion (33–50%) of the observed current speeds in the 0–5 cm/s range, the majority of the observed current speeds (77–94%) were also less than 15 cm/s. At #1431 South, the mean current

speeds were up to 4.6 cm/s in the near surface, with a trend of decreasing current speeds with increasing depths. At the #1430 North site, except for a slowing near the bottom, mean current speeds varied little with depth and were from 9.2–10.7 cm/s. The overall current dynamics at #1430 and #1431 are “low energy” with respect to marine finfish farming.

In general, supplemental information to proponent-submitted data on physical characteristics in the vicinity of the #1430 and #1431 sites is lacking in Departmental and public data holdings. Water temperature, salinity, and dissolved oxygen ranges reported in Table 1 are from data collected in the western half of Whycocomagh Bay (Appendix A**)**. The physical characteristics are reasonably expected to be similar given the close proximity of sites (i.e., < 10 km). The water temperature and salinity at the #1430 and #1431 sites are expected to have minimal variation on tidal time scales but larger variations on wind-driven and seasonal time scales. Review of satellite images and information submitted by the proponent indicates the presence of variable ice cover in the winter.

The amount of stratification varies seasonally, but all data indicate a less dense surface layer (Appendix A). Similar stratification patterns can be expected at the proposed sites based on similar bathymetry and the general circulation patterns in the region (Petrie and Bugden 2002); therefore, estimates of exposure zones at the proposed sites #1430 and #1431 should consider stratification influences with respect to water current speed selection.

Benthic Predicted Exposure Zones and Interactions

The benthic-PEZ is a first-order estimate of the size and location of benthic areas that may be exposed to the deposit of waste feed and feces released from a site, which can result in organic loading. Additionally, it is assumed that the PEZ associated with the release of in-feed drugs is also dominated by the deposition of medicated waste feed and feces. Both organic loading and the deposit of in-feed drugs can result in direct habitat and infaunal species impacts on the benthic community and seafloor. These predicted exposure zones are precautionary overestimates used as a tool for identifying, albeit at a larger spatial scale, areas of potential overlap with species and habitats that are sensitive to these exposures.

Benthic Predicted Exposure Zone

The dominant factors that will affect estimations of benthic exposure are farm layout, feeding practices, and oceanographic conditions, such as the bathymetry, water currents and stratification. The low flushing rate of Whycocomagh Bay makes it particularly sensitive to deleterious substance inputs as they cannot be quickly dispersed by water movement (Parker et al. 2007). Benthic exposure can also occur in relation to the use of bath pesticides, if used, particularly at sites over or near shallow depths such as the proposed sites. However, this will be considered in the Pelagic-PEZ and Interactions section of this review.

First-order estimates of the spatial extent of the benthic-PEZ related to organic effluent and in-feed drugs from the proposed #1430 North and #1431 South Aberdeen sites were calculated. Limited available data suggests that sinking rates of Rainbow Trout feed and feces are within similar ranges to that of Atlantic Salmon. Sinking rates of different particulate materials released from farmed fish (e.g., waste feed and feces) vary, and the distribution of sinking speeds amongst the released particles is poorly characterized. Therefore, the minimum sinking rate for

each category of particle (Table 3), along with the maximum depth within 500 m of the proposed site, and maximum observed mid-water current speed in the proponent's record were used. The fish, and the release of waste feed and feces, are within the 8 m surface layer. Since these particles sink from the net-pens to the seabed, a mid-water current speed in the proponent's record was selected as representative.

Table 3. First order estimates of the potential horizontal distances travelled by sinking particles such as waste feed pellets, fish feces and in-feed drugs and pesticides released from the fish farm (settling rates obtained from literature; Findlay and Watling 1994, Chen et al. 1999, Cromey et al. 2002, Chen et al. 2003, Sutherland et al. 2006, Law et al. 2014, Bannister et al. 2016, Law et al. 2016, Skøien et al. 2016). A. is site #1430 North Aberdeen and B. is site #1431 South Aberdeen.

A.	**#1430 NORTH ABERDEEN (max. depth within 500 m = 37 m)**			
Particle type	Min. sinking rate (cm/s)	Max. observed current (cm/s)	Horizontal distance travelled (m)	PEZ radius (m)
Feed	5.3	40.8	285	782
Feces	0.3	40.8	5,032	5,529
Fines and Flocs	0.1	40.8	15,096	15,593

B.	**#1431 SOUTH ABERDEEN (max. depth within 500 m = 32 m)**			
Particle type	Min. sinking rate (cm/s)	Max. observed current (cm/s)	Horizontal distance travelled (m)	PEZ radius (m)
Feed	5.3	10.2	62	580
Feces	0.3	10.2	1,088	1,606
Fines and Flocs	0.1	10.2	3,264	3,782

PEZs are a circular zone typically centered over the middle of the proposed net-pen array and represent the outer limit for potential exposure. In this instance, a precautionary approach was taken in estimating the PEZs by centering over the proposed lease given the proponent's intent to move the net-pen array around within the lease boundaries. The maximum distance from the centre to the edge of the proposed lease boundaries was added to the displacement distance to obtain the PEZ radius. Although represented by a circle, the benthic footprint is more likely a curved ellipse with a shape that is dependent on local current flow.

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, except for in areas of anticipated overlaps where cumulative exposures may occur. The feed-PEZ is anticipated to have the greatest intensity of impacts and is conservatively a circle centered on the lease as seen in Figure 3.

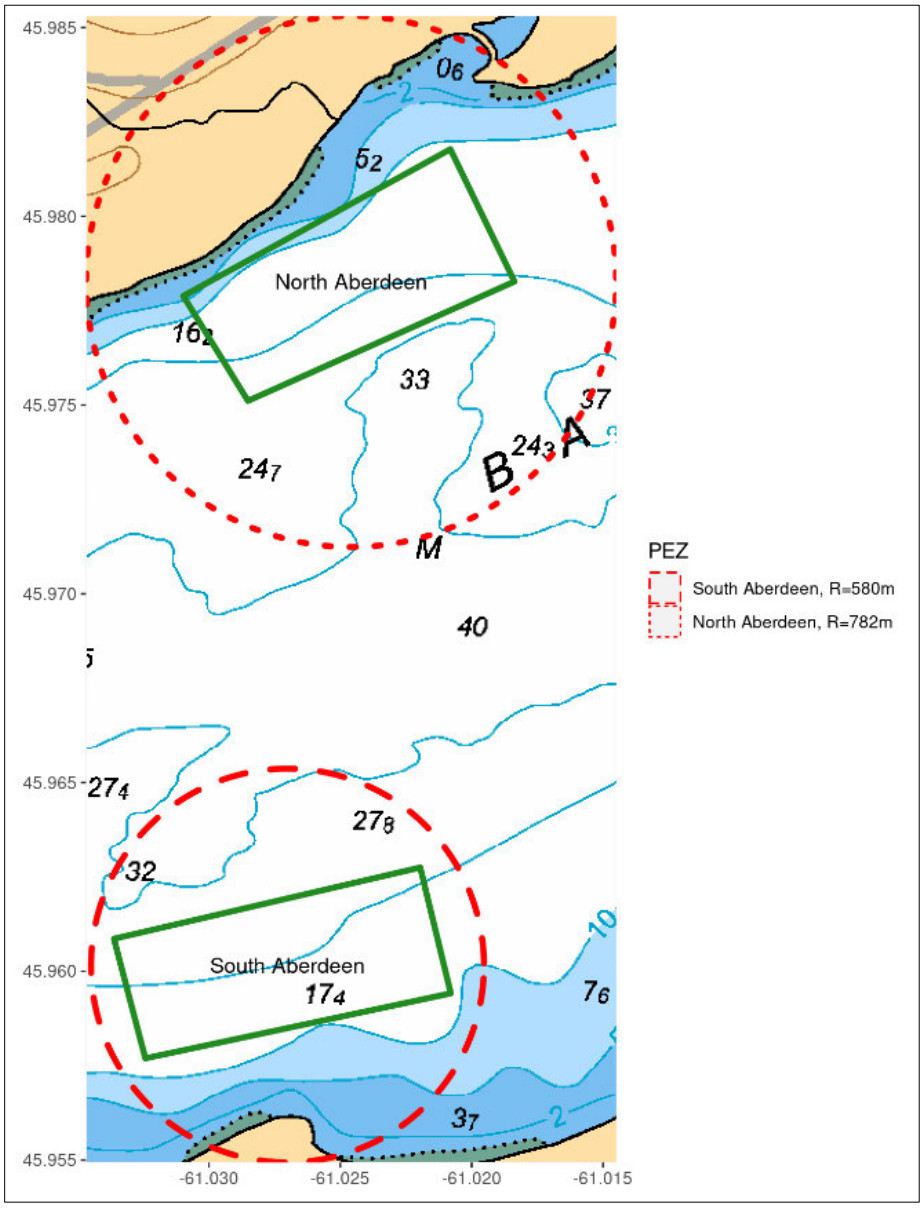


Figure 3. Benthic-PEZs for the #1430 North and #1431 South Aberdeen proposed sites using the waste feed minimum sinking rate are shown in red overlaid on CHS chart #4278 (depth is in meters). PEZs were estimated for fall-winter at the #1430 North Aberdeen site, and for summer at the #1431 South Aberdeen site.

Based on the feed-PEZs, there are no overlaps between the benthic deposition zones where smothering and oxic-state changes are anticipated to occur due to organic loading (Figure 3). However, the spatial extent of the PEZs based on feces provides a better indication of the full area that could be exposed to any in-feed drugs used. Potential overlaps in areas of feces deposition are predicted (Figure 4).

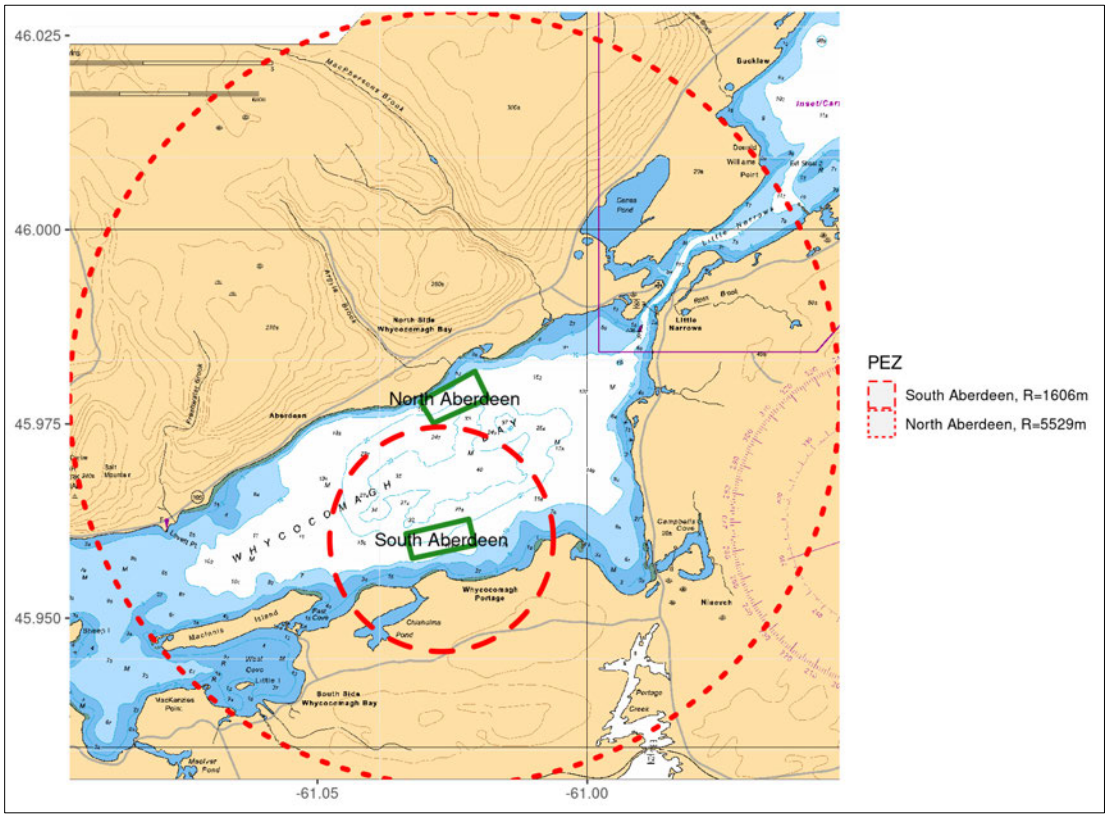


Figure 4. Benthic-PEZs for the #1430 North and #1431 South Aberdeen proposed sites using the feces minimum sinking rate are shown in red overlaid on CHS chart #4278 (depth is in meters). PEZs were estimated for fall-winter at the #1430 North Aberdeen site, and for summer at the #1431 South Aberdeen site.

The extent of the benthic-PEZs at the #1430 North site provide an indication of the full area that may be exposed to deposition of material during the fall-winter, as compared to the #1431 South site providing an indication of the area exposed during summer. However, applying the PEZ radius estimated during the summer months to both sites still predicts PEZ overlaps with respect to feces deposition. Conversely, using the maximum observed current speed during the fall-winter months to estimate PEZs for the #1431 South site would result in larger PEZs for that site and encompass some areas that are not covered in Figures 3 and 4. It should also be noted that there may be overlaps in the exposure zones for fines and flocs between the proposed Aberdeen sites and the sites located in the western end of Whycocomagh Bay.

Current- and wave-induced bottom resuspension is not explicitly considered for these first-order estimates of exposure. However, waste particles are unlikely to extend beyond the benthic-PEZ estimated for fines and flocs. The overall potential impacts of redistribution and flocculant deposition is unknown, but impacts are not anticipated to occur at levels where significant changes are predicted.

The total benthic area impacted within Whycocomagh Bay is expected to increase based on the proposed additions in lease area and production at the existing site in the western end (reviewed separately) and the addition of these two new sites. Areas of the benthic environment

at the existing sites in the western end of Whycocomagh Bay have historically reported elevated levels of sulfides, reaching concentrations ≥ 3,000 and 6,000 µM. The location of the proposed #1430 and #1431 sites in the eastern end of Whycocomagh Bay demonstrate similarities with respect to bottom type, hypoxia and anoxia, and restricted flushing. It is therefore reasonable to suggest that similar challenges may be experienced at these locations with the addition of fish and consequent deposition of organic matter.

Since 2015, *AAR* reporting indicates that the existing sites in Whycocomagh Bay have not used in-feed drugs.

Susceptible Species Interactions

Species are considered to be susceptible within the benthic-PEZ if they are sessile at any life stage and are sensitive to either low oxygen levels, smothering, loss of access to the site, or exposure to in-feed drugs, if used. This includes species such as crustaceans and bivalves. Specific consideration was also given to the presence of certain sensitive sessile species, such as sponges, corals, and eelgrass, and critical habitat for *SARA*-listed species in the baseline survey data, scientific literature, and Departmental biological data holdings. When the available data were limited, consideration as to whether the benthic substrate type is suitable for the growth of these species was considered.

Departmental holdings of biological data from Whycocomagh Bay are sparse, and database searches of the PEZs returned no records. The ability to delineate present-day spatial overlaps between species distributions and the benthic-PEZs for sites #1430 and #1431 is limited; however, available information indicates that wild Oysters, Lobster, and eelgrass are present within the benthic-PEZ.

Oyster beds have been known to exist historically in Whycocomagh Bay, but present-day distributions within the bay are unknown. American Oyster leases that may have been established upon existing wild beds are present within Whycocomagh Bay but are located outside of the benthic-PEZs to the west of the proposed sites. These sites are also not currently in production due to a parasitic disease known as Multinucleate Sphere Unknown X (MSX). Given their sessile nature, Oysters are sensitive to increased siltation that could result in smothering due to excess deposition that exists within the benthic-PEZ. There is traditional ecological knowledge of increased silt deposition having contributed to the decline of Oysters in other areas of the Bras d'Or Lakes (CEPI 2006). Bivalves in the vicinity of net-pens elsewhere have also been shown to have measurable quantities of in-feed pesticides such as Emamectin Benzoate (EB). Currently, hazard information is primarily based on acute exposures; however, it does not indicate a high level of risk (Burridge et al. 2011). While the PEZ does encompass areas along the shoreline that meet the depth criteria for Oyster (i.e., mostly < 2 m, although some found up to 11 m; Mackenzie et al. 1997), and presence of bivalve shells were noted in the baseline survey, the majority of water depths within the benthic-PEZ are outside of the preferred habitat range for Oysters in the area. Additionally, the predominantly soft substrate type in the area is likely not suitable given that Oyster larvae typically require coarser-grained habitats for settlement. For these reasons, wild Oysters are not anticipated to be present in large aggregations within the benthic-PEZ.

It is known that Lobster fishing occurs along the shoreline near the proposed sites and in Little Narrows, indicating the likely presence of Lobster within the benthic-PEZ. In-feed anti-Sea Lice drugs, such as EB, have been shown in lab studies to have lethal toxic effects to crustaceans and can induce sub-lethal effects, including premature moulting (Burridge et al. 2000, Waddy et al. 2002, Burridge et al. 2008). Additionally, increased sedimentation associated with the proposed aquaculture activities may preclude the settlement of larval Lobster. However, the bottom habitat near the proposed sites where the greatest intensities of exposure are anticipated is not considered ideal habitat for Lobster settlement (or juvenile Lobster) given their preferential (but not exclusive) selection for hard-bottom substrates. Therefore, while Lobster may be present, they are not anticipated to be present in large aggregations within the benthic-PEZ.

Eelgrass is known to be present throughout the Bras d'Or Lakes and is not restricted to Whycocomagh Bay itself. Video surveys conducted in Whycocomagh Bay in 2009 and 2010 (Vandermeulen 2016) indicated potential spatial overlap between areas of patchy and continuous eelgrass coverage and the benthic-PEZs for all particle types (e.g., feed, feces, and fines and flocs; Figures 5a–c). Proponent-submitted baseline data collected in 2018 also describes "strands of", "loose", "sparse" or "dead" eelgrass at a number of stations sampled throughout the proposed leases (Figures 5a–c). Review of the baseline survey information shows the presence of eelgrass wrack at depths below which eelgrass can grow, confirming the presence of eelgrass in the vicinity and indicating that deposition of eelgrass detritus can occur here.

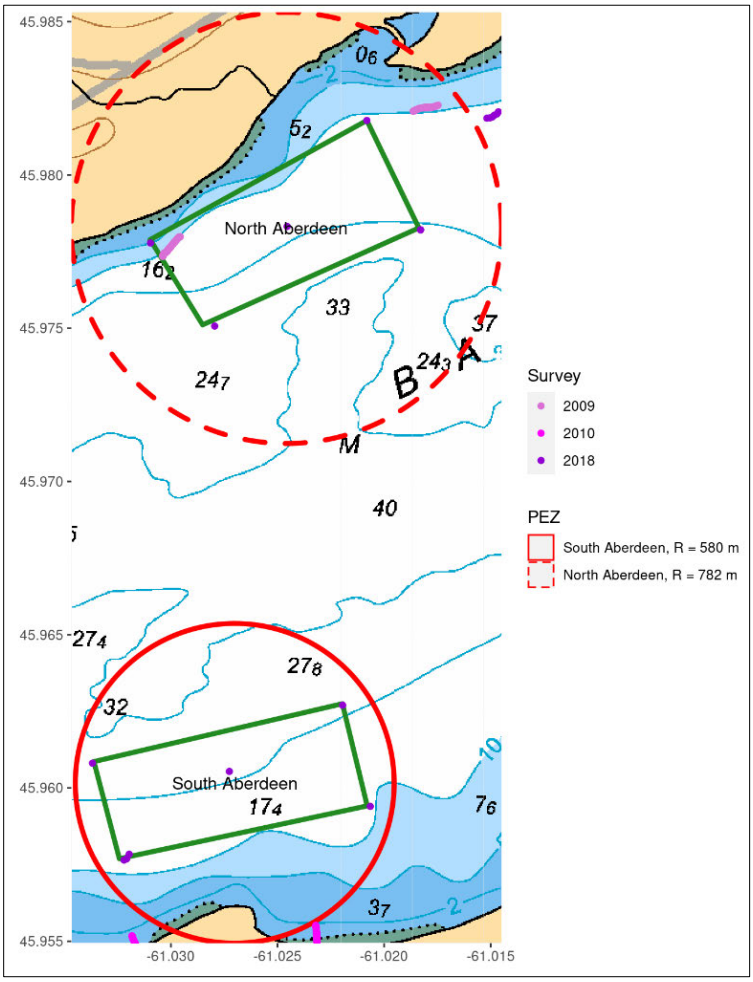


Figure 5a. Locations of identified eelgrass presence in Whycocomagh Bay from surveys conducted in 2009 and 2010 (Vandermeulen 2016), and 2018 (proponent-submitted baseline survey) overlaid on CHS chart #4278 (depth is in meters). The proposed leases are shown in green. The benthic-PEZs for feed are shown in dotted and solid red circles for the North and South Aberdeen sites, respectively.

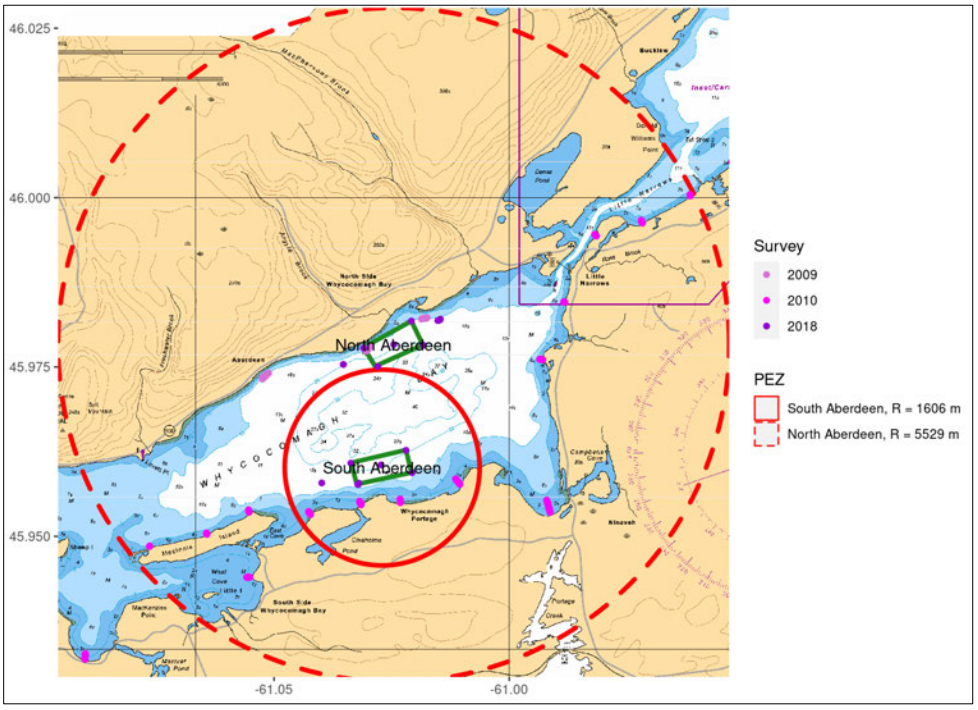


Figure 5b. Locations of identified eelgrass presence in Whycocomagh Bay from surveys conducted in 2009 and 2010 (Vandermeulen 2016), and 2018 (proponent-submitted baseline survey) overlaid on CHS chart #4278 (depth is in meters). The proposed leases are shown in green. The benthic-PEZs for feces are shown in dotted and solid red circles for the North and South Aberdeen sites, respectively.

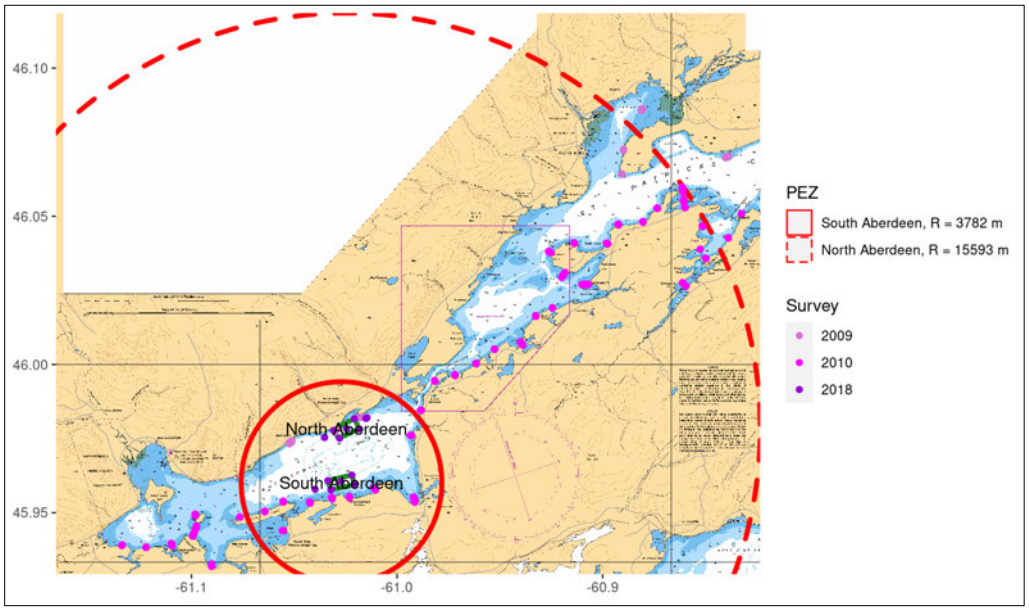


Figure 5c. Locations of identified eelgrass presence in Whycocomagh Bay from surveys conducted in 2009 and 2010 (Vandermeulen 2016), and 2018 (proponent-submitted baseline survey) overlaid on CHS chart #4278 (depth is in meters). The proposed leases are shown in green. The benthic-PEZs for fines and flocs are shown in dotted and solid red circles for the North and South Aberdeen sites, respectively.

Eelgrass beds along the coast of Atlantic Canada typically occur in shallow water depths up to 12 m (DFO 2009). However, Vandermeulen (2016) noted the presence of the majority of macrophytes in the Bras d'Or Lakes occurring in depths less than 3 m. This depth limitation means that eelgrass is unlikely to be present directly beneath the net-pens, and interactions within the benthic feed-PEZ will likely have few effects. Benthic feces, fines, and flocs will be transported further, potentially encompassing more locations of historically identified eelgrass habitat (Figures 5b and 5c); however, the organic deposition outside of the benthic feed-PEZ is not expected to occur at levels where oxic state or sediment biogeochemistry changes are predicted. Given the bathymetry of the area and the apparent 3 m depth limit for eelgrass occurrence in the Bras d'Or Lakes, potential eelgrass habitat within the PEZ is largely restricted to the shallow fringe immediately adjacent to land.

Benthic enrichment from organic matter deposition can have variable effects on eelgrass, ranging from stimulation of growth at low levels to mortality at high levels (Vinther and Holmer 2008). If present in sufficient quantity, suspended particulates can also impact the underwater light climate, reducing light availability for photosynthesis with implications for eelgrass growth, morphology, and persistence (Wong et al. 2020). The use of in-feed drugs may also affect associated communities such as grazers.

Even in the absence of anthropogenic activities, such as aquaculture, it is likely that eelgrass in this area is subject to multiple stressors and would be expected to exhibit high spatial and temporal variability when compared to areas with more suitable conditions. Optimal salinity for eelgrass growth ranges from 20–26 psu, although it can tolerate lower values for short periods (DFO 2009). While no site-specific salinity measurements are available from the site, salinity within the bay ranges from 8.8 to 23.2 psu with a lower range in surface waters in spring (8.8 to 17 psu) (Table 1). It is likely that the salinity regime would contribute to reduced growth rates and spatial fragmentation. Whycocomagh Bay experiences seasonal ice cover in the winter, which can further contribute to spatial fragmentation through scouring. Additionally, the natural light regime may also be affected by the presence of dissolved organic matter of terrestrial origin. Aside from these physical factors, the presence of the invasive European Green Crab, which is capable of causing stress to eelgrass habitat, has also been documented in the Bras d'Or Lakes (Vercaemer and Sephton 2016).

Eelgrass in the area may be particularly vulnerable to additional stressors and/or additional intensity of the same stressors given the observed poor conditions of eelgrass beds in the Bras d'Or Lakes (Vandermeulen 2016). However, given the documented suboptimal environmental conditions at the site, expanded aquaculture activities may not result in a measurable difference in eelgrass health and persistence.

Pelagic Predicted Exposure Zones and Interactions

The pelagic-PEZ is a first-order estimate of the size and location of pelagic areas that may be exposed to potentially toxic levels of registered pesticides, if used. Additionally, there may be shallow benthic areas with the potential for exposure. The release of pest control products from a site can result in direct impacts on susceptible species in both the water column and on the seafloor. These predicted exposure zones are precautionary overestimates used as a tool for

identifying, albeit at a larger spatial scale, areas of potential overlap with species and habitats that are sensitive to these exposures.

Pelagic Predicted Exposure Zones for Pesticides

The two pesticides available for use in bath treatments (e.g., tarp bath and well-boat) are azamethiphos and hydrogen peroxide. The size of the PEZ depends on the decay and/or dilution rate of the pesticide, a chosen concentration threshold, and choice of horizontal water current depth. The PEZ is estimated using toxicity information of azamethiphos, the most toxic registered pesticide. Health Canada's Pest Management Regulatory Agency (PMRA) has assessed that the two registered pesticides (hydrogen peroxide and azamethiphos), and their breakdown products, are expected to remain in suspension since they do not bind with organics or sediments and do not accumulate in organisms tissues. Their half-lives are days to weeks, which influences their persistence in the environment at concentrations considered to be toxic (PMRA 2014, 2016a, 2016b, 2017).

Since the application of tarp bath treatments occurs in the surface waters, the maximum near-surface current speed is used in the calculation of the pelagic-PEZ for azamethiphos, and is assumed to persist throughout the duration of the dilution or decay scale (Figure 6). A three-hour duration was used to estimate the time required for the maximum azamethiphos target treatment concentration of 100 µg/L to dilute to the HCPMRA environmental effects threshold of 1 µg/L (DFO 2013).

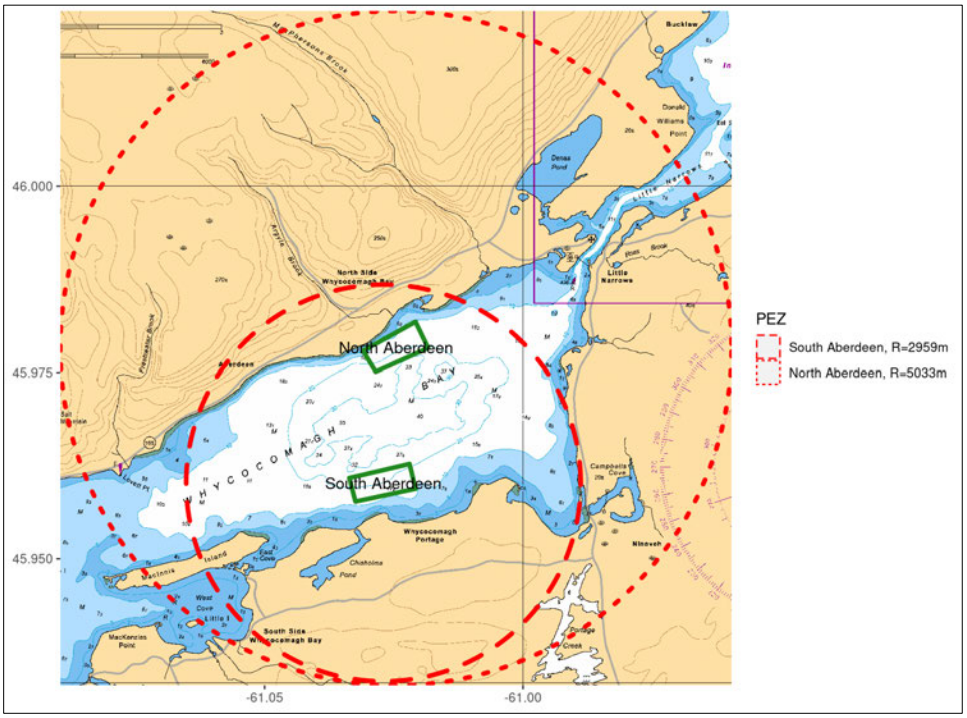


Figure 6. Pelagic-PEZs for the #1430 North and #1431 South Aberdeen proposed sites are shown in red overlaid on CHS chart #4278 (depth is in meters). PEZs were estimated for fall-winter at the #1430 North Aberdeen site, and for summer at the #1431 South Aberdeen site.

The pelagic-PEZ is calculated assuming use of tarp bath treatments, regardless of whether all net-pens would meet the PMRA treatment conditions for application, given the larger exposure zone anticipated to result from a tarp treatment versus a well boat.

The pelagic-PEZ is typically estimated by adding the horizontal transport distance to the longest length scale of the proposed net-pen array. Since the location of net-pens within the leases is unknown given the proponent's intent to move the arrays within the lease boundaries, a precautionary approach was taken in estimating the PEZ. The horizontal transport distance was added to the longest length scale of the proposed lease (i.e., the largest distance from the lease centre to the boundary), rather than the length scale of the net-pen arrays, and centering the PEZ on the lease.

The pelagic-PEZ does not quantify the intensity of duration of exposure, nor include a frequency of exposure. The zones do not imply that areas within the pelagic-PEZ have the same exposure risk. The intensity of exposure is expected to be highest near the net-pens and decrease as distance from the net-pens increases, except for in areas of anticipated overlaps where cumulative exposures may occur.

The exposure is expected to primarily occur in the pelagic zone; however, areas within the pelagic-PEZ where the bathymetry is less than 10 m may also be at risk of exposure to toxic pesticide concentrations. The PMRA restriction on the use of azamethiphos at shallow sites (i.e., no application to tarp net-pens in water depths ≤ 10 m) may be applicable to some net-pens. The low flushing rate of Whycocomagh Bay also makes it particularly sensitive to chemical inputs as they cannot be quickly dispersed by water movement (Parker et al. 2007), and chemical inputs may be more likely to interact with local bottom communities.

If treatment is used at both sites simultaneously, exposure overlaps associated with pesticide releases are predicted (Figure 6). The extent of the pelagic-PEZ at the #1430 North site provides an indication of the full area that may be exposed during the fall-winter, as compared to the #1431 South site providing an indication of the area exposed during summer. Applying the PEZ radius estimated during the summer months to both sites still predicts that overlaps between PEZs would occur. Conversely, using the maximum observed current speed during the fall-winter months to estimate the PEZ for the #1431 South site would result in a larger PEZ for that site and encompass some areas that are not covered in Figure 6. It should be noted, however, that seasonal ice cover in Whycocomagh Bay may render the use of bath pesticides during winter months not possible.

AAR reporting since 2015 regarding the application of pesticides indicates that the existing sites in Whycocomagh Bay have not required the use of pesticides such as azamethiphos.

Susceptible Species Interactions

Species were considered to be susceptible within the pelagic-PEZ if they are known to have sensitivities to pesticide exposures, should treatment be required. Specific consideration was given to the potential for interactions with crustaceans due to their higher relative susceptibility to the pesticides used in aquaculture.

Azamethiphos tarp bath treatments are reported to pose risk levels that are below the established level of concern (LOC) for marine fish (including larval fish), marine mammals, and

algae, but they are above the LOC for pelagic and benthic invertebrates. While in the environment, azamethiphos is toxic to non-target crustaceans, including all life stages of Lobster (PMRA 2016b, PMRA 2017, Burridge 2013, DFO 2021a).

Departmental holdings of biological data from Whycocomagh Bay are sparse, and database searches of the PEZs returned no records. The ability to delineate spatial overlaps between species distributions and the pelagic-PEZs for sites #1430 and #1431 is limited. Lobster present in the Little Narrows area may be exposed to toxic levels of pesticides but are unlikely to be in large aggregations throughout the majority of the pelagic-PEZ. Surveys conducted in 2009, 2010, and 2018 identified both live eelgrass and wrack eelgrass within the pelagic-PEZ (Figure 7). There is no evidence for a direct effect of pelagic pesticides on eelgrass; however, indirect effects could occur through changes to its associated mesograzer communities.

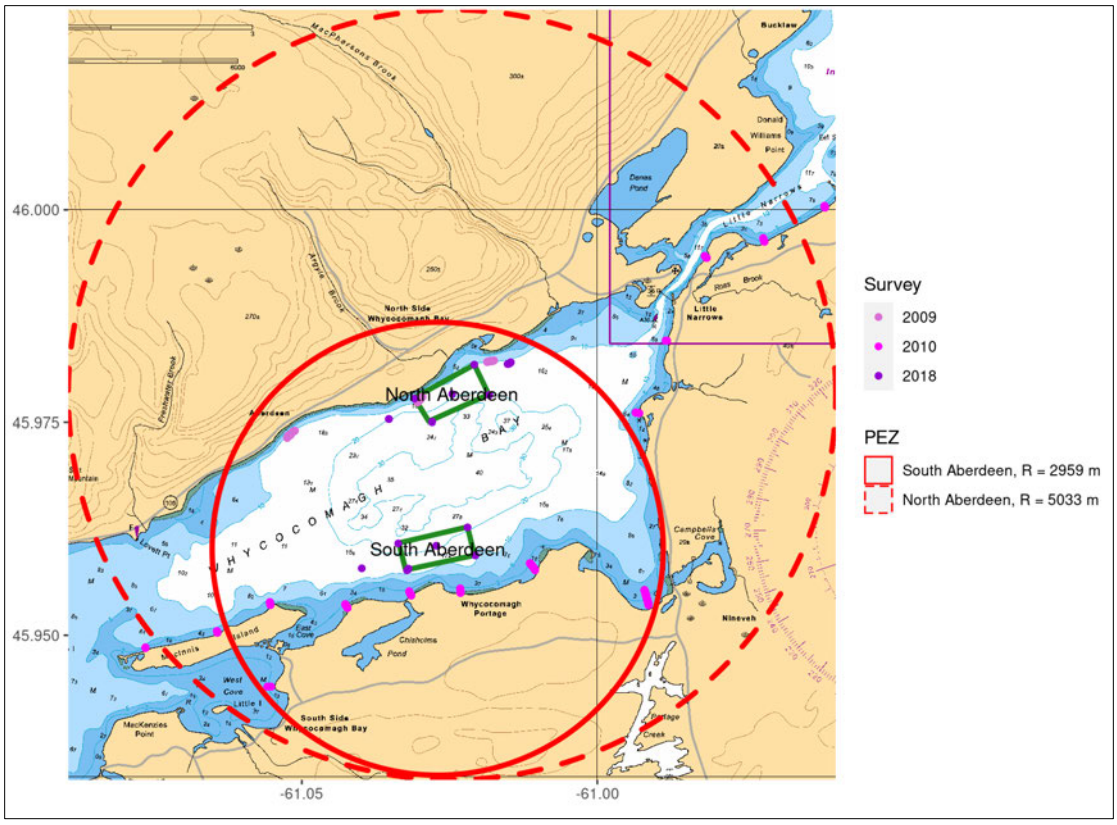


Figure 7. Locations of identified eelgrass presence in Whycocomagh Bay from surveys conducted in 2009 and 2010 (Vandermeulen 2016), and 2018 (proponent-submitted baseline survey) overlaid on CHS chart #4278 (depth is in meters). The proposed leases are shown in green. The pelagic-PEZs shown in dotted and solid red circles for the North and South Aberdeen sites, respectively.

There is limited literature describing the effects of aquaculture pesticides on seagrasses. Like most aquatic plants, seagrasses concentrate non-essential chemicals in their tissues (Lewis and Devereux 2009). The targeted nature of azamethiphos treatments on crustaceans suggests the diverse mesograzer communities associated with the eelgrass, such as amphipods and isopods, may be impacted (Wong 2018). A loss of grazers could result in higher plant fouling that shades plants and leads to reduced growth or increased mortality. Mesograzers are also an

important food source for fish, and a loss of grazers could have cascading trophic effects for fish that use eelgrass beds as nurseries and feeding grounds. Crustacean-specific pesticides could also have an effect on the invasive Green Crab.

Given the potential for wide distribution of pesticides throughout the bay, eelgrass beds, and/or their trophic components, could possibly be impacted. Eelgrass is known to be present throughout the Bras d'Or Lakes and is not unique to Whycocomagh Bay itself.

Escapee Interactions

Interactions between farm escapees and wild populations can be both genetic and ecological. Genetic interactions result from exchange of genetic material (hybridization) and/or the alteration of selection pressures (indirect genetic effects) (Lacroix and Fleming 1998). Ecological interactions can involve the transfer of diseases, predation, or competition for space, food, or mates between wild and escaped farm fish (Lacroix and Fleming 1998). These ecological interactions can result in negative genetic impacts on wild populations (reviewed in Bradbury et al. 2020).

Crosses between Atlantic Salmon and Rainbow Trout have not produced any viable offspring (Refstie and Gjedrem 1975, Sutterlin et al. 1977, Blanc and Chevassus 1982). Therefore, direct genetic effects due to interbreeding between escaped Rainbow Trout and the native Atlantic Salmon population is not a concern. However, escaped Rainbow Trout could reproduce with and contribute to the feral populations of Rainbow Trout that exist in rivers leading into the Bras d'Or Lakes, potentially leading to increases in population size.

Ecological interactions can occur between escaped Rainbow Trout and native Atlantic Salmon, regardless of life stage. Ecological interactions and deleterious effects on wild Salmon from competition from introduced invasive Rainbow Trout are well documented, and they show that Rainbow Trout have stronger competitive abilities than Atlantic Salmon (Houde et al. 2017, Van Zwol et al. 2012a). There is a growing body of evidence linking low marine survival to delayed effects from the physical and biological interactions experienced by juvenile Salmon in rivers (Russel et al. 2012, Blanchet et al. 2007). At the individual level, behavioural strategies and dominance hierarchies of Salmon have been shown to be strongly disrupted by invasive Rainbow Trout, such that growth trajectories are affected (Blanchet et al. 2007, Van Zwol et al. 2012b). Some of these effects were linked to elevated stress hormones in Salmon when invasive trout were present (Van Zwol et al. 2012c). Rainbow Trout have also been shown to displace Atlantic Salmon out of preferred habitat and into increased competition with other native Salmonids, even at low trout densities (Hearn and Kynard 1986, Thibault and Dodson 2013).

These types of ecological interactions have been shown to change the selective landscape, resulting in changes to fitness-related allele frequencies (Bradbury et al. 2020). Ecological interactions can also lead to reduced Atlantic Salmon population size and consequently reduce their genetic diversity. Reduced population size and genetic diversity would in turn lead to increased susceptibility to genetic drift and impact of stochastic events. Given the known ecological interactions between Rainbow Trout and wild Atlantic Salmon, there is no reason to believe that the genetic outcome from interactions with escaped farmed Rainbow Trout would differ from that described in Bradbury et al. (2020).

While not native to Eastern Canada, Rainbow Trout have been stocked by the Province of Nova Scotia since the early 1900s, and there is now a successfully reproducing feral population in the Bras d'Or Lakes and the rivers and streams that flow into it (Madden and MacMillan 2010). Additionally, there have been multiple reported escape events at the existing aquaculture sites in Whycocomagh Bay. Madden and MacMillan (2010) noted that since Rainbow Trout aquaculture was introduced to the Bras d'Or Lakes in 1972, large escape events have been associated with an increased popularity of the Rainbow Trout fishery in the area. Data from Norway suggest that Rainbow Trout may escape at higher rates than Atlantic Salmon (Jensen et al. 2010, Skilbrei and Wennevik 2006).

In recent years, adult and juvenile Rainbow Trout have been observed in Middle, Baddeck, and Skye rivers during DFO assessment unit swim counts for ECB Salmon. In 2020, some observations of Rainbow Trout in both the Middle and Baddeck rivers were well upstream of the estuary (> 10 km river distance), and the presence of juvenile trout confirms that natural reproduction is occurring. Additionally, historic records have indicated the presence of Rainbow Trout in Indian, Gillis, and Breac rivers (Sabean 1983, Levy and Gibson 2014). This is consistent with the findings of Jonsson et al. (1993), who found reproductively mature escaped Rainbow Trout entered rivers in Norway, and heightens concerns about the continued use of diploid Rainbow Trout in both stocking and aquaculture.

The post-escape dispersal behaviour of Rainbow Trout is less well studied than Atlantic Salmon; however, a review of dispersal of escaped Salmonids suggests that Rainbow Trout may be slower to disperse than Atlantic Salmon (Dempster et al. 2018). The data shown by (Dempster et al. 2018) indicated that the majority of escaped Rainbow Trout were found to have dispersed by approximately 48 hours post escape, compared to < 24 hours for Salmon. That said, dispersal behavior of Rainbow Trout is also variable, with some fish remaining at the cage site for a period of time while others dispersed rapidly, and the number of fish that remained at the site decline over time (Blanchfield et al. 2009, Patterson and Blanchfield 2013). Rainbow Trout can disperse widely (Patterson and Blanchfield 2013, Veinott and Porter 2013), with individuals having been captured up to 1,760 km away from the site of escape (Jonsson et al. 1993). Their observed survival post-escape is mixed (Blanchfield et al. 2009, Bridger et al. 2001); however, escaped Rainbow Trout have been seen to survive for months to years (Jonsson et al. 1993, Patterson and Blanchfield 2013), successfully transition to wild feed (Nabaes Jodar et al. 2020, Rikardsen and Sandring 2006), and grow (Blanchfield et al. 2009, Jonsson et al. 1993, Patterson and Blanchfield 2013).

The above interactions and potential impacts are of particular concern to ECB Atlantic Salmon, which have been assessed as Endangered by COSEWIC since 2010. ECB Salmon support the last remaining recreational fishery and First Nations allocations in DFO Maritimes Region. There are ongoing monitoring efforts in Skye, Middle, and Baddeck rivers, which enter the Bras d'Or Lakes at approximately 6, 15, and 20 km, respectively, from the proposed #1430 and #1431 aquaculture sites. Both Middle and Baddeck rivers were below their conservation egg requirement in 2019 and have been for the previous 20 years (DFO 2020b), and the 2018 smolt estimate on Middle River was estimated among the lowest in recent years (albeit with large uncertainty) (DFO 2020b).

Gibson et al. (2014) identified commercial Salmonid aquaculture as a threat in both the marine and freshwater environment to the recovery potential for ECB Atlantic Salmon. While there are ongoing monitoring efforts and available information specific to the Middle, Baddeck and Skye rivers, all other known ECB Salmon rivers (Figure 8) are also within range of distances that farmed Rainbow Trout have been documented to travel following escape from aquaculture sites.

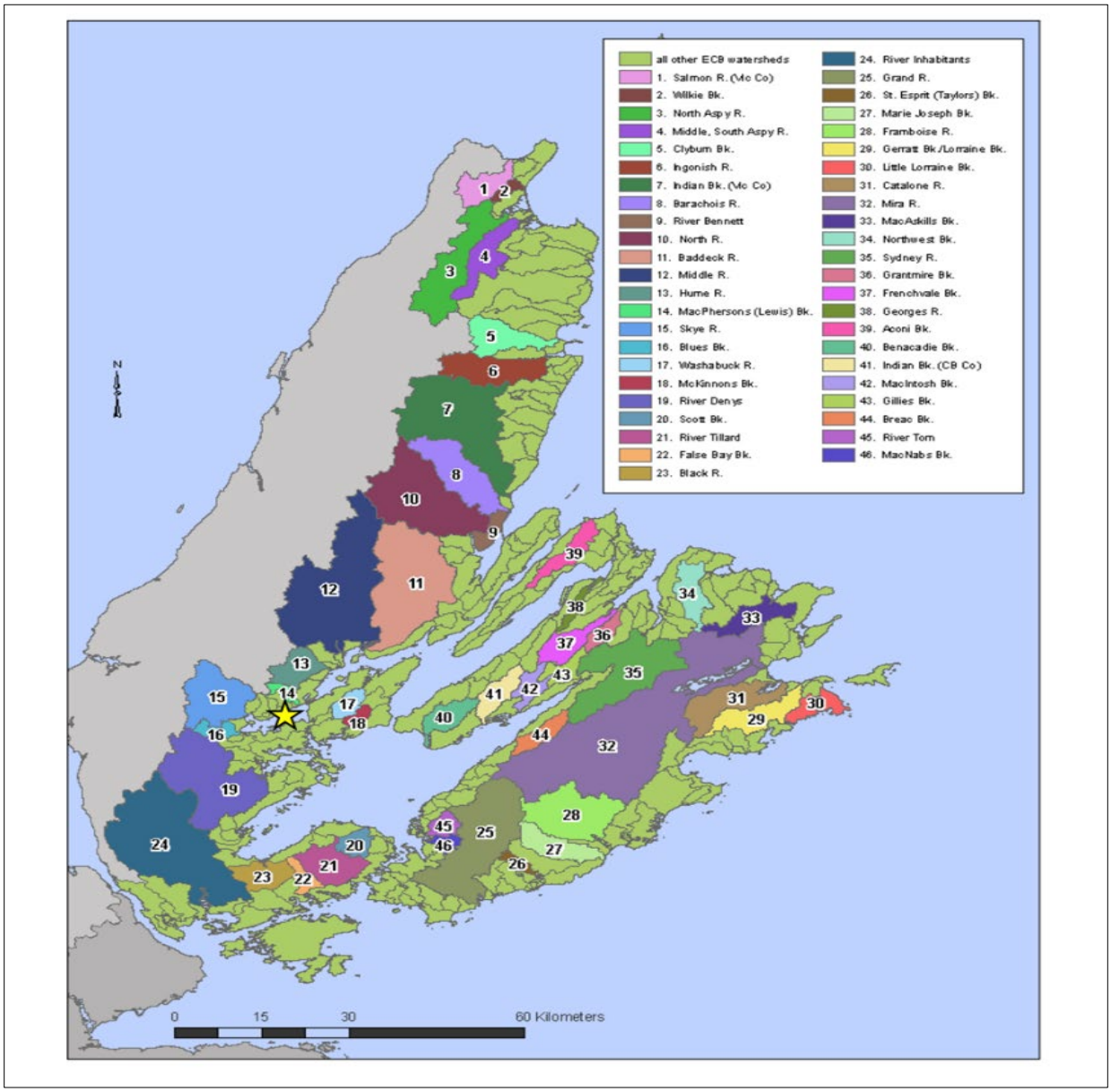


Figure 8. Location of known major watersheds associated with Eastern Cape Breton Atlantic Salmon rivers (Gibson et al. 2014). The yellow star represents the location of the proposed #1430 and #1431 aquaculture sites.

The use of sterile fish in marine cage aquaculture has been recommended in Newfoundland (DFO 2016). Additionally, the province of New Brunswick prescribes the use of sterile triploid

Rainbow Trout only in cage aquaculture as part of a process to mitigate risk to wild stocks as outlined in the New Brunswick Rainbow Trout Aquaculture Policy (NBDERD and NBDAAF 2016). Although not specific to Nova Scotia, these examples reinforce the use of sterile Salmonids in aquaculture to minimize adverse effects to wild Salmon from aquaculture. While sterile Rainbow Trout could still escape and interact with wild Salmon populations, they would not contribute to the feral reproducing population of Rainbow Trout in rivers leading into the Bras d'Or Lakes. Recapture efforts have had limited success elsewhere (Dempster et al. 2018). Moreover, efforts to determine escapee abundance in Norway resulted in the capture of both Rainbow Trout and Atlantic Salmon, and thus any recapture efforts for Rainbow Trout must take into consideration potential impacts on local Atlantic Salmon populations (Skilbrei and Wennevik 2006).

While the risks to ECB Salmon exist at the current leases in Whycocomagh Bay, they are expected to be at least proportional to the intensity of the farming activities in the area. Therefore, any increase in the total number of farmed trout in the area associated with the proposed #1430 and #1431 sites will also represent an increased risk to ECB Salmon. These concerns also need to be contextualized by other cumulative potential pressures, such as the presence of other introduced Salmonids (Brown Trout) and the additional continued stocking of diploid Rainbow Trout in the area for the purpose of sport-fishing.

Pest and Pathogen Interactions

Cultured fish may acquire endemic diseases and/or parasites such as Sea Lice from wild fish or from other farmed fish in the area (DFO 2014b). Density-dependent transmission is observed in many host-pathogen systems, including Sea Lice on Salmonid farms (Kristoffersen et al. 2013, Frazer et al. 2012). This can pose a significant health risk to farmed and wild fish when pathogen or parasite loads exceed certain levels, which may be reached faster with more hosts in an area (Krkošek 2010).

The low flushing rate of Whycocomagh Bay may contribute to the occurrences of outbreaks, given that pests and pathogens cannot be quickly dispersed by water movement and therefore may persist longer, if present. However, the lower salinity brackish waters of Whycocomagh Bay are expected to keep Sea Lice levels low. Studies have demonstrated that low salinity may prevent Sea Lice from thriving as they actively avoid low salinities (< 27 ppt), and even short-term exposures to low salinity water significantly compromises survival and host infectivity (Bricknell et al. 2006).

Available *AAR* data since 2015 confirms that no pest control products have been used at the existing sites in Whycocomagh Bay. The exact level of Sea Lice abundance is unknown and linking back to historical use of approved drugs and pesticides may not be a predictor of future disease outbreaks as production within the bay increases or as other influencing factors change. The addition of farmed fish to an area is expected to amplify both endemic pathogens and pests in that area, due to the increase in the number of host fish. However, the impact on wild susceptible fish species will depend on the duration and extent of their exposure to the farm, the increased concentration of pathogens and parasites, and their relative susceptibility to infection and disease within the environmental conditions found in Whycocomagh Bay, all of which are currently unknown.

Physical Interactions

Bycatch or entanglement of wild species associated with the placement of infrastructure are also potential interactions associated with aquaculture sites. Potential displacement of fishing activities or species from habitat due to added infrastructure is also addressed here.

Available information indicates that Harbour and Grey Seals are present in Whycocomagh Bay and may be present around the #1430 and #1431 proposed sites. Seasonal ice cover in Whycocomagh Bay from mid-December through April may limit their presence in the bay around the site infrastructure during the winter months when they are known to be most abundant in the Bras d'Or Lakes for feeding (Parker et al. 2007).

Recreational and Aboriginal fisheries in the area that may experience displacement associated with the placement of infrastructure in the water include American Eel (assessed as Threatened by COSEWIC and under consideration for *SARA*-listing), Lobster, Herring, Mackerel, Cod, Winter Flounder, Smelt, and Atlantic Salmon.

Estuaries associated with rivers containing freshwater habitats are also considered to be important habitat for ECB Atlantic Salmon as successful migration through these areas is required to complete the life cycle. Traditional Ecological Knowledge also indicates that, in addition to serving as a migratory pathway, the Bras d'Or Lakes serve as a staging area for returning adults and as an over-wintering areas for kelts (DFO 2014a).

The exact magnitude of exposure and physical interactions between fish and infrastructure at the proposed #1430 and #1431 sites are unknown. To date, there have been no reports of entanglements of wild species at the existing sites in Whycocomagh Bay. However, the significant increase in total leased area and infrastructure from these proposed sites suggests a larger potential for interactions between these species and the infrastructure, should these species be present.

Potential Cumulative Interactions

The entire area of interest surrounding the two aquaculture sites (#1430 North and #1431 South) is influenced by human activity (Figure 9). The larger, widespread pelagic-PEZ of the proposed sites results in spatial overlap among the proposed lease areas, as well as with all other human activities occurring in the area of interest.

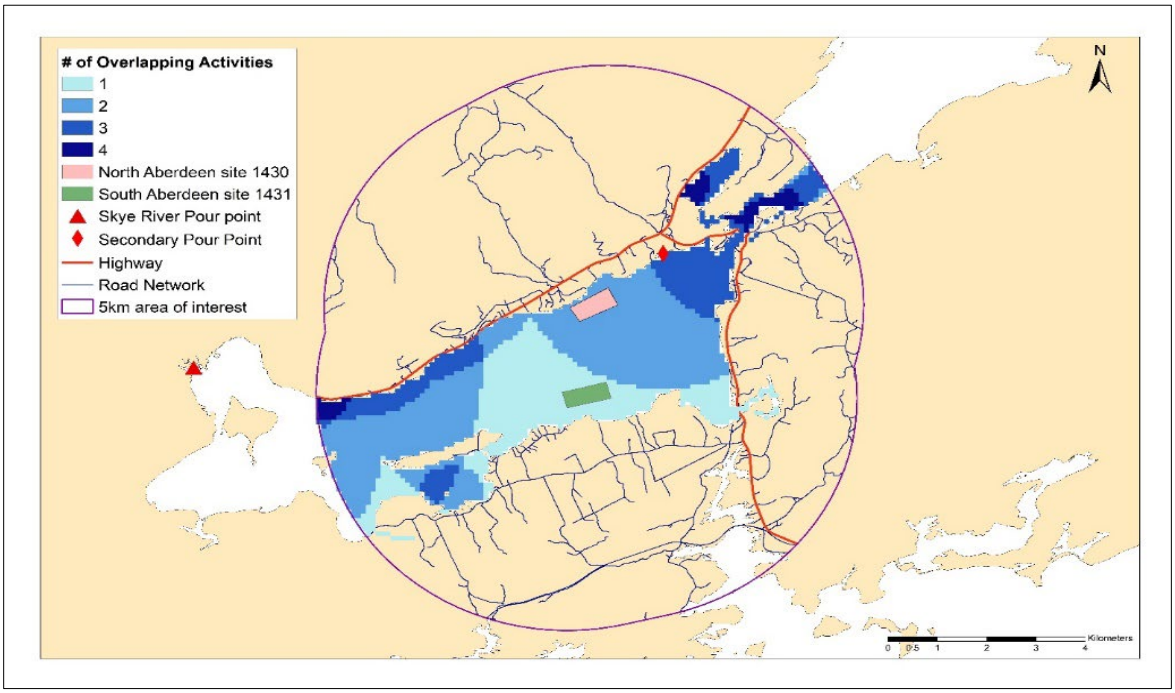


Figure 9. Number of overlapping human activities in each 0.01 km^2 grid cell (5 km radius from the centre of each site). The lease boundaries are represented by the green (#1431) and pink (#1430) rectangles. The red symbols (triangle and diamond) are the pour point locations (i.e., where the Skye River and secondary stream drains into the bay).

The number of overlapping activities is moderate, with approximately 50% of the area of interest being influenced by two co-occurring human activities in any given grid cell (Figure 10). Most human activities are concentrated in two locations: Little Narrows and the westernmost area towards Whycocomagh (Figure 9). Finfish aquaculture, then finfish aquaculture overlapping with nutrient loading, cover the largest spatial area along a central corridor within the area of interest (Figure 9). Appendix B provides methodology details of this analysis.

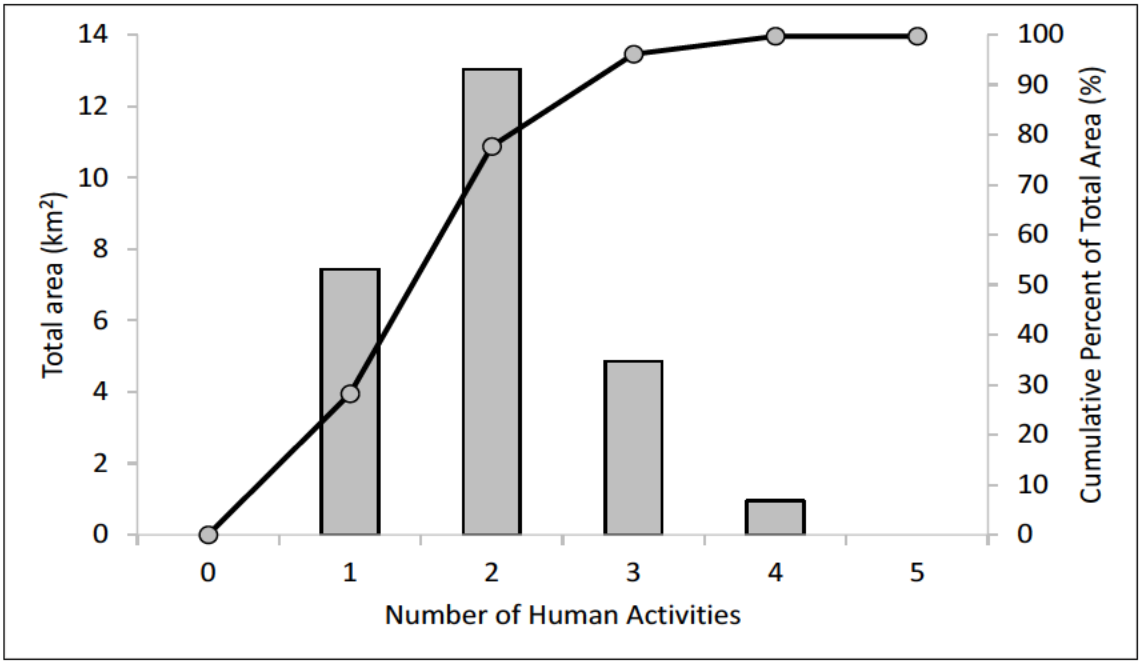


Figure 10. Total area (km^2; grey bars), and the cumulative percentage of the total area (%; black line, grey circles), in all grid cells with the corresponding number of human activities.

The stressors linked to human activities in the marine environment can be grouped into three main categories: physical (direct alteration to habitats), chemical (effects on water and sediment quality), and biological (changes to non-target species). All human activities considered within this analysis have been linked to > 1 stressor impact, and five of six of these activities have influences across all three categories (Table 4).

Table 4. Comparison of stressors associated with human activities identified in this analysis. Stressors linked to finfish aquaculture, shellfish aquaculture, recreational boating, and nutrient loading were summarized from Ban et al. (2010), while those linked to the Trans-Canada highway were summarized from Trombulak and Frissell (2000). Dash (-) = no stressor identified.

Category	Stressor	Activities					
		Finfish aquaculture	Shellfish aquaculture	Boating traffic†	Nutrient loading*	Coastal highway	Lobster fishing
Physical (direct alteration to habitats)	Benthic disturbance	X	X	X	X	-	X
	Collisions	-	-	X	-	-	X
	Freshwater input/decrease	-	-	-	-	X	-
	Change in currents/circulation	X	X	X	-	-	-
	Light	X	-	X	-	-	-
	Marine debris	X	X	X	-	X	X
	Noise	X	X	X	-	X	X
Chemical (water and sediment quality)	Bacteria	X	-	X	X	-	X
	Contaminants	X	-	X	-	X	X
	Nutrients	X	X	X	X	X	X
	Oil/waste	X	X	X	X	X	X
	Organic waste	X	X	X	X	X	X
	Sediment transport (turbidity)	X	X	X	X	X	X

Category	Stressor	Activities					
		Finfish aquaculture	Shellfish aquaculture	Boating traffic†	Nutrient loading*	Coastal highway	Lobster fishing
Biological (changes to non-target species)	Changes in behaviour (predator or prey)	X	X	X	-	-	-
	Biomass removal (incidental mortality)	X	X	X	-	X	X
	Diseases and parasites	X	-	-	-	-	-
	Genetic interactions	X	-	-	-	-	-
	Invasive species	X	X	X	-	-	-

† combined stressors from small docks, ramps, wharves, fishing vessel, and pleasure boating activity categories of Ban et al. (2010)

* stressors from agriculture category of Ban et al. (2010)

Existing finfish aquaculture, boating traffic, and Lobster fishing activities generate the greatest number of different types of chemical stressors that can affect water and sediment quality (Table 4). Boat traffic is also associated with causing the greatest number of different physical stressors, while finfish aquaculture activities are linked to the greatest proportion of different biological stressors (Table 4). Overall, finfish aquaculture activities and boat traffic may be responsible for the largest proportion of different stressor effects, while nutrient loading may generate the smallest proportion of different stresses on species and habitats (Table 4). The most common stressors linked to the six human activities are inputs of nutrients, oil/waste, organic waste, and sediment transport (chemical stressor; all six activities), benthic disturbance, debris, and noise (physical stressor; five of six activities), and biomass removal through incidental mortality (biological stressor; five of six activities) (Table 4).

At present, there is little scientific evidence to be able to weigh the relative magnitude of the effects of each stressor. However, weighing the relative impact of each human activity on a broad spatial scale (i.e., the whole area of interest) can be considered through an examination of the spatial distribution of the activity multiplied by a specific impact weight, which estimates the vulnerability to human activities of different habitats known to be present in Whycocomagh Bay (Kappel et al. 2012; see Appendix B for further explanation). The use of habitats also indirectly captures impacts on associated species. Individually, nutrient loading, followed by finfish aquaculture and then boat traffic, make the largest percentage contribution to the total relative impact score (Table 5; Figure 11).

Table 5. Mean (± SD [standard deviation]) relative impact score for six human activities occurring in Whycocomagh Bay. Relative impact score is calculated as the product of the mean impact weight (± SD) and the proportion of total area over which each activity occurs within the area of interest. Mean impact weights are calculated using individual stressor-habitat impact weights (from Kappel et al. 2012) for seven different habitat types in Whycocomagh Bay (beach, marine flat, salt marsh, eelgrass, algal habitat, nearshore soft benthic, nearshore hard benthic).

Human activity	Stressor category from Kappel et al. (2012)	Mean impact weight (± SD)	Proportion of total area	Mean relative impact score (± SD)
Finfish aquaculture	Aquaculture: finfish (predators)	0.90 (0.81)	0.97	0.87 (0.78)
Shellfish aquaculture	Aquaculture: shellfish	1.92 (0.41)	0.04	0.07 (0.01)
Lobster fishing	Fishing: demersal non-destructive, low bycatch	2.15 (0.07)	0.03	0.07 (0.002)
Nutrient loading	Nutrient input: into oligotrophic waters	1.95 (0.89)	0.69	1.35 (0.61)
Coastal highway	Pollution input: trash, etc. (urban runoff)	3.40 (0.99)	0.09	0.30 (0.09)

Human activity	Stressor category from Kappel et al. (2012)	Mean impact weight (± SD)	Proportion of total area	Mean relative impact score (± SD)
Boat traffic	Tourism: recreational boating	2.03 (0.44)	0.15	0.31 (0.07)

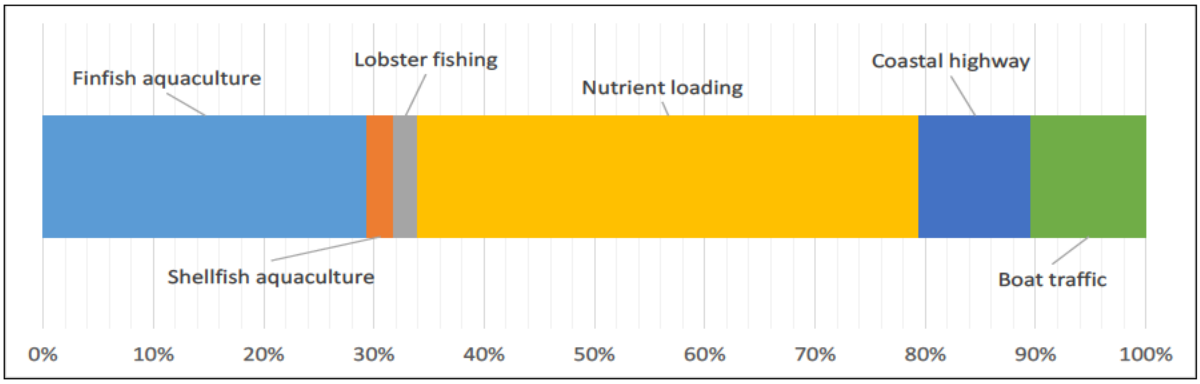


Figure 11. Percent contribution to relative impact of individual human activities. Impacts are averaged across seven different habitat types (beach, marine flat, salt marsh, eelgrass, algal habitat, nearshore soft benthic, nearshore hard benthic), and weighted by their spatial extent measured as proportion of total area of interest. Values of relative impact scores for each activity are listed in Table 5.

However, these activities overlap in space (Figure 9), and their impacts would not occur in isolation. Thus, when examined cumulatively, the large spatial overlap of finfish aquaculture and nutrient loading leads to the greatest cumulative impact score, followed by the cumulative impact of finfish aquaculture, nutrient loading, and boat traffic (Figure 12; Table B3). From the present analysis, the cumulative impact of finfish aquaculture and nutrient loading and boat traffic may have the most significant anthropogenic footprint on the Whycocomagh Bay ecosystem.

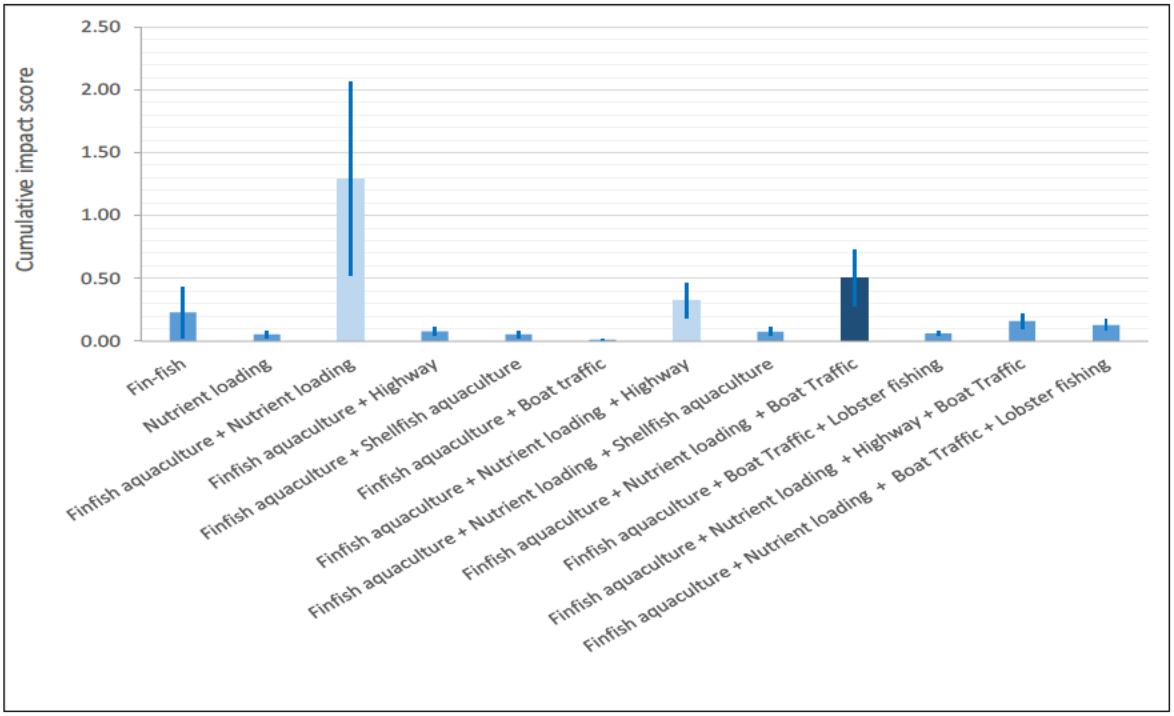


Figure 12. Relative cumulative impact scores for different combinations of overlapping human activities (as displayed in Figure 10). Light blue bars indicate combinations of human activities that could have significant impacts to water and sediment quality; the dark blue bar indicates a combination that could significantly impact both physical and chemical properties of habitats (as detailed in Table 4).

Whycocomagh Bay is characterized by minimal water circulation and low flushing rates, making it sensitive to various inputs (e.g., excess nutrients, water borne pollutants, organic contaminants, etc.) that cannot be quickly dispersed by water movement (Parker et al. 2007). As a result, coastal water and sediment quality in Whycocomagh Bay is most at risk from the cumulative effects of runoff (excess nutrients and sediment), pollution, and human waste generated from different land uses and boat traffic in combination with those generated by finfish aquaculture.

Excess nutrients from land runoff contribute sources of nitrogen (N) to Whycocomagh Bay. Runoff and sediment erosion impacting water quality due to human land use is already ranked as a high threat for the surrounding two watersheds that drain into Whycocomagh Bay (Sterling et al. 2014). Anthropogenic N loads from the surrounding watershed are estimated at 88,259 (± 29,205) kg N yr^{-1} (or a yield of 3.8 kg N ha $watershed^{-1}$ yr^{-1}; Kelly et al. 2021). The addition of more finfish aquaculture to Whycocomagh Bay will also add to the existing anthropogenic total N loading in the bay, which may increase the risk of eutrophication problems occurring.

Sources of sewage pollution in Whycocomagh Bay include malfunctioning sewage or treatment systems, residential septic tanks and fields, and outhouses (EDM 2008). For Whycocomagh Bay, human wastewater sources are estimated to contribute 62% of the total annual N load (Kelly et al. 2021). Further, analysis of the mean fecal coliform counts from 2014–2018 (Canadian Shellfish Sanitation Program; ECCC 2019) suggest that despite mostly low values

over this period, some years experienced higher average values, resulting in poorer water quality (Figure 13).

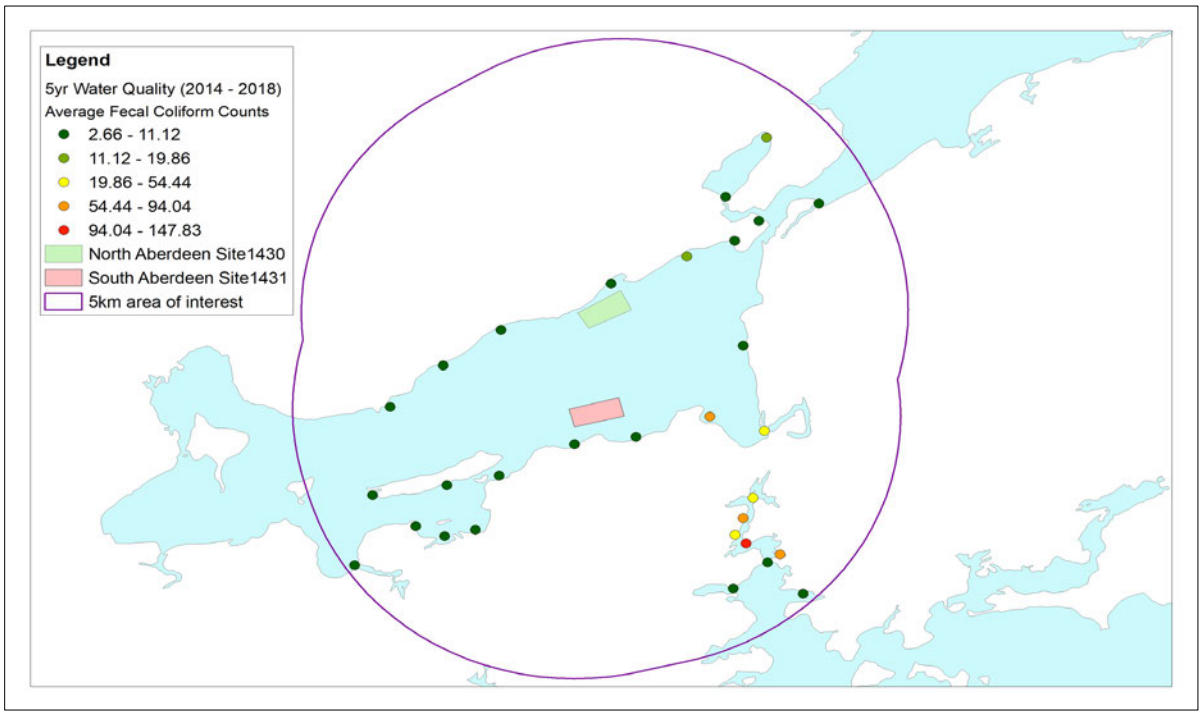


Figure 13. Mean fecal coliform counts (2014–2018) at Canadian Shellfish Sanitation Program sampling stations within the 5 km area of interest. Sites with values < 14 MPN (most probable number 100 mL^{-1}) are considered uncontaminated and of good quality.

These areas overlap with the pelagic-PEZs of the proposed leases and point to human sewage effluent being present in the area. In addition to contributing to bacterial contamination of the bay, such inputs, in combination with nutrient loading, may also exacerbate the reduced oxygen concentrations experienced in Whycocomagh Bay, for which finfish aquaculture is also a contributor.

Small vessels contribute to reduced water quality through pollution due to leakage of fuels and oils, antifouling paints (containing copper), and human waste (sewage effluents) (Leon and Warnken 2008). While the magnitude of recreational boating traffic is currently unknown, it is likely highly seasonal, following the typical tourist season for Nova Scotia (May–October, with peaks in June–August). While individually the impacts of boating are considered minor, often concentrated over short periods of time and in localized areas their cumulative impact may result in detrimental effects on species and/or habitats. The estimated impacts from boat traffic are likely an underestimate due to the lack of available information on the magnitude of recreational boating in the area.

Boating also contributes to the secondary spread of non-native species (Clarke Murray et al. 2011, Burgin and Hardiman, 2011). Aquaculture activity adds or removes physical structures (e.g., ropes, buoys, anchors) that can be colonized by diverse biological assemblages, which can affect the local ecosystem (DFO 2010). The invasive tunicate *Botryllus schlosseri* is already

present in Whycocomagh Bay (Sephton et al. 2015); the combined effect of boating traffic and aquaculture structures may contribute to the spread and subsequent establishment of other non-native fouling species already present elsewhere in the Bras d'Or Lakes.

Conclusions

Question 1: *Based on available data for each site and scientific information, what is the predicted exposure zone from the use of approved fish health treatment products in the marine environment, and the potential consequences to susceptible species?*

- The seabed up to approximately 5.5 km from the proposed sites may be exposed to in-feed drugs present in feces, if used.
- Pesticide levels that are toxic to susceptible species may travel up to approximately 5.0 km from the proposed sites, if used.
- Seasonal ice cover in Whycocomagh Bay may limit the use of bath pesticides during the winter months.
- The intensity of exposure is expected to be highest near the net-pen arrays and decrease as distance from the net-pens increases, except for in areas of anticipated overlaps where cumulative exposures may occur.
- Overlaps in the predicted exposure zones from fish health treatment products (both in-feed drugs and bath pesticides) are anticipated, if used at both sites.
- The low flushing rate of Whycocomagh Bay makes it particularly sensitive to the deposit of in-feed drugs that are passive and persistent, if used.
- Available information suggests that there is little evidence of species that are directly susceptible to fish health treatment products within the benthic-and pelagic-PEZ.
- Since 2015, AAR reporting indicate the existing sites have not used fish health treatment products. This may in part be related to the low occurrence of Sea Lice due to environmental conditions at the site.

Question 2: *Based on the available information for each site, what are the Ecologically and Biologically Significant Areas, Species listed under Schedule 1 of the Species at Risk Act, fishery species, Ecologically Significant Species, and their associated habitats that are within the predicted benthic exposure zone and vulnerable to exposure from the deposition of organic matter? How does this compare to the extent of these species and habitats in the surrounding area (i.e., are they common or rare)? What are the anticipated impacts to these sensitive species and habitats from the proposed aquaculture activity?*

- The seabed up to approximately 780 m from the proposed sites may be exposed to deposition of organic matter due to waste feed. The intensity of exposure is expected to be highest near the net-pen arrays and decrease as distance from the net-pens increases.
- The total benthic footprint within Whycocomagh Bay is anticipated to increase, but overlaps in the areas of organic matter exposure due to waste feed are not predicted.

- The low flushing rate of Whycocomagh Bay makes it particularly sensitive to organic loading.
- Whycocomagh Bay is part of the Bras d'Or Lakes EBSA; however, it is ranked as the second least significant basin given its limited habitat diversity and ability to support a diverse and productive biota.
- Eelgrass has been identified within the benthic-PEZs related to all particle types. Significant spatial and temporal variability in eelgrass distribution and condition is expected due to natural factors within the region that are suboptimal for eelgrass.
- Interactions between eelgrass and deposition of waste feed are anticipated to result in limited impacts. Feces, fines, and flocs will be transported further and potentially encompass a significant portion of the eelgrass habitat; however, it is not possible to predict the likelihood or magnitude of effects or changes due to the lack of existing data on current eelgrass distribution and on sediment transport.
- Eelgrass habitat is not unique to Whycocomagh Bay within the Bras d'Or Lakes.

Question 3: *How do the impacts on these species from the proposed aquaculture sites compare to impacts from other anthropogenic sources (including existing finfish farms)? Do the zones of influence overlap with these activities and if so, what are the potential consequences?*

- The entire area of interest around the site is influenced by human activities with significant overlap.
- Overlaps in predicted exposure zones from the proposed aquaculture activities at sites #1430 and #1431 and site #0814x in the western end of the bay are not anticipated, with the exception of the transport of fines and flocs.
- Human activities include a combination of land- and marine-based sources: anthropogenic nutrient loading, coastal highway runoff, boating traffic, Lobster fishing, and marine aquaculture.
- From the present analysis, the cumulative impact of finfish aquaculture, nutrient loading, and boat traffic may have the most significant anthropogenic footprint on the Whycocomagh Bay ecosystem, with finfish aquaculture representing a major component of cumulative impact.

Question 4: *To support the analysis of risk of entanglement with the proposed aquaculture infrastructure, which pelagic aquatic Species at Risk make use of the area, and for what duration and when?*

- Species within Whycocomagh Bay include wild Atlantic Salmon, Harbour and Grey Seal, American Eel, Atlantic Herring, Mackerel, Atlantic Cod, and Smelt.
- Seasonal ice cover in the eastern end of Whycocomagh Bay may limit the presence of Harbour and Grey Seal around the site infrastructure during the winter months when they are known to be most abundant in the Bras d'Or Lakes for feeding.
- ECB Atlantic Salmon that use the area during various stages of their life cycle and/or as a migratory pathway may experience displacement due to the significant increase in total leased area and site infrastructure in the bay.

Question 5: *Which populations of Salmonids are within a geographic range that escapees are likely to migrate to? What are the size and status trends of those populations in the escape exposure zone for the proposed sites? Are any of these populations listed under Schedule 1 of the Species at Risk Act?*

- The proposed leases are within the ECB Designatable Unit of wild Atlantic Salmon, which is under consideration for *SARA* listing. ECB Atlantic Salmon populations are assessed as Endangered by COSEWIC and are the last remaining recreational fishery and First Nations allocations in the Maritimes Region. Other Salmonids are present but not assessed here.
- Both Middle and Baddeck rivers were below their conservation egg requirement for ECB Salmon in 2019 and have been for the previous 20 years, and the 2018 smolt estimate on Middle River was estimated among the lowest in recent years (albeit with large uncertainty).
- All ECB Salmon rivers are within potential dispersal distances of Rainbow Trout escapees from the proposed sites.
- There is no evidence of direct genetic interactions between Rainbow Trout and Atlantic Salmon.
- Ecological interactions and deleterious effects on wild Salmon from competition from introduced invasive Rainbow Trout are well documented. There is evidence that these types of ecological interactions can lead to indirect genetic effects that ultimately reduce Atlantic Salmon population size and consequently reduce their genetic diversity.
- There will be increased risks to wild Salmon with the proposed increases in the number of farmed Rainbow Trout within Whycocomagh Bay.

Sources of Uncertainty

Predicted Exposure Zones

Results of calculations based on the proponent's data are a subset of the full range of potential calculation outputs. The predicted exposure zones are based on current meter data provided by the proponent. The proponent-provided current record is from a single location over a 30-day time window. This means that the first-order estimates assume the current is spatially homogenous and seasonally consistent, and they are unlikely to be fully representative of the temporal and spatial variability that may be of relevance to estimating exposure and deposition zones. Available data are often insufficient for assessing the probability of sediment transport to specific areas within the predicted exposure zones. Additionally, it is not known whether sinking or floating feed will be used. If a floating feed is used, calculations of benthic exposure zones in this review may be underestimates.

The state of knowledge in relation to refining the assessment of the potential for in-feed drugs and pesticides impacts is evolving. Therefore, a more detailed assessment of potential pesticide and drug impacts was not conducted.

Species and Habitat Distributions

Coastal areas are generally not adequately sampled on spatial and temporal scales of most relevance to aquaculture (i.e., tens to hundreds of meters and hours to months). Information on these space and time scales is typically not contained within the various data sources available to DFO to evaluate presence/use of species and habitats in those areas. Data based on surveys do not fully sample the area spatially or temporally and additional information on presence and habitat use (e.g., spawning, migration, feeding) must be drawn from larger-scale studies.

Currently, there is a lack of available data representing present-day eelgrass distribution within Whycocomagh Bay. Eelgrass habitat is subject to natural temporal and spatial variability, and it is unknown if distribution has changed since previous surveys were conducted. Additionally, there is a lack of data representing factors known to affect eelgrass health and distribution (i.e., existing light levels, turbidity, etc.). As a result of the above, the full scale of potential changes to eelgrass in the surrounding area specifically as a result of the proposed aquaculture activities cannot be predicted.

Farmed-Wild Interactions

Apart from Skye, Middle, and Baddeck Rivers, information is generally lacking on the size and distribution of wild Atlantic Salmon populations. Improved estimates of wild Atlantic Salmon population size and the presence of escapees in Salmon-bearing rivers within Maritimes Region would improve the assessment of genetic and demographic risk. Significant knowledge gaps also exist regarding disease and Sea Lice infestation levels in wild and farmed Salmonids, and monitoring and reporting of these levels would be informative.

Potential Cumulative Interactions

Many regional and global-scale human activities that may overlap with local-scale activities were excluded from this analysis, due to limits on data availability and/or spatial resolution. Historical activities that may have legacy effects (i.e., sedimentary contamination), impacts from natural disturbances (e.g., storms, marine heat wave), or episodic activities that can create infrequent but intense disturbances (e.g., oil spill), were not included in the current analysis. The geographic extent of human activities is likely a minimum estimate. Buffer distances used in the analysis may be a conservative estimate, as the original studies on which the estimates were based were not designed to measure maximum detectable distances of human impacts. Also, it is assumed that the influence of human activities diffuse equally in all directions, although it is more likely that alongshore currents and river plumes influence the diffusion of impacts, particularly close to the coastline. Overall, the human activity map should be considered a preliminary and conservative estimate of human uses within the area of interest. Despite the limitations outlined above, this mapping exercise can identify areas of particular concern where a high degree of cumulative impacts from multiple overlapping human activities are to be expected.

Many of these impacts will vary spatially and temporally (e.g., increased boating traffic related to seasonal fishing or recreational activities, increased influx of nutrient loading or urban runoff in spring due to snow melt, etc.), so may only be of concern at particular times of the year. Further,

little information is available on the acute versus chronic effects of these stressors (e.g., noise, light, marine debris, changes in currents/circulation).

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Appendix A: Physical Data

The spatial and temporal sparsity of data available for an overall understanding of the area is important to note as it contributes to consequent uncertainties in variability.

Temperature and salinity data collected in the western end of Whycocomagh Bay (Figure A1) was used to supplement the minimal data collected in the area immediately surrounding sites #1430 and #1431. Vertical profiles of these physical characteristics were recorded from 1995–1997 in spring, summer, and fall (Strain et al. 2001), and also collected through DFO's Bras d'Or Lakes Monitoring Program (2014 and 2020).

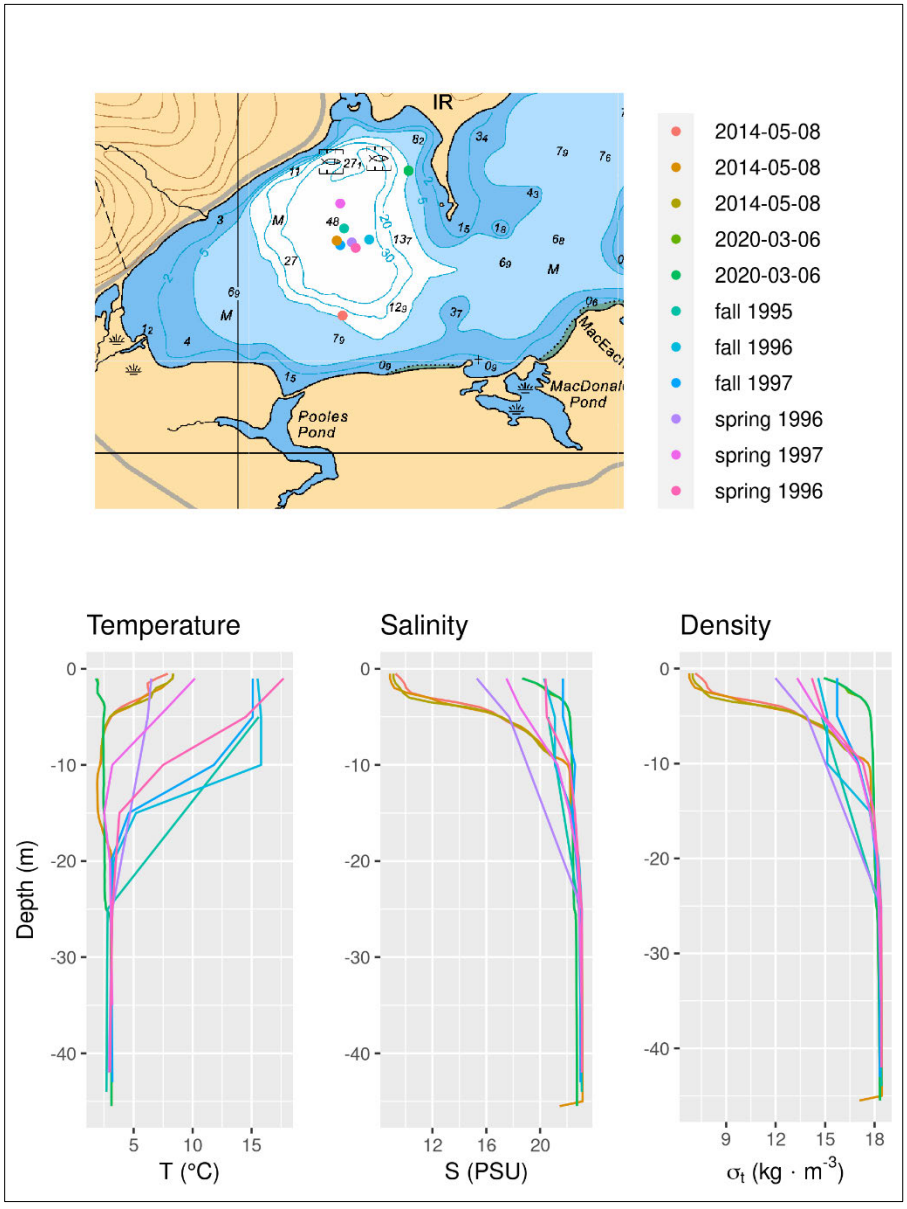


Figure A1. Vertical profiles of temperature, salinity, and density measured in the western end of Whycocomagh Bay.

Dissolved oxygen was measured as well during the vertical profiles described above, and two additional near-bottom time series were collected from November 2014–May 2015 to the north and south of the deep anoxic basin (Figure A2).

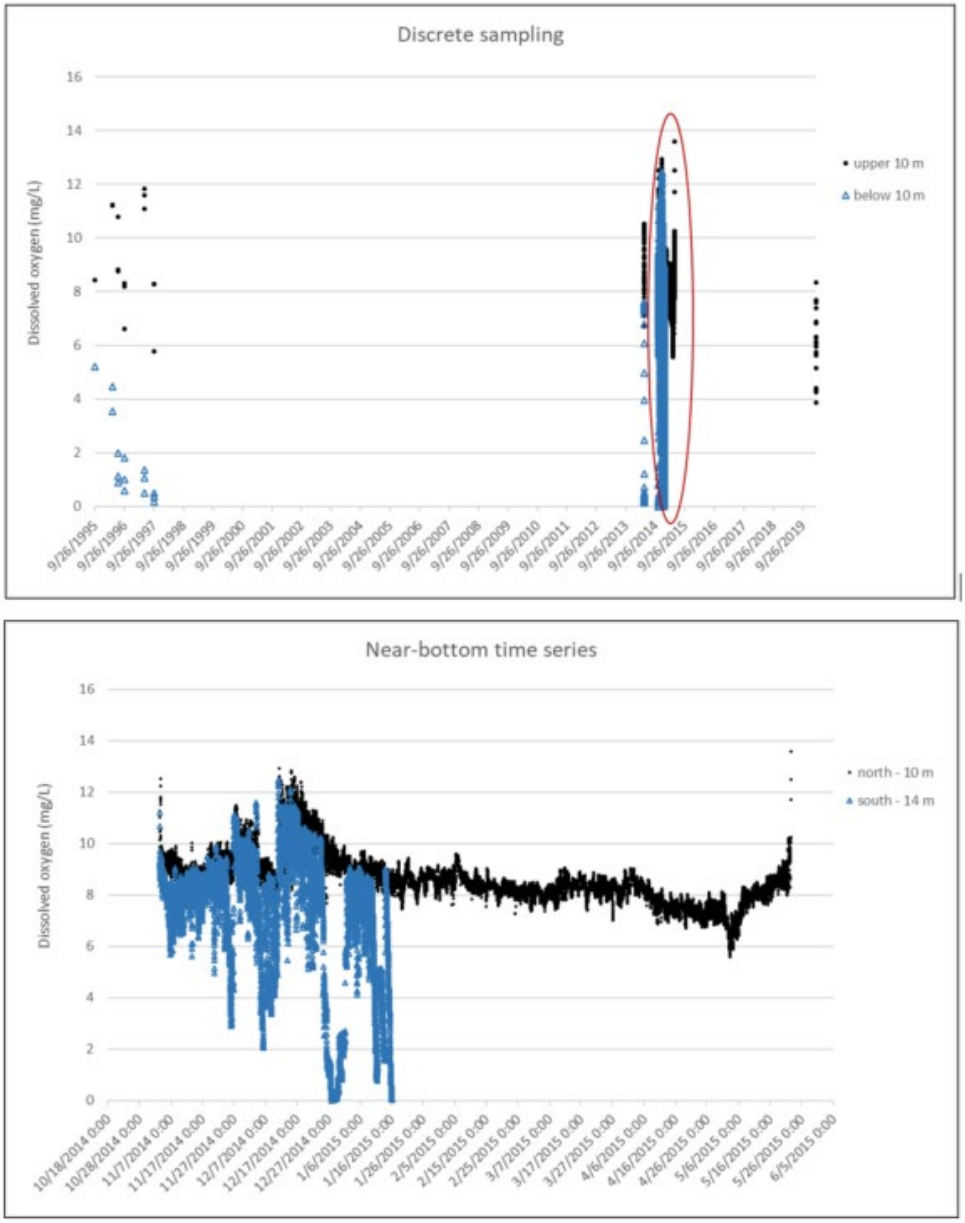


Figure A2. Dissolved oxygen (mg/L) data available at locations near the proposed #0814x site. Circled data in the top panel represents the time-series data collected near the site and shown in the bottom panel. The south side instrument died on January 16, 2015.

Appendix B: Cumulative Occurrence of Human Activities

Identification of anthropogenic sources

A visual representation of the pattern of human use can help illustrate the distribution of human activities in the ocean and identify overlaps among them. Spatial data for marine activities within a 5 km radius for the two sites (hereafter the "area of interest") were collated from a larger inventory of human activities developed for the Maritimes region (DFO unpublished data[1]). Human activities were selected that occurred on a "local" scale, defined as those operating over small spatial scales (i.e., < 10 km) or from point-sources that could produce a localized zone of impact, such as marine recreation, aquaculture, or benthic structures. The most recent years of data or up-to-date information were included when possible.

Overlapping occurrence of human activities

The impact of human activity in the marine environment often extends beyond its immediate occurrence. A "zone of influence" was used to estimate the actual footprint of the stressor(s) (assumed to be) caused by an activity. To estimate the geographical extent of each activity beyond its location of occurrence, a buffer was added that radiated from the point source of the activity. The furthest distance from the activity's origin was determined for the same or most similar activity based on either available data or extensive reviews presented in Ban and Alder (2008), Ban et al. (2010), and/or Clarke Murray et al. (2015) ("buffer radius"; see Table B1).

A GIS approach (ESRI ArcGIS version 10.6.1) was used to map each activity and its associated buffer. The map was then converted to a raster (100 m x 100 m grid). Where activities (and their buffers) overlapped, the values in the grid cell were summed to estimate the total number of overlapping human activities per grid cell.

Table B1. Human activities occurring in the area of interest and buffer radii applied beyond location of activity occurrence. The buffer radius is the furthest extent an activity's impact extends from its origin.

Category	Human activity layer	Layer description	Buffer radius (m)
Marine	Finfish aquaculture	Leases #1430 and #1431. Pelagic PEZ model for 3-hr pesticides, based on maximum current speeds	North: 5,033
			South: 2,966
		Other leases within (#0193) or adjacent (#0814) to the area of interest whose buffers overlap	#0193: 2,000 #0814: 2,790
	Shellfish aquaculture	Location of lease #1295, currently stocked with a small number of Oysters for research purposes	500

[1] DFO. Data collected through the Ecosystem Stressors Program Cumulative Impact Mapping Project 2019–2022.

Category	Human activity layer	Layer description	Buffer radius (m)
	Boat traffic	Small craft harbours and boat launches (point sources) captures activity at three locations: Whycocomagh Marina, Little Narrows Ferry Terminal, and Little Narrows Gypsum Mine Marina	2,000
Fishing	Lobster fishing	Polygon (Serdynska and Coffen-Smout 2017)	0
Land-based	Coastal highway	Trans-Canada highway ≤ 30 m of shoreline, with rectangular buffer	500
	Nutrient loading	Captures activities within the watershed that input nitrogen into the bay, including agriculture, human settlements, wastewater inputs, runoff from roads, buildings, and other impervious surfaces. Layer contains two pour points draining into Whycocomagh Bay, with a buffer radius based on the stream order of the river (after Clarke Murray et al. 2015): one at the Skye River (outer buffer overlaps with area of interest) and a smaller second order stream on the north side of the bay near Little Narrows	Skye: 5,870 Secondary: 3,037

Estimating relative impact among human activities

Human activities in the ocean are presumed to cause stress on marine ecosystems. A literature review was conducted to examine the stressors linked to the six different human activities occurring in the area of interest. Stressor effects linked to finfish and shellfish aquaculture, lobster fishing, boat traffic, and nutrient loading were summarized from Ban et al. (2010; Table S4), while those linked to the Trans-Canada highway were summarized from Trombulak and Frissel (2000).

The relative impact of human activities on the marine environment depends on the spatial distribution of activities, the intensity of those activities in any particular place, and the vulnerability of the ecosystem component to a particular activity. To compare the relative impacts among human activities occurring in the area of interest (i.e., at the bay scale), stressor-habitat impact weights previously generated for the Cape Cod/Southern Gulf of Maine through an expert elicitation approach (Kappel et al. 2012) were matched to existing human activities and known habitat types occurring in Whycocomagh Bay. Habitat types in the area of interest included beach, salt marsh, marine flat, seagrass, algal zone, nearshore hard bottom, and nearshore soft bottom (Parker et al. 2007). Human activities in the area of interest were matched to the closest stressor category listed in Kappel et al. (2012), based on the predominant stressor linked to that activity (Table 4). Each stressor-habitat pair was assessed for their likelihood to overlap in space; if no overlap was deemed likely (e.g., beaches and lobster fishing, seagrass and coastal highway), this stressor-habitat pair was removed from

further analysis. The stressor impact weight was then averaged across the habitats for each human activity (Table 5); an average across habitats was used since accurate spatial maps of the locations of all habitats in the area of interest was lacking. The intensity of each activity was considered to be uniform across the bay (i.e., given the value of 1) due to lack of prior information on the magnitude (or strength or intensity) of different stressors in the area. Spatial distribution of stressors was then considered in two different ways. First, to compare the relative impacts among human activity categories *individually*, the mean stressor impact weights were multiplied by the proportional area value to generate relative stressor impact scores (Table 5; Figure 11). Second, to examine the *cumulative* impacts of finfish aquaculture with other human activities, the spatial extent (expressed as a proportion of the total area) for all the different combinations of human activities that overlapped with finfish aquaculture was calculated (see Figure 9). For each 2-, 3-, and 4-way combinations of activities, the corresponding average stressor impact weights were summed and then multiplied by the respective proportional area (Figure 9; Table B2).

Table B2. Mean (± SD) relative cumulative impact score for combinations of six different human activities occurring in Whycocomagh Bay. Cumulative impact scores were calculated as the product of the cumulative impact weight and the proportion of total area over which each combination of activities occur within the area of interest. Cumulative impact weights are calculated by summing individual stressor impact weights (from Table B2) averaged across different habitat types in Whycocomagh Bay (beach, marine flat, salt marsh, eelgrass, algal habitat, nearshore soft benthic, nearshore hard benthic).

Activity combination	Proportion of total area	Cumulative impact weight (±SD)	Cumulative impact score (±SD)
Finfish	0.254	0.90 (0.81)	0.23 (0.21)
Nutrient loading	0.028	1.95 (0.89)	0.05 (0.02)
Finfish aquaculture + Nutrient loading	0.453	2.85 (1.70)	1.29 (0.77)
Finfish aquaculture + Highway	0.018	4.30 (1.80)	0.08 (0.03)
Finfish aquaculture + Shellfish aquaculture	0.019	2.82 (1.22)	0.05 (0.02)
Finfish aquaculture + Boat traffic	0.004	2.93 (1.25)	0.012 (0.005)
Finfish aquaculture + Nutrient loading + Highway	0.052	6.25 (2.69)	0.32 (0.14)
Finfish aquaculture + Nutrient loading + Shellfish aquaculture	0.016	4.77 (2.11)	0.08 (0.03)
Finfish aquaculture + Nutrient loading + Boat Traffic	0.103	4.88 (2.14)	0.50 (0.22)

Activity combination	Proportion of total area	Cumulative impact weight (±SD)	Cumulative impact score (±SD)
Finfish aquaculture + Boat Traffic + Lobster fishing	0.012	5.08 (1.32)	0.06 (0.02)
Finfish aquaculture + Nutrient loading + Highway + Boat Traffic	0.019	8.28 (3.13)	0.16 (0.06)
Finfish aquaculture + Nutrient loading + Boat Traffic + Lobster fishing	0.018	7.03 (2.21)	0.13 (0.04)

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Hi Lynn,

Please find attached to this email, DFO's letter of advice for We'koqma'q First Nation's proposal for a new marine finfish cage aquaculture site 1430 in Bras d'Or Lake, Inverness County, for the cultivation of Rainbow Trout.

Thanks,
Ed

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Edward.Parker@dfo-mpo.gc.ca
Fisheries and Oceans Canada | Pêches et Océans Canada
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Government of Canada | Gouvernement du Canada

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LOA_2019-MarAq-027_We'koqma'q FN

1 Challenger Drive, P400
Dartmouth, NS
B2Y 4A2

June 29, 2022 DFO File # 2019-MarAq-027

Lynn Winfield, Licensing Coordinator
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0

Dear Lynn Winfield:

Subject: New Marine Finfish Cage Aquaculture Site 1430 – We'koqma'q First Nation

As requested, Fisheries and Oceans Canada (DFO) has completed its review of the application of We'koqma'q First Nation (the proponent) for an aquaculture licence under the provincial *Fisheries and Coastal Resources Act*. The proponent is requesting a licence for a new marine finfish cage aquaculture site 1430 in Bras d'Or Lake, Inverness County, for the cultivation of Rainbow Trout.

DFO's review consisted of the following:

- Two emails from Lynn Winfield, Licensing Coordinator, Nova Scotia Department of Fisheries and Aquaculture (NSDFA), dated October 29, 2019, titled, "North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application";
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated March 11, 2020, titled, "AQ#0814, 1430, 1431 - DFO Network Partner Response";
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated February 25, 2021, titled, "Depositional models for Aberdeen sites - We'koqma'q AQ 1430 &1431";
- Email from Megan Greenwood, Licensing Coordinator, NSDFA, dated March 29, 2021, titled, "AQ#1430 Network Memo-Amended Plan";
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated April 28, 2021, titled, "RE: REQUEST: status of sites near North and South Aberdeen"; and
- Email from Jennifer Feehan, Aquaculture Advisor, NSDFA, dated December 6, 2021, titled, "AQ#1430 & 1431 - Additional Info Response".

DFO's legislative mandate

In accordance with DFO's legislative mandate, which includes the *Fisheries Act*, *Species at Risk Act* (SARA), *Oceans Act* and applicable regulations, the application was reviewed to assess:

- the deposit of deleterious substances;
- the death of fish by means other than fishing;
- the harmful alteration, disruption or destruction of fish habitat;
- the killing, harming or harassing of SARA-listed species and the destruction of their critical habitat; and
- the introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous.

The following DFO sectors/offices participated in the review:

- Aquaculture Management;
- Small Craft Harbours;
- Ecosystem Management - Regulatory Review;
- Marine Planning and Conservation;
- Resource and Indigenous Fisheries Management;
- Eastern Nova Scotia Area Office; and
- Science.

The results of DFO Science's review have been published online by the DFO Canadian Science Advisory Secretariat in a Science Response titled, "DFO Maritimes Region Science Review of the Proposed Marine Finfish Aquaculture New Sites, Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia". The publication can be searched for at the website https://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/search-recherche-eng.asp.

DFO's risk-based approach for review of the application

DFO's review of the application used a risk-based approach with the objective of protecting fish and fish habitat, including SARA-listed species. DFO conducted a risk assessment using pathways of effects to establish cause-and-effect relationships by linking activities to stressors and stressors to effects on fish and fish habitat. Using the precautionary approach, the residual effects were evaluated after incorporating mitigation measures provided by We'koqma'q First Nation and by federal and provincial regulations, to determine whether or not to recommend additional mitigation measures.

Fish and fish habitat, including SARA-listed species, at risk of impact from stressors

In addition to information provided by the proponent, DFO used its own databases and expert knowledge to identify which fish and fish habitat, including SARA-listed species, are at risk of impact by stressors as a result of the construction and operation of site 1430. Much of the data for the areas at risk of impact, however, are of low spatial and temporal resolution and too sparse to give a robust indication of the seasonality and spatial distribution of fish and fish habitat. Despite these limitations with the data, DFO focused on fish and fish habitat susceptible to aquaculture impacts, with particular focus on SARA-listed species and species assessed as endangered, threatened or of special concern by the Committee on the Status of Endangered Wildlife in Canada.

No SARA-listed species or their Critical Habitat or Residences are likely to be found within the areas at risk of impact. Species assessed by the Committee on the Status of Endangered Wildlife in Canada, and their habitat, that are likely to be found within the area at risk of impact include: Eastern Cape Breton Atlantic Salmon (endangered); American Eel (threatened); Harbour Porpoise (Northwest Atlantic population) (threatened); and Atlantic Cod (Southern population) (endangered).

Other fish, and their habitat, that are likely to be found within the areas at risk of impact include: sticklebacks; Atlantic Silverside; Banded Killifish; Mummichog; Cunner; Brook Trout; mussels; Winter Flounder; Smooth Flounder; Northern Pipefish; Grubby; Jellyfish; Grass Shrimp; Sand Shrimp; *Halothrix lumbricalis* (Brown algae); one regionally rare species of algae named *Nemalion*

helminthoides; Grey Seal; Harbour Seal; Winter Skate; American Plaice; Atlantic Mackerel; Rainbow Smelt; Gaspereau; American Oyster and Atlantic Herring.

Whycocomagh Bay and its deep basins have very low flushing rates resulting in the potential for anoxic (no oxygen) waters to upwell. Whycocomagh Bay is part of the Bras d'Or Lake Ecologically and Biologically Significant Area; however, it is ranked as the second least significant basin in the Area due to its limited habitat diversity and ability to support diverse and productive biota. There are significant areas of localized salt marsh and historically eelgrass has been widespread. Significant spatial and temporal variability in eelgrass distribution and condition is expected due to natural factors within the region that are suboptimal for eelgrass.

DFO's risk assessment results

DFO assessed the risk of physical alteration of habitat structure of the water column and of the benthos due to the presence of the site infrastructure, such as the mooring system, grid system and cages. Incidental death of slow moving or non-motile species that may occur due to the placement or movement of infrastructure is expected to be low relative to local population sizes. It is recommended that moorings and anchors be located to avoid eelgrass and minimize disturbance to all submerged aquatic vegetation when securing moorings to the bottom. Bycatch or entanglement of fish is expected to be low relative to local population sizes. It is recommended that all buoy lines, backlines and scope lines be kept taught at all times to reduce the risk of entanglement by marine mammals.

DFO assessed the risk of alteration in light due to shading caused by the farmed fish and site infrastructure, or due to increased light levels caused by artificial illumination. The proponent plans to locate the cages at depths greater than the depth that eelgrass inhabits, and to not use artificial illumination. No additional mitigation measures for this stressor are recommended.

DFO assessed the risk of noise due to the use of acoustic deterrent devices, vessels, equipment and machinery for various day-to-day operations. The proponent does not plan to use acoustic deterrent devices, and other sounds have short-term localized effects that do not appear sufficient to cause injury or permanent displacement. No additional mitigation measures for this stressor are recommended.

DFO assessed the risk of the deposit of nutrients and organic material released through waste feed, feces, metabolic waste products and bio-fouling organisms. DFO made a precautionary overestimate, called benthic predicted exposure zone, of the area at risk of impact from the deposit of biochemical oxygen demanding matter. Waste feed is anticipated to have the greatest intensity of impact, and may extend up to 782 meters from the center of the cages, with the intensity of impacts decreasing with distance from cages.

The proponent predicted the spatial extent and intensity of the footprint of the biochemical oxygen demanding matter that would be deposited as waste feed and feces during maximum daily quantity of feed usage. The prediction suggests a potential for elevated free sediment sulfide concentration, which is a measurement of the impact of biochemical oxygen demanding matter, under the cages. There is a risk that the mean concentration of free sediment sulfide could exceed 3000 micro-molar, a threshold above which the *Aquaculture Activities Regulations* would prohibit restocking

of the site. It is recommended that the proponent be reminded that under subsection 7(2) of the *Aquaculture Activities Regulations*, the proponent must take reasonable measures to minimize the deposit of waste feed and feces, having regard to the factors set out in paragraphs 7(1)(a) to (c). To minimize and/or avoid build-up of bio-fouling organisms on site infrastructure and it falling off and accumulating onto the bottom, it is recommended that the mooring system, grid system and cages be replaced or cleaned regularly. It is also recommended that monitoring of dissolved oxygen at multiple depths remains a priority, and that provincially approved mitigation measures be taken if levels fall below the Canadian Council of Ministers of the Environment guidelines. Site 1430 was provided an experimental lease in 2019 and DFO has been licensing the stocking of fish at a commercial rate (between 450,000and 770,000) from 2019 to 2022, which is under the maximum requested biomass of 1,100 tonnes. DFO has received the corresponding environmental monitoring results for the years from 2019 to 2021, which indicate that the site has remained Oxic. Monitoring for the site for 2022 is expected to be conducted later this year.

DFO assessed the risk of the release of aquatic invasive species. The site infrastructure, such as the mooring system, grid system and cages provides additional artificial habitat for colonization by aquatic invasive species such as tunicates. To minimize and/or avoid build-up of bio-fouling organisms on site infrastructure, it is recommended that the mooring system, grid system and cages be replaced or cleaned regularly. Because vessel and equipment movements can be pathways for the introduction of aquatic invasive species through ballast water, bilge water or hull fouling, it is recommended that equipment, ballast tanks, bilges and hulls be inspected and cleaned regularly.

DFO assessed the risk of accidental and intentional deposit of chemicals. The intentional deposit of pest control products that are registered, or whose use is authorized under the federal *Pest Control Products Act*, is regulated by the *Aquaculture Activities Regulations*. DFO made a precautionary overestimate, called pelagic predicted exposure zone, of the area at risk of impact from deposit of azamethiphos, the most toxic pest control product. Concentrations of azamethiphos that may be toxic to susceptible species may travel up to 5 kilometers from the center of the cages. The intensity of exposure is expected to be highest near the site and decrease as distance from the site increases, except for in areas where overlaps in the pelagic predicted exposure zones are anticipated. Overlaps could occur if azamethiphos was deposited the same time as at the other proposed site 1431 in Bras d'Or Lake. Pelagic larval lifestages of American Lobster within the area at risk of impact may be exposed to toxic concentrations of azamethiphos. Azamethiphos is unlikely to persist, but at shallow depths within the area at risk of impact, all lifestages of American Lobster may be exposed. It is recommended that the proponent be reminded that under subsection 7(1) of the *Aquaculture Activities Regulations*, the proponent must, in depositing a pest control product referred to in paragraph 2(b), take reasonable measures to minimize detriment to fish and fish habitat outside the facility, having regard to paragraphs 7(1)(a) to (c). It is also recommended that the proponent not deposit pest control product at site 1430 on the same day as at the other proposed site 1431.

The intentional deposit of drugs whose sale is permitted or otherwise authorized, or whose importation is not prohibited under the federal *Food and Drugs Act*, is regulated by the *Aquaculture Activities Regulations*. DFO assumed that the deposit of in-feed drugs is dominated by the deposit of medicated waste feed and feces, therefore the area at risk of impact from the deposit of drugs is the same as the precautionary overestimate, called benthic predicted exposure zone, made for biochemical oxygen demanding matter. Waste feed and feces may extend up to 782

meters and 5529 meters beyond the proposed lease boundaries, respectively. The intensity of exposure is expected to be highest near the site and decrease as distance from the site increases, except for in areas where overlaps in the pelagic predicted exposure zones are anticipated. Overlaps could occur if in-feed drugs were deposited the same time as at the other proposed site 1431 in Bras d'Or Lake. Adult American Lobster may be exposed to in-feed drugs. Scientific uncertainties regarding the exposure and effects of drugs on non-target populations limits DFO's assessment of the deposit of drugs. It is recommended that the proponent be reminded that under subsection 7(1) of the *Aquaculture Activities Regulations*, the proponent must, in depositing a drug referred to in paragraph 2(a), take reasonable measures to minimize detriment to fish and fish habitat outside the facility, having regard to paragraphs 7(1)(a) to (c).

The accidental or intentional deposit of deleterious substances other than those regulated by the *Aquaculture Activities Regulations* into waters frequented by fish is subject to the general prohibition under section 36 of the *Fisheries Act*, and it is recommended that it be avoided.

DFO assessed the risk of the release of farmed fish, henceforth referred to as Rainbow Trout escapees. Eastern Cape Breton Atlantic Salmon are at highest risk of impact from Rainbow Trout escapees. Although there is a successfully reproducing Rainbow Trout population in Bras d'Or Lake and the watercourses that flow into it, Rainbow Trout are not indigenous to Bras d'Or Lake, therefore impacts on them were not assessed. The province has stocked Rainbow Trout in Bras d'Or Lake since the early 1900s. If, despite containment measures, Rainbow Trout escapees were to occur, they would be capable of swimming to all Eastern Cape Breton Atlantic Salmon rivers. Direct genetic interaction is unlikely because there is no scientific evidence of such. Ecological interactions that alter selection pressures such as the transfer of diseases, predation, or competition for space, food, or mates could result in the reduction of population size and genetic diversity of Eastern Cape Breton Atlantic Salmon. Because the risks are proportional to the number of Rainbow Trout escapees, DFO recommends that the proponent prioritize preventing Rainbow Trout escapees. DFO recognizes NSDFA's increasing regulatory requirements for preventing and responding to Rainbow Trout escapees. Another approach to reduce genetic interactions and possible reductions of population size would be to consider the use of triploid (sterile) fish against the potential considerations and risks associated with that approach. Further research into the feasibility and efficacy of using triploid fish in aquaculture may be warranted. DFO will continue collaborating with NSDFA, industry and others towards further improvements in mitigating the effects of escapees through improved prevention (containment), stocking decisions, early detection, tracking and response.

DFO's assessment of the risk of the release of pathogens will occur via the review of the proponent's application to DFO to stock Rainbow Trout pursuant to sections 55 and 56 of the *Fishery (General) Regulations* made under the federal *Fisheries Act*. DFO will not issue the Licence if the Rainbow Trout have any disease or disease agent that may be harmful to the protection and conservation of wild fish. To apply for an Introductions and Transfers License, the proponent should email NSITC.XMAR@dfo-mpo.gc.ca.

Potential overlaps with fisheries

Establishment of site 1430 has the potential to displace fisheries that occur within the lease area. DFO has coarse inshore lobster catch and effort data at the statistical grid level, as mapped in this

report: https://waves-vagues.dfo-mpo.gc.ca/Library/40573230.pdf. All other fisheries are mapped on a hexagon grid level at 10 square kilometres, available in this report: https://publications.gc.ca/collections/collection_2020/mpo-dfo/Fs97-6-3373-eng.pdf. The spatial and temporal resolution of fisheries data, however, are too low to precisely indicate which fisheries occur within the lease area. Fisheries that occur in the general vicinity and could potentially be displaced include gaspereau, trout, Striped Bass, groundfish, mussels, Softshell Clam, American Oyster, American Eel, American Smelt, Atlantic Salmon, Atlantic Herring, Atlantic Mackerel and American Lobster. The lease area of site 1430, however, is small relative to the fishing grounds for each of these fished species. Despite this, DFO recommends the proponent engages with fishing industry rights holders and stakeholders on their proposal.

If you have any questions concerning this letter, or if DFO's understanding of the application is either incorrect, incomplete, or if there are changes to the application, please contact me either by telephone at 902-402-0298 or by email at Edward.Parker@dfo-mpo.gc.ca.

Sincerely,

Parker, Edward Digitally signed by Parker, Edward Date: 2022.06.29 17:44:00 -03'00'

Edward Parker
Regional Senior Aquaculture Management Officer, Aquaculture Management Office
Maritimes Region

cc: M. McLean, Ecosystem Management, DFO Maritimes
P. Gentile, Eastern Nova Scotia Area Office, DFO Maritimes
J. Berthier, Resource and Indigenous Fisheries Management, DFO Maritimes
M. Sullivan, Ecosystem Science, DFO Maritimes
G. Herbert, Marine Planning and Conservation, DFO Maritimes
S. Hopper, Small Craft Harbours, DFO Maritimes and Gulf

From: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>
Sent: June 29, 2022 5:59 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Cc: Dobson, Suzanne <Suzanne.Dobson@dfo-mpo.gc.ca>; Humphrey, Donald <Donald.Humphrey@dfo-mpo.gc.ca>; McLean, Mark G <Mark.McLean@dfo-mpo.gc.ca>; FitzGerald, Jennifer L <Jennifer.FitzGerald@dfo-mpo.gc.ca>; Gentile, Paul <Paul.Gentile@dfo-mpo.gc.ca>; Penny, Lorne <Lorne.Penny@dfo-mpo.gc.ca>; Langille, Janet <Janet.Langille@dfo-mpo.gc.ca>; Berthier, Jacinta <Jacinta.Berthier@dfo-mpo.gc.ca>; Sullivan, Mike <Mike.Sullivan@dfo-mpo.gc.ca>; Brager, Lindsay <Lindsay.Brager@dfo-mpo.gc.ca>; Herbert, Glen <Glen.Herbert@dfo-mpo.gc.ca>; Coffen-Smout, Scott <Scott.Coffen-Smout@dfo-mpo.gc.ca>; Hopper, Stephanie <Stephanie.Hopper@dfo-mpo.gc.ca>; Richard, Pauline M <Pauline.Richard@dfo-mpo.gc.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: South Aberdeen, Whycobah Bay - AQ1431 We'koqma'q First Nation - New Marine Finfish Application

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Hi Lynn,

Please find attached to this email, DFO's letter of advice for We'koqma'q First Nation's proposal for a new marine finfish cage aquaculture site 1431 in Bras d'Or Lake, Inverness County, for the cultivation of Rainbow Trout.

Thanks,
Ed

Edward Parker (he/him | il/lui)
Regional Senior Aquaculture Management Officer
Telephone | Téléphone 902-402-0298
Facsimile | Télécopieur 902-426-7967
Edward.Parker@dfo-mpo.gc.ca
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LOA_2019-MarAq-0
28_We'koqma'q FN

1 Challenger Drive, P400
Dartmouth, NS
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June 29, 2022 DFO File # 2019-MarAq-028

Lynn Winfield, Licensing Coordinator
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0

Dear Lynn Winfield:

Subject: New Marine Finfish Cage Aquaculture Site 1431 – We'koqma'q First Nation

As requested, Fisheries and Oceans Canada (DFO) has completed its review of the application of We'koqma'q First Nation (the proponent) for an aquaculture licence under the provincial *Fisheries and Coastal Resources Act*. The proponent is requesting a licence for a new marine finfish cage aquaculture site 1431 in Bras d'Or Lake, Inverness County, for the cultivation of Rainbow Trout.

DFO's review consisted of the following:

- Two emails from Lynn Winfield, Licensing Coordinator, Nova Scotia Department of Fisheries and Aquaculture (NSDFA), dated October 29, 2019, titled, "South Aberdeen, Whycobah Bay - AQ1431 We'koqma'q First Nation - New Marine Finfish Application";
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DFO's legislative mandate

In accordance with DFO's legislative mandate, which includes the *Fisheries Act*, *Species at Risk Act* (SARA), *Oceans Act* and applicable regulations, the application was reviewed to assess:

- the deposit of deleterious substances;
- the death of fish by means other than fishing;
- the harmful alteration, disruption or destruction of fish habitat;
- the killing, harming or harassing of SARA-listed species and the destruction of their critical habitat; and
- the introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous.

The following DFO sectors/offices participated in the review:

- Aquaculture Management;
- Small Craft Harbours;
- Ecosystem Management - Regulatory Review;
- Marine Planning and Conservation;
- Resource and Indigenous Fisheries Management;
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- Science.

The results of DFO Science's review have been published online by the DFO Canadian Science Advisory Secretariat in a Science Response titled, "DFO Maritimes Region Science Review of the Proposed Marine Finfish Aquaculture New Sites, Whycocomagh Bay, Bras d'Or Lakes, Nova Scotia". The publication can be searched for at the website https://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/search-recherche-eng.asp.

DFO's risk-based approach for review of the application

DFO's review of the application used a risk-based approach with the objective of protecting fish and fish habitat, including SARA-listed species. DFO conducted a risk assessment using pathways of effects to establish cause-and-effect relationships by linking activities to stressors and stressors to effects on fish and fish habitat. Using the precautionary approach, the residual effects were evaluated after incorporating mitigation measures provided by We'koqma'q First Nation and by federal and provincial regulation, to determine whether or not to recommend additional mitigation measures.

Fish and fish habitat, including SARA-listed species, at risk of impact from stressors

In addition to information provided by the proponent, DFO used its own databases and expert knowledge to identify which fish and fish habitat, including SARA-listed species, are at risk of impact by stressors as a result of the construction and operation of site 1431. Much of the data for the areas at risk of impact, however, are of low spatial and temporal resolution and too sparse to give a robust indication of the seasonality and spatial distribution of fish and fish habitat. Despite these limitations with the data, DFO focused on fish and fish habitat susceptible to aquaculture impacts, with particular focus on SARA-listed species and species assessed as endangered, threatened or of special concern by the Committee on the Status of Endangered Wildlife in Canada.

No SARA-listed species or their Critical Habitat or Residences are likely to be found within the areas at risk of impact. Species assessed by the Committee on the Status of Endangered Wildlife in Canada, and their habitat, that are likely to be found within the area at risk of impact include: Eastern Cape Breton Atlantic Salmon (endangered); American Eel (threatened); Harbour Porpoise (Northwest Atlantic population) (threatened); and Atlantic Cod (Southern population) (endangered).

Other fish, and their habitat, that are likely to be found within the areas at risk of impact include: sticklebacks; Atlantic Silverside; Banded Killifish; Mummichog; Cunner; Brook Trout; mussels; Winter Flounder; Smooth Flounder; Northern Pipefish; Grubby; Jellyfish; Grass Shrimp; Sand Shrimp; *Halothrix lumbricalis* (Brown algae); one regionally rare species of algae named *Nemalion*

helminthoides; Grey Seal; Harbour Seal; Winter Skate; American Plaice; Atlantic Mackerel; Rainbow Smelt; Gaspereau; American Oyster and Atlantic Herring.

Whycocomagh Bay and its deep basins have very low flushing rates resulting in the potential for anoxic (no oxygen) waters to upwell. Whycocomagh Bay is part of the Bras d'Or Lake Ecologically and Biologically Significant Area; however, it is ranked as the second least significant basin in the Area due to its limited habitat diversity and ability to support diverse and productive biota. There are significant areas of localized salt marsh and historically eelgrass has been widespread. Significant spatial and temporal variability in eelgrass distribution and condition is expected due to natural factors within the region that are suboptimal for eelgrass.

DFO's risk assessment results

DFO assessed the risk of physical alteration of habitat structure of the water column and of the benthos due to the presence of the site infrastructure, such as the mooring system, grid system and cages. Incidental death of slow moving or non-motile species that may occur due to the placement or movement of infrastructure is expected to be low relative to local population sizes. It is recommended that moorings and anchors be located to avoid eelgrass and minimize disturbance to all submerged aquatic vegetation when securing moorings to the bottom. Bycatch or entanglement of fish is expected to be low relative to local population sizes. It is recommended that all buoy lines, backlines and scope lines be kept taught at all times to reduce the risk of entanglement by marine mammals.

DFO assessed the risk of alteration in light due to shading caused by the farmed fish and site infrastructure, or due to increased light levels caused by artificial illumination. The proponent plans to locate the cages at depths greater than the depth that eelgrass inhabits, and to not use artificial illumination. No additional mitigation measures for this stressor are recommended.

DFO assessed the risk of noise due to the use of acoustic deterrent devices, vessels, equipment and machinery for various day-to-day operations. The proponent does not plan to use acoustic deterrent devices, and other sounds have short-term localized effects that do not appear sufficient to cause injury or permanent displacement. No additional mitigation measures for this stressor are recommended.

DFO assessed the risk of the deposit of nutrients and organic material released through waste feed, feces, metabolic waste products and bio-fouling organisms. DFO made a precautionary overestimate, called benthic predicted exposure zone, of the area at risk of impact from the deposit of biochemical oxygen demanding matter. Waste feed is anticipated to have the greatest intensity of impact, and may extend up to 580 meters from the center of the cages, with the intensity of impacts decreasing with distance from cages.

The proponent predicted the spatial extent and intensity of the footprint of the biochemical oxygen demanding matter that would be deposited as waste feed and feces during maximum daily quantity of feed usage. The prediction suggests a potential for elevated free sediment sulfide concentration, which is a measurement of the impact of biochemical oxygen demanding matter, under the cages. There is a risk that the mean concentration of free sediment sulfide could exceed 3000 micro-molar, a threshold above which the *Aquaculture Activities Regulations* would prohibit restocking

of the site. It is recommended that the proponent be reminded that under subsection 7(2) of the *Aquaculture Activities Regulations*, the proponent must take reasonable measures to minimize the deposit of waste feed and feces, having regard to the factors set out in paragraphs 7(1)(a) to (c). To minimize and/or avoid build-up of bio-fouling organisms on site infrastructure and it falling off and accumulating onto the bottom, it is recommended that the mooring system, grid system and cages be replaced or cleaned regularly. It is also recommended that monitoring of dissolved oxygen at multiple depths remains a priority, and that provincially approved mitigation measures be taken if levels fall below the Canadian Council of Ministers of the Environment guidelines. Site 1431 was provided an experimental lease in 2021 and DFO licensed the stocking of the site in 2022 with 567,000 fish, which is under the maximum requested biomass of 1,100 tonnes. Monitoring for the site in 2022 is expected to be conducted later this year. Environmental monitoring results reported since 2019 for the adjacent site 1430 in Whycocomagh Bay show it has remained Oxic.

DFO assessed the risk of the release of aquatic invasive species. The site infrastructure, such as the mooring system, grid system and cages provides additional artificial habitat for colonization by aquatic invasive species such as tunicates. To minimize and/or avoid build-up of bio-fouling organisms on site infrastructure, it is recommended that the mooring system, grid system and cages be replaced or cleaned regularly. Because vessel and equipment movements can be pathways for the introduction of aquatic invasive species through ballast water, bilge water or hull fouling, it is recommended that equipment, ballast tanks, bilges and hulls be inspected and cleaned regularly.

DFO assessed the risk of accidental and intentional deposit of chemicals. The intentional deposit of pest control products that are registered, or whose use is authorized under the federal *Pest Control Products Act*, is regulated by the *Aquaculture Activities Regulations*. DFO made a precautionary overestimate, called pelagic predicted exposure zone, of the area at risk of impact from deposit of azamethiphos, the most toxic pest control product. Concentrations of azamethiphos that may be toxic to susceptible species may travel up to 3 kilometers from the center of the cages. The intensity of exposure is expected to be highest near the site and decrease as distance from the site increases, except for in areas where overlaps in the pelagic predicted exposure zones are anticipated. Overlaps could occur if azamethiphos was deposited the same time as at the other proposed site 1430 in Bras d'Or Lake. Pelagic larval lifestages of American Lobster within the area at risk of impact may be exposed to toxic concentrations of azamethiphos. Azamethiphos is unlikely to persist, but at shallow depths within the area at risk of impact, all lifestages of American Lobster may be exposed. It is recommended that the proponent be reminded that under subsection 7(1) of the *Aquaculture Activities Regulations*, the proponent must, in depositing a pest control product referred to in paragraph 2(b), take reasonable measures to minimize detriment to fish and fish habitat outside the facility, having regard to paragraphs 7(1)(a) to (c). It is also recommended that the proponent not deposit pest control product at site 1431 on the same day as at the other proposed site 1430.

The intentional deposit of drugs whose sale is permitted or otherwise authorized, or whose importation is not prohibited under the federal *Food and Drugs Act*, is regulated by the *Aquaculture Activities Regulations*. DFO assumed that the deposit of in-feed drugs is dominated by the deposit of medicated waste feed and feces, therefore the area at risk of impact from the deposit of drugs is the same as the precautionary overestimate, called benthic predicted exposure zone, made for biochemical oxygen demanding matter. Waste feed and feces may extend up to 580 meters and 1606 meters beyond the proposed lease boundaries, respectively. The intensity of

exposure is expected to be highest near the site and decrease as distance from the site increases, except for in areas where overlaps in the pelagic predicted exposure zones are anticipated. Overlaps could occur if in-feed drugs were deposited the same time as at the other proposed site 1430 in Bras d'Or Lake. Adult American Lobster may be exposed to in-feed drugs. Scientific uncertainties regarding the exposure and effects of drugs on non-target populations limits DFO's assessment of the deposit of drugs. It is recommended that the proponent be reminded that under subsection 7(1) of the *Aquaculture Activities Regulations*, the proponent must, in depositing a drug referred to in paragraph 2(a), take reasonable measures to minimize detriment to fish and fish habitat outside the facility, having regard to paragraphs 7(1)(a) to (c).

The accidental or intentional deposit of deleterious substances other than those regulated by the *Aquaculture Activities Regulations* into waters frequented by fish is subject to the general prohibition under section 36 of the *Fisheries Act*, and it is recommended that it be avoided.

DFO assessed the risk of the release of farmed fish, henceforth referred to as Rainbow Trout escapees. Eastern Cape Breton Atlantic Salmon are at highest risk of impact from Rainbow Trout escapees. Although there is a successfully reproducing Rainbow Trout population in Bras d'Or Lake and the watercourses that flow into it, Rainbow Trout are not indigenous to Bras d'Or Lake, therefore impacts on them were not assessed. The province has stocked Rainbow Trout in Bras d'Or Lake since the early 1900s. If, despite containment measures, Rainbow Trout escapees were to occur, they would be capable of swimming to all Eastern Cape Breton Atlantic Salmon rivers. Direct genetic interaction is unlikely because there is no scientific evidence of such. Ecological interactions that alter selection pressures such as the transfer of diseases, predation, or competition for space, food, or mates could result in the reduction of population size and genetic diversity of Eastern Cape Breton Atlantic Salmon. Because the risks are proportional to the number of Rainbow Trout escapees, DFO recommends that the proponent prioritize preventing Rainbow Trout escapees. DFO recognizes NSDFA's increasing regulatory requirements for preventing and responding to Rainbow Trout escapees. Another approach to reduce genetic interactions and possible reductions of population size would be to consider the use of triploid (sterile) fish against the potential considerations and risks associated with that approach. Further research into the feasibility and efficacy of using triploid fish in aquaculture may be warranted. DFO will continue collaborating with NSDFA, industry and others towards further improvements in mitigating the effects of escapees through improved prevention (containment), stocking decisions, early detection, tracking and response.

DFO's assessment of the risk of the release of pathogens will occur via the review of the proponent's application to DFO to stock Rainbow Trout pursuant to sections 55 and 56 of the *Fishery (General) Regulations* made under the federal *Fisheries Act*. DFO will not issue the Licence if the Rainbow Trout have any disease or disease agent that may be harmful to the protection and conservation of wild fish. To apply for an Introductions and Transfers License, the proponent should email NSITC.XMAR@dfo-mpo.gc.ca.

Potential overlaps with fisheries

Establishment of site 1431 has the potential to displace fisheries that occur within the lease area. DFO has coarse inshore lobster catch and effort data at the statistical grid level, as mapped in this report: https://waves-vagues.dfo-mpo.gc.ca/Library/40573230.pdf. All other fisheries are mapped

on a hexagon grid level at 10 square kilometres, available in this report: https://publications.gc.ca/collections/collection_2020/mpo-dfo/Fs97-6-3373-eng.pdf. The spatial and temporal resolution of fisheries data, however, are too low to precisely indicate which fisheries occur within the lease area. Fisheries that occur in the general vicinity and could potentially be displaced include gaspereau, trout, Striped Bass, groundfish, mussels, Softshell Clam, American Oyster, American Eel, American Smelt, Atlantic Salmon, Atlantic Herring, Atlantic Mackerel and American Lobster. The lease area of site 1431, however, is small relative to the fishing grounds for each of these fished species. Despite this, DFO recommends the proponent engages with fishing industry rights holders and stakeholders on their proposal.

If you have any questions concerning this letter, or if DFO's understanding of the application is either incorrect, incomplete, or if there are changes to the application, please contact me either by telephone at 902-402-0298 or by email at Edward.Parker@dfo-mpo.gc.ca.

Sincerely,
Parker, Edward
Digitally signed by Parker, Edward
Date: 2022.06.29 17:46:26 -03'00'
Edward Parker
Regional Senior Aquaculture Management Officer, Aquaculture Management Office
Maritimes Region

cc: M. McLean, Ecosystem Management, DFO Maritimes
P. Gentile, Eastern Nova Scotia Area Office, DFO Maritimes
J. Berthier, Resource and Indigenous Fisheries Management, DFO Maritimes
M. Sullivan, Ecosystem Science, DFO Maritimes
G. Herbert, Marine Planning and Conservation, DFO Maritimes
S. Hopper, Small Craft Harbours, DFO Maritimes and Gulf

APPENDIX C – CANADIAN FOOD INSPECTION AGENCY

From: Winfield, Lynn
Sent: July 15, 2019 11:05 AM
To: 'Angela Smith' <angela.smith@inspection.gc.ca>; shane.hood@inspection.gc.ca; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>
Subject: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good Morning,

Please see the attached information on the boundary amendment application No. 0814, in Whycocomagh Bay, Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by September 16, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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AQ0814 Network Memo.pdf
Dev Plan.pdf
AQ0814 Network Agency Review Form

NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.2.1 – AQ#0814x Development Plan (2019) and Section 4.2.4 – Development Plan Appendices (2019), for the documents sent to and reviewed by Network.

From: Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>

Sent: August 9, 2019 8:35 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

See attached.

Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)



CFIA_ACIA -
#12079588 - v1 - AQ

Network Agency Review of an Aquaculture Application

Agency	**CFIA**
Division (if applicable)	
Date	**August 9, 2019**
File No.	**AQ#0814 - Whycocomagh Bay, Inverness County**
Type of application	**Boundary Amendment - Marine Finfish Cage Cultivation (Rainbow trout & Atlantic salmon)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☒ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: Winfield, Lynn
Sent: October 29, 2019 4:03 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1430, in Whycocomagh Bay (North Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.2 – AQ#0814x Application Form (2019), Section 4.2.2 – AQ#1430 Development Plan (2019), Section 4.2.4 – Development Plan Appendices (2019) and Section 4.3 – Additional Information Requests and Responses (2019), for the documents sent to and reviewed by Network.

From: Winfield, Lynn
Sent: October 29, 2019 4:14 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: South Aberdeen, Whycobah Bay - AQ1431 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1431, in Whycocomagh Bay (South Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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**
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AQ1431 Network Agency Review Form | AQ1431 Network Memo.pdf | AQ1431Application, Development Plan, A | Schedule_A_1431.pdf

NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.3 – AQ#1431 Application Form (2019), Section 4.2.3 – AQ#1431 Development Plan (2019) and Section 4.2.4 – Development Plan

Appendices (2019), for the documents sent to and reviewed by Network.

From: Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>
Sent: December 2, 2019 10:59 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: AQ1430 Network Agency Review Form

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Hi,

No comments regarding finfish applications.

Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)



AQ1430 Network Agency Review Form

Network Agency Review of an Aquaculture Application

Agency	**CFIA**
Division (if applicable)	
Date	**Dec 2, 2019**
File No.	**We'koqma'q First Nation AQ#1430** **North Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☒ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☐ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

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Privacy Statement

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All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>
Sent: December 2, 2019 10:57 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: AQ1431 Network Agency Review Form

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Hi Lynn,

We have no comments regarding finfish leases.

Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)


AQ1431 Network Agency Review Form.

Network Agency Review of an Aquaculture Application

Agency	**CFIA**
Division (if applicable)	
Date	**December 2, 2019**
File No.	**We'koqma'q First Nation AQ#1431** **South Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

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- ☐ Concerns with development are expressed below
- ☐ Request modifications to the proposed development (described below)
- ☐ Required or recommended conditions (described below)
- ☐ Request additional information (described below)
- ☐ Request meeting with applicant and NSDFA (described below)
- ☐ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

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As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

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All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 10:24 AM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: Discussion regarding AQ 1430, 1431

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Hello Robert:
I am wondering if we can arrange a call to discuss the lease applications for AQ 1430, 1431. We'koqma'q has learned some things in the past year of working the experimental site (AQ 5010) and we'd like to apply that knowledge to the lease applications.

Please let me know if/when this would be possible.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
Confidentiality Note: This e-mail is intended only for the person or entity to which it is addressed and may contain information that is privileged, confidential or otherwise protected from disclosure. Dissemination, distribution or copying of this e-mail or the information herein by anyone other than the intended recipient, or an employee or agent responsible for delivering the message to the intended recipient, is prohibited. If you have received this e-mail in error, please destroy the original message and all copies. This email may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Exchange Act of 1934 and is subject to safe harbour created by these sections. Your full cooperation is appreciated.

From: Ceschiutti, Robert [mailto:Robert.Ceschiutti@novascotia.ca]
Sent: Monday, July 13, 2020 12:02 PM
To: Melissa Rommens
Cc: Feehan, Jennifer; Winfield, Lynn; donald
Subject: RE: Discussion regarding AQ 1430, 1431

Hi Melissa, sounds good. I'll find out who else on our team would like to join the call, which will help determine when we can arrange the meeting. I should have a reply for you by tomorrow afternoon.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia

B0T 1W0
Phone: 902-875-7430
Cell: 902-874-0996
Robert.Ceschiutti@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 12:31 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Subject: RE: Discussion regarding AQ 1430, 1431

Thank you Robert.
Melissa

NOTE: Please refer to correspondence in Appendix B for the July 23, 2020 Meeting Invitation.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: September 9, 2020 12:07 PM
To: Aquaculture <Aquaculture@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: donald <donalddavis@waycobah.ca>
Subject: Changes to applications for AQ 1430 and 1431

** EXTERNAL EMAIL / COURRIEL EXTERNE **
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Please find attached a formal request for production plan changes to the applications for AQ 1430 and 1431. Please be sure to reach out with questions or concerns.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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NOTE: Please refer to the Application Package, Volume 2, Section 4.4 – Development Plan Revisions AQ#1430 and AQ#1431 (2020), for the attachment in this email.

From: Greenwood, Megan N
Sent: March 29, 2021 1:54 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Sampson, Nicole A <Nicole.Sampson@novascotia.ca>; King, Matthew S <Matthew.King@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: AQ#1430 Network Memo-Amended Plan

Good Afternoon,

We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1430 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

The original plan was sent to you for feedback on October 29, 2019 and a comment has been received from your Department.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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2021.03.29-Network Memo-Amended Pla

NOTE: Please refer to Appendix A for the Network Memo (dated March 29, 2021) sent to and reviewed by Network, and Application Package, Volume 2, Section 4.4 for the Development Plan Revisions AQ#1430 and AQ#1431 (2020).

From: Smith, Angela (CFIA/ACIA)
To: Greenwood, Megan N
Subject: RE: AQ#1430 Network Memo-Amended Plan
Date: March 29, 2021 2:35:44 PM

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Hi Megan,

The plan amendment does not change our previously submitted review.

Thanks
Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)
Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

From: Greenwood, Megan N
Sent: March 29, 2021 3:52 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Sampson, Nicole A <Nicole.Sampson@novascotia.ca>; King, Matthew S <Matthew.King@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: AQ#1431 Network Memo-Amended Plan

Good Afternoon,

We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1431 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in South Aberdeen, Whycocomagh Bay, Inverness County.

The original plan was sent to you for feedback on October 29, 2019 and a comment has been received from your

Department.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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2021.03.29-Network Memo Amended Plar

NOTE: Please refer to Appendix A for the Network Memo (dated March 29, 2021) sent to and reviewed by Network, and Application Package, Volume 2, Section 4.4 for the Development Plan Revisions AQ#1430 and AQ#1431 (2020).

From: Smith, Angela (CFIA/ACIA)
To: Greenwood, Megan N
Subject: RE: AQ#1431 Network Memo-Amended Plan
Date: March 29, 2021 3:58:40 PM

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Hi Megan,

This amendment does not change my previous review comments.

Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

From: Feehan, Jennifer
Sent: March 29, 2021 4:27 PM
To: 'donald' <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: Network Comments AQ#1430 & 1431

Hi Donald and Melissa,

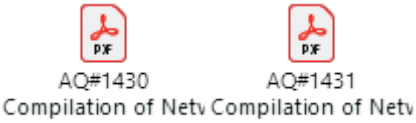
Please be advised that the amended development plans with revised production plans and cage configuration for AQ#1430 and AQ#1431 have been sent to Network for review.

I have attached a compilation of network comments received to date based on the original development plans. Network may have additional questions or comments pending review of the amended plans. You may begin preparing any required responses as per the comments to date, and we will be in touch when final comments or questions from Network have been submitted.

Please do not hesitate to reach out if you have any questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#1430 and AQ#1431 up to March 29, 2021, attached in this email.

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: March 30, 2021 9:47 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: FW: AQ#1430 Network Memo-Amended Plan

Good morning,

My apologizes, I didn't include to template form for comment.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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NOTE: Please refer to Appendix A for the Network Agency Review Form attachment in this email.

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: March 30, 2021 9:49 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: FW: AQ#1431 Network Memo-Amended Plan

Good morning,

My apologizes, I didn't include the template in the original email.

Megan Greenwood
Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0

Phone 902-875-7443
Fax 902-875-7429
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NOTE: Please refer to Appendix A for the Network Agency Review Form attachment in this email.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: April 21, 2021 2:22 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: Network Comments AQ#1430 & 1431

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Hello Jennifer:
Find attached responses to network comments you had received as of March 29, 2020 for AQ 1430 and AQ 1431.
Please let us know if a different kind of formatting for responses is preferred.
Just reach out with questions or concerns.
Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Response to Network Comments


Response to Network Comments

NOTE: Please refer to correspondence in Appendix B dated April 21, 2021, for the complete documents attached in this email. The proponent's responses specific to CFIA have been extracted and attached below for reference.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

1. **CFIA; Dec. 2, 2019:** No concerns regarding the proposed development. No reply required.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

1. **CFIA; Dec. 2, 2019:** No concerns regarding the proposed development. No reply required.

From: Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>
Sent: April 30, 2021 10:21 AM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: Network Agency Review-AQ#1431

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Hi,

See attached network review form.

Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)



Network Agency Review-AQ#1431.pdf

038Network Agency Review of an Aquaculture Application

Agency	**Canadian Food Inspection Agency**
Division (if applicable)	
Date	**April 30, 2021**
File No.	**1431**
Type of application	**New Marine Finfish**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☒ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>
Sent: April 30, 2021 10:30 AM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: Network Agency Review-AQ#1430

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See attached completed review form.

Angela Smith

Regional Program Officer, Shellfish and Food Safety Programs, Operations Branch, Nova Scotia
Canadian Food Inspection Agency / Government of Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)

Agent régionale des programmes mollusques et salubrité des aliments (N-É) / Direction générale des Opérations
Agence canadienne d'inspection des aliments / Gouvernement du Canada
angela.smith@canada.ca / Tel: 902-986-1679 (cell)



Network Agency Review-AQ#1430.pd

038Network Agency Review of an Aquaculture Application

Agency	**Canadian Food Inspection Agency**
Division (if applicable)	
Date	**April 30, 2021**
File No.	**1430**
Type of application	**New Marine Finfish**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☐ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

Sent: June 22, 2021 4:06 PM
To: donald <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: AQ#0814 Compilation of Network Comments

Hi Donald and Melissa,

Please find attached the compilation of comments received from Network Agencies for AQ#0814. A compilation of DFO's requests for additional information to date is attached separately. Please note that DFO's final Letter of Advice and CSAS Report for this application are still pending.

In regard to Nova Scotia Department of Lands and Forestry's comments (see pages 39-41), we would like to set up a call to discuss and provide some clarification. To allow time for you to review the network comments and prepare any questions, would a call on **July 14th at 11 am** work for you?

Please let me know and I will follow up with a meeting request.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

1 - AQ#0814 Compilation of Netv

2 - AQ#0814 Compilation of DFO

NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#0814x up to June 22, 2021, attached in this email.

From: Melissa Rommens <melissa@sustainaqua.ca>
Date: 2021-06-23 7:58 a.m. (GMT-04:00)
To: "'Feehan, Jennifer'" <Jennifer.Feehan@novascotia.ca>, 'donald' <donalddavis@waycobah.ca>
Cc: "'Greenwood, Megan N'" <Megan.Greenwood@novascotia.ca>, "'Feindel, Nathaniel J'" <Nathaniel.Feindel@novascotia.ca>, "'Ceschiutti, Robert'" <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

This time is good for me Jennifer.

Please await a reply from Donald before final scheduling.

Kind regards,

Melissa

From: donalddavis <donalddavis@waycobah.ca>
Sent: June 23, 2021 8:18 AM
To: Melissa Rommens <melissa@sustainaqua.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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That time is fine with me.....Regards Donald.

Sent from my Bell Samsung device over Canada's largest network.

NOTE: Please refer to correspondence in Appendix B for the July 14, 2021 Meeting Invitation.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 26, 2021 4:44 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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Hello Jennifer:
Find attached a response to the compiled network comments as referred to in the email below.

There are a few outstanding items noted:

- Confirm if anything is outstanding with TC.
- Determine contact information for the Coordinator of Special Places Program of NSCCH.
- Confirm if anything is required for NSECC.
- Determine intention of bald eagle monitoring requested by NSDLF.
- Confirm if additional information is required for DFO.

We are available to discuss the above as well as the submission at your convenience.

Thank-you for the opportunity to discuss and respond to the network concerns.

Kind regards,
Melissa.

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Network comment responses 0814x Jul

NOTE: Please refer to correspondence in Appendix B dated July 26, 2021, for the complete document attached in this email. The proponent's response specific to CFIA is attached below for reference.

Response to network comments AQ # 0814x (Boundary Amendment)

Ref. Document: 1 -AQ#8014 Compilation of Network Comments – 2021.06.22

1. **CFIA; Aug. 9, 2019:** No concerns or comments regarding the proposed development. No reply required.

APPENDIX D – TRANSPORT CANADA

From: Winfield, Lynn
Sent: July 15, 2019 11:00 AM
To: NPPATL-PPNATL@tc.gc.ca
Subject: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good Morning,

Please see the attached information on a boundary amendment application No. 0814, in Whycocomagh Bay, Inverness County, along with the Notice of Works Form.

Please respond with your feedback by September 16, 2019.

If you have any questions please let me know.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website
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AQ0814 Network Memo (Transport Ca

Dev Plan.pdf

Whycocomagh Amendment NPA No

NOTE: Please refer to the Network Memo specific to Transport Canada for AQ#0814x attached below, and the Application Package, Volume 2, Section 4.2.1 – AQ#0814x Development Plan (2019) and Section 4.2.4 Development Plan Appendices (2019), for the documents sent to and reviewed by Transport Canada.

Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
novascotia.ca

MEMORANDUM

To: Transport Canada

From: Lynn Winfield, Licensing Coordinator, Aquaculture Division
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: July 15, 2019

RE: **Boundary Amendment Aquaculture Application No. 0814 Whycocomagh Bay, Inverness County - Aquaculture Network Review**

Attention Transport Canada, We'koqma'q First Nation has submitted a boundary amendment aquaculture application (AQ#0814) for the Marine Finfish cage cultivation of Rainbow trout and Atlantic salmon. The site is located in Whycocomagh Bay, Inverness County. Consider this correspondence as a formal request by the Nova Scotia Department of Fisheries and Aquaculture to process this application for Navigation Protection Act approval/authorization.

Please find attached information relating to the following aquaculture boundary amendment application:

Licence/Lease No.:	AQ#0814
Applicant:	We'koqma'q First Nation
Application Type:	Boundary Amendment Marine Aquaculture Site
Current Species:	Rainbow trout and Atlantic salmon
Cultivation Type:	Marine cage cultivation
Current Size:	1.39HA
Proposed Size:	65.53HA
Location:	Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
2. This application is part of an ongoing effort within the province to correct historical discrepancies between approved site locations and the actual footprint of farming activities. Since 2016, the Department has been working with the applicant to address this issue to ensure regulatory compliance and operational viability.

We request that you review and submit all components that pertain to this application and provide NSDFA with confirmation should an authorization be issued under the Navigation Protection Act.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application. You may contact me at by phone at 902-875-7440 or email Lynn.Winfield@novascotia.ca if you have any questions.

Sincerely,

Lynn

Lynn Winfield,
Licensing Coordinator

From: Winfield, Lynn
Sent: October 29, 2019 4:03 PM
To: NPPATL-PPNATL@tc.gc.ca
Subject: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1430, in Whycocomagh Bay (North Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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AQ1430 Network Memo (Transport Ca | North Aberdeen NPA Notice of Work | Schedule_A_1430.pdf | AQ1430 Network Agency Review Form | AQ1430 Application, Develo | August 21, 2019 Additional Info from

NOTE: Please refer to the Network Memo specific to Transport Canada for AQ#1430 attached below, Appendix A for the Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.2 – AQ#1430 Application Form (2019), Sections 4.2.2 – AQ#1430 Development Plan (2019), Section 4.2.4 – Development Plan Appendices (2019), and Section 4.3 – Additional Information Requests and Responses (2019), for the documents sent to and reviewed by Transport Canada.

M E M O R A N D U M

To: Transport Canada

From: Lynn Winfield, Licensing Coordinator, Aquaculture Division
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: October 28, 2019

RE: New Aquaculture Application No. 1430
North Aberdeen, Whycocomagh Bay, Inverness County
Aquaculture Network Review

Attention Transport Canada, We'koqma'q First Nation has submitted a new aquaculture application (AQ#1430) for the Marine Finfish cage cultivation of Rainbow trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County. Consider this correspondence as a formal request by the Nova Scotia Department of Fisheries and Aquaculture to process this application for Navigation Protection Act approval/authorization.

Please find attached information relating to the following aquaculture application:

Application No.:	AQ#1430
Applicant:	We'koqma'q First Nation
Application Type:	New Marine Aquaculture Site
Species:	Rainbow trout
Cultivation Type:	Marine cage cultivation
Location:	North Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
2. Experimental Aquaculture Licence and Lease No.5010 is currently issued for a portion of the area associated with application No. 1430, should AQ#1430 be approved, AQ5010 will be discontinued.

We request that you review and submit all components that pertain to this application by December 28, 2019 and provide NSDFA with confirmation should an authorization be issued under the Navigation Protection Act.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application. You may contact me at by phone at 902-875-7440 or email Lynn.Winfield@novascotia.ca if you have any questions.

Sincerely,

Lynn

Lynn Winfield,
Licensing Coordinator

From: NPP ATL - PPN ATL <NPPATL-PPNATL@tc.gc.ca>
Sent: October 29, 2019 4:04 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: North Aberdeen Whycobah Bay AQ1430 Wekoqmaq First Nation New Marine Finfish Application

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You have reached Transport Canada - Navigation Protection Program - Atlantic Region. Your request has been received and is being processed.

If you are applying to Transport Canada for an approval under the Canadian Navigable Waters Act (CNWA), or seeking authorization through the public resolution process, you may do so through the NPP External submission site: https://www.tc.gc.ca/eng/programs-623.html

Further information about the Navigation Protection Program can be found on our website: http://www.tc.gc.ca/eng/programs-621.html

_____

Vous avez joint le Programme de Protection de la navigation de Transports Canada de la Région de l'Atlantique. Votre demande a été reçue et est en cours de traitement.

Si vous présentez une demande d'approbation à Transports Canada en vertu de la Loi sur les eaux navigables canadiennes (LENC), ou voulez obtenir une autorisation au moyen du processus de règlement public, vous pourriez le faire sur le site de soumission externe du PPN : https://www.tc.gc.ca/fra/programmes-623.html

Des renseignements supplémentaires se trouvent sur notre site Web : http://www.tc.gc.ca/fra/programmes-621.html

Thanks
Merci

Navigation Protection Program | Programme de protection de la navigation

Transport Canada - Atlantic Region / Heritage Court, P.O. Box 42, 95 Foundry Street, Moncton, N.B. E1C 8K6 | Transports Canada - Région de l'Atlantique / Place Héritage, C.P. 42, 95 rue Foundry, Moncton, N.-B. E1C 8K6 Tel | Tél. : 506-851-3113 / Fax | Téléc. : 506-851-7542 Email / Courriel : NPPATL-PPNATL@tc.gc.ca<mailto:NPPATL-PPNATL@tc.gc.ca>

[tc_eng_rednewer] [canada_rednew]

From: Winfield, Lynn
Sent: October 29, 2019 4:16 PM
To: NPPATL-PPNATL@tc.gc.ca
Subject: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1431, in Whycocomagh

Bay (South Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website
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AQ1431 Transport Canada NPP Docs.pdf
AQ1431Application, Development Plan, Ap
Schedule_A_1431.pdf
AQ1431 Network Memo (Transport Car

NOTE: Please refer to the Network Memo specific to Transport Canada for AQ#1431 attached below, and the Application Package, Volume 2, Section 4.1.3 – AQ#1431 Application Form (2019), Section 4.2.3 – AQ#1431 Development Plan (2019) and Section 4.2.4 – Development Plan Appendices (2019), for the documents sent to and reviewed by Transport Canada.

M E M O R A N D U M

To: Transport Canada

From: Lynn Winfield, Licensing Coordinator, Aquaculture Division
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: October 28, 2019

RE: New Aquaculture Application No. 1431
South Aberdeen, Whycocomagh Bay, Inverness County
Aquaculture Network Review

Attention Transport Canada, We'koqma'q First Nation has submitted a new aquaculture application (AQ#1431) for the marine finfish cage cultivation of Rainbow trout. The proposed site is located in South Aberdeen, Whycocomagh Bay, Inverness County. Consider this correspondence as a formal request by the Nova Scotia Department of Fisheries and Aquaculture to process this application for Navigation Protection Act approval/authorization.

Please find attached information relating to the following aquaculture application:

Application No.:	AQ#1431
Applicant:	We'koqma'q First Nation
Application Type:	New Marine Aquaculture Site
Species:	Rainbow trout
Cultivation Type:	Marine cage cultivation
Location:	South Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
2. Experimental Aquaculture Licence and Lease No. 5010 is currently issued for a portion of the area associated with application No. 1431, should AQ#1431 be approved, AQ#5010 will be discontinued.

We request that you review and submit all components that pertain to this application by December 28, 2019 and provide NSDFA with confirmation should an authorization be issued under the Navigation Protection Act.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application. You may contact me at by phone at 902-875-7440 or email Lynn.Winfield@novascotia.ca if you have any questions.

Sincerely,

Lynn

Lynn Winfield,
Licensing Coordinator

From: NPP ATL - PPN ATL <NPPATL-PPNATL@tc.gc.ca>
Sent: October 29, 2019 4:16 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

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You have reached Transport Canada - Navigation Protection Program - Atlantic Region. Your request has been received and is being processed.

If you are applying to Transport Canada for an approval under the Canadian Navigable Waters Act (CNWA), or seeking authorization through the public resolution process, you may do so through the NPP External submission site:
https://www.tc.gc.ca/eng/programs-623.html

Further information about the Navigation Protection Program can be found on our website:
http://www.tc.gc.ca/eng/programs-621.html

_____

Vous avez joint le Programme de Protection de la navigation de Transports Canada de la Région de l'Atlantique. Votre demande a été reçue et est en cours de traitement.

Si vous présentez une demande d'approbation à Transports Canada en vertu de la Loi sur les eaux navigables canadiennes (LENC), ou voulez obtenir une autorisation au moyen du processus de règlement public, vous pourriez le faire sur le site de soumission externe du PPN :
https://www.tc.gc.ca/fra/programmes-623.html

Des renseignements supplémentaires se trouvent sur notre site Web :
http://www.tc.gc.ca/fra/programmes-621.html

Thanks
Merci

Navigation Protection Program | Programme de protection de la navigation

Transport Canada - Atlantic Region / Heritage Court, P.O. Box 42, 95 Foundry Street, Moncton, N.B. E1C 8K6 | Transports Canada - Région de l'Atlantique / Place Héritage, C.P. 42, 95 rue Foundry, Moncton, N.-B. E1C 8K6 Tel | Tél. : 506-851-3113 / Fax | Téléc. : 506-851-7542 Email / Courriel : NPPATL-PPNATL@tc.gc.ca<mailto:NPPATL-PPNATL@tc.gc.ca>

[tc_eng_rednewer] [canada_rednew]

From: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Sent: December 2, 2019 4:42 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: North Aberdeen Whycobah Bay AQ1430 Wekoqmaq First Nation New Marine Finfish Application

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Hi Lynn,
See attached response for 1430.
NPP does not foresee any issues.

Mélanie LeBlanc
Navigation Protection Program Officer

Transport Canada / Atlantic Region / Heritage Court, P.O. Box 42, Moncton, N.B. E1C 8K6 |
melanie.leblanc@tc.gc.ca / Tel: 506-962-1412

Agente, Programme de la protection de la navigation
Transports Canada / Région de l'Atlantique / Place Héritage, C.P. 42, Moncton, N.-B. E1C 8K6
melanie.leblanc@tc.gc.ca / Tél. : 506-962-1412

Transport Canada Transports Canada

AQ1430 Network Agency Review Form

Network Agency Review of an Aquaculture Application

Agency	**Transport Canada**
Division (if applicable)	**Navigation Protection Program**
Date	**December 2, 2019**
File No.	**We'koqma'q First Nation AQ#1430** **North Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

- ☒ No concerns regarding the proposed development
- ☐ Concerns with development are expressed below
- ☐ Request modifications to the proposed development (described below)
- ☐ Required or recommended conditions (described below)
- ☐ Request additional information (described below)
- ☐ Request meeting with applicant and NSDFA (described below)
- ☐ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Application received, NPP will need to issue a CNWA approval

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Sent: December 2, 2019 4:42 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

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Hi Lynn,
See attached response for 1430.
NPP does not foresee any issues.

Mélanie LeBlanc

Navigation Protection Program Officer
Transport Canada / Atlantic Region / Heritage Court, P.O. Box 42, Moncton, N.B. E1C 8K6 |
melanie.leblanc@tc.gc.ca / Tel: 506-962-1412

Agente, Programme de la protection de la navigation
Transports Canada / Région de l'Atlantique / Place Héritage, C.P. 42, Moncton, N.-B. E1C 8K6
melanie.leblanc@tc.gc.ca / Tél. : 506-962-1412

Transport Canada Transports Canada

AQ1431 Network Agency Review Form.

Network Agency Review of an Aquaculture Application

Agency	**Transport Canada**
Division (if applicable)	**Navigation Protection Program**
Date	**December 2, 2019**
File No.	**We'koqma'q First Nation AQ#1431** **North Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☒ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☐ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Application received, NPP will need to issue a CNWA approval

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Sent: July 9, 2020 10:01 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: 0814, 1430

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Hi Lynn,

Hope all is well, and that summer is helping with the nicer weather – I seem to feel a bit less confined.

I got the Indigenous relations for 0814 and 1430.
Are those leases ready to go… I'm just looking for timeline and such?...

Thanks

Mélanie LeBlanc

Navigation Protection Program Officer
Transport Canada / Atlantic Region / Heritage Court, P.O. Box 42, Moncton, N.B. E1C 8K6 |
melanie.leblanc@tc.gc.ca / Tel: 506-962-1412

Agente, Programme de la protection de la navigation
Transports Canada / Région de l'Atlantique / Place Héritage, C.P. 42, Moncton, N.-B. E1C 8K6
melanie.leblanc@tc.gc.ca / Tél. : 506-962-1412

From: Winfield, Lynn [mailto:Lynn.Winfield@novascotia.ca]
Sent: Thursday, July 09, 2020 11:49 AM
To: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: 0814, 1430

Hi Melanie,

Yes I have to agree, I'm getting out more and feeling less restricted, although still being cautious.

These applications will need to go to the Aquaculture Review Board for review and decision. I do not have a timeline for these at this time. I will keep you posted as these move forward.

Enjoy the summer weather.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 10:24 AM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: Discussion regarding AQ 1430, 1431

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Hello Robert:
I am wondering if we can arrange a call to discuss the lease applications for AQ 1430, 1431. We'koqma'q has learned some things in the past year of working the experimental site (AQ 5010) and we'd like to apply that knowledge to the lease applications.

Please let me know if/when this would be possible.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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From: Ceschiutti, Robert [mailto:Robert.Ceschiutti@novascotia.ca]
Sent: Monday, July 13, 2020 12:02 PM
To: Melissa Rommens
Cc: Feehan, Jennifer; Winfield, Lynn; donald
Subject: RE: Discussion regarding AQ 1430, 1431

Hi Melissa, sounds good. I'll find out who else on our team would like to join the call, which will help determine when we can arrange the meeting. I should have a reply for you by tomorrow afternoon.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0

Phone: 902-875-7430
Cell: 902-874-0996
Robert.Ceschiutti@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 12:31 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Subject: RE: Discussion regarding AQ 1430, 1431

Thank you Robert.
Melissa

NOTE: Please refer to correspondence in Appendix B for the July 23, 2020 Meeting Invitation.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: September 9, 2020 12:07 PM
To: Aquaculture <Aquaculture@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: donald <donalddavis@waycobah.ca>
Subject: Changes to applications for AQ 1430 and 1431

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Please find attached a formal request for production plan changes to the applications for AQ 1430 and 1431. Please be sure to reach out with questions or concerns.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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NOTE: Please refer to the Application Package, Volume 2, Section 4.4 – Development Plan Revisions AQ#1430 and AQ#1431 (2020), for the attachment in this email.

From: Greenwood, Megan N
Sent: March 29, 2021 1:55 PM
To: 'NPPATL-PPNATL@tc.gc.ca' <NPPATL-PPNATL@tc.gc.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Sampson, Nicole A <Nicole.Sampson@novascotia.ca>; King, Matthew S <Matthew.King@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: AQ#1430 Network Memo-Amended Plan

Good Afternoon,

We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1430 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

The original plan was sent to you for feedback on October 29, 2019 and a comment has been received from your Department.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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MEMORANDUM

To: Transport Canada

From: Robert Ceschiutti, Aquaculture Administrator
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: March 29, 2021

RE: Amended Information for New Aquaculture Licence and Lease Application No. 1430 – Inverness County - Aquaculture Network Review

---

Attention network agencies, We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1430 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture Marine Finfish application:

Application No.:	1430
Proponent:	We'koqma'q First Nation
Application Type:	Application for Marine Cage Cultivation of Rainbow Trout
Location:	North Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. The complete application package is available online at: https://novascotia.ca/fish/aquaculture/Application_Package_AQ0814_AQ1430_AQ1431_-_2021.03.22.pdf (There are 269 pages total, with revised and supplemaentary information beginning on page 251);
2. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
3. The amended development plan represents an increase in production amounts and change in cage configuration (i.e. larger cages, but fewer cages and arrays);
4. The amended plan does not include a change in boundaries;
5. In reference to the September 9, 2020 letter accompanying the amended Development Plan, depositional modelling is required under Fisheries and Ocean Canada's Aquaculture Activities Regulations and has been submitted to the respective department;
6. The applicant is making a revised application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;

7. Experimental Aquaculture Licence and Lease No. 5010 is currently issued for a portion of the area associated with application No. 1430, should AQ#1430 be approved, AQ#5010 will be discontinued.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application.

You may contact me at by phone at 902-875-7443 or email Megan.Greenwood@novascotia.ca if you have any questions.

From: Greenwood, Megan N
Sent: March 29, 2021 3:51 PM
To: 'NPPATL-PPNATL@tc.gc.ca' <NPPATL-PPNATL@tc.gc.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Sampson, Nicole A <Nicole.Sampson@novascotia.ca>; King, Matthew S <Matthew.King@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: AQ#1431 Network Memo-Amended Plan

Good Afternoon,

We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1431 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in North Aberdeen, Whycocomagh Bay, Inverness County.

The original plan was sent to you for feedback on October 29, 2019 and a comment has been received from your Department.

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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2021.03.29-TC
Network Memo Amer

MEMORANDUM

To: Transport Canada

From: Robert Ceschiutti, Aquaculture Administrator
Nova Scotia Department of Fisheries and Aquaculture

CC: Matthew King, GIS Analyst
Nathaniel Feindel, Manager of Aquaculture Development
Nicole Sampson, Coastal Resource Coordinator

Date: March 29, 2021

RE: Amended Information for New Aquaculture Licence and Lease Application No. 1431 – Inverness County - Aquaculture Network Review

---

Attention network agencies, We'koqma'q First Nation has submitted an amended development plan regarding the production plan and cage configuration for aquaculture application #1431 for the marine finfish cage cultivation of Rainbow Trout. The proposed site is located in South Aberdeen, Whycocomagh Bay, Inverness County.

Please find attached information relating to the following aquaculture Marine Finfish application:

Application No.:	1431
Proponent:	We'koqma'q First Nation
Application Type:	Application for Marine Cage Cultivation of Rainbow Trout
Location:	South Aberdeen, Whycocomagh Bay, Inverness County

To facilitate the screening process, NSDFA offers the following points of information:

1. The complete application package is available online at: https://novascotia.ca/fish/aquaculture/Application_Package_AQ0814_AQ1430_AQ1431_-_2021.03.22.pdf
2. Following the review of the application by our Network Partners, this application will be provided to the Aquaculture Review Board for final decision;
3. The amended development plan represents an increase in production amounts and change in cage configuration (i.e. larger cages, but fewer cages and arrays);
4. The amended plan does not include a change in boundaries;
5. In reference to the September 9, 2020 letter accompanying the amended Development Plan, depositional modelling is required under Fisheries and Ocean Canada's Aquaculture Activities Regulations and has been submitted to the respective department;

6. The applicant is making a revised application to Transport Canada for an authorization under the Navigation Protection Act for the placement of marine cages;

We request that you review the amended information and confirm if it changes your previously submitted review. Please submit all components that pertain to this application by May 29, 2021.

Note: We require a written (mail/email) response from each of our review agencies in order to process this application.

You may contact me at by phone at 902-875-7443 or email Megan.Greenwood@novascotia.ca if you have any questions.

From: Feehan, Jennifer
Sent: March 29, 2021 4:27 PM
To: 'donald' <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: Network Comments AQ#1430 & 1431

Hi Donald and Melissa,

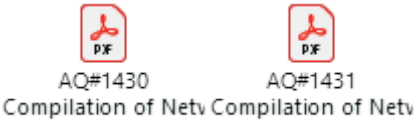
Please be advised that the amended development plans with revised production plans and cage configuration for AQ#1430 and AQ#1431 have been sent to Network for review.

I have attached a compilation of network comments received to date based on the original development plans. Network may have additional questions or comments pending review of the amended plans. You may begin preparing any required responses as per the comments to date, and we will be in touch when final comments or questions from Network have been submitted.

Please do not hesitate to reach out if you have any questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#1430 and AQ#1431 up to March 29, 2021, attached in this email.

From: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Sent: March 31, 2021 11:34 AM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ#1431 Network Memo-Amended Plan

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Good Morning Megan,
I don't foresee any changes with the amended plan.
Thank you
Melanie

Mélanie LeBlanc

Navigation Protection Program Officer
Transport Canada / Atlantic Region / Heritage Court, P.O. Box 42, Moncton, N.B. E1C 8K6 |
melanie.leblanc@tc.gc.ca / Tel: 506-962-1412
https://tc.canada.ca/en/corporate-services/video-gallery/canadian-navigable-waters-act.

Agente, Programme de la protection de la navigation
Transports Canada / Région de l'Atlantique / Place Héritage, C.P. 42, Moncton, N.-B. E1C 8K6
melanie.leblanc@tc.gc.ca / Tél. : 506-962-1412
https://tc.canada.ca/fr/services-generaux/galerie-videos/loi-eaux-navigables-canadiennes

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From: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Sent: March 31, 2021 11:35 AM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ#1430 Network Memo-Amended Plan

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Hi Megan,
I do not foresee any issues.
Melanie
Mélanie LeBlanc

Navigation Protection Program Officer
Transport Canada / Atlantic Region / Heritage Court, P.O. Box 42, Moncton, N.B. E1C 8K6 |
melanie.leblanc@tc.gc.ca / Tel: 506-962-1412
https://tc.canada.ca/en/corporate-services/video-gallery/canadian-navigable-waters-act.

Agente, Programme de la protection de la navigation
Transports Canada / Région de l'Atlantique / Place Héritage, C.P. 42, Moncton, N.-B. E1C 8K6
melanie.leblanc@tc.gc.ca / Tél. : 506-962-1412
https://tc.canada.ca/fr/services-generaux/galerie-videos/loi-eaux-navigables-canadiennes

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From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: April 21, 2021 2:22 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: Network Comments AQ#1430 & 1431

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Hello Jennifer:
Find attached responses to network comments you had received as of March 29, 2020 for AQ 1430 and AQ 1431.
Please let us know if a different kind of formatting for responses is preferred.
Just reach out with questions or concerns.

Kind regards,
Melissa

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Response to Network Comments

Response to Network Comments

NOTE: Please refer to correspondence in Appendix B dated April 21, 2021, for the complete documents attached in this email. The proponent's responses specific to Transport Canada are attached below for reference.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

5. Transport Canada; Dec. 2, 2019. Application received, NPP will need to issue a CNWA approval. *Please clarify - is any reply required? Cage configurations have changed, but the lease area has not.*

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

5. Transport Canada; Dec. 2, 2019. Application received, NPP will need to issue a CNWA approval. *Please clarify - is any reply required? Cage configurations have changed, but the lease area has not.*

Sent: June 22, 2021 4:06 PM
To: donald <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: AQ#0814 Compilation of Network Comments

Hi Donald and Melissa,

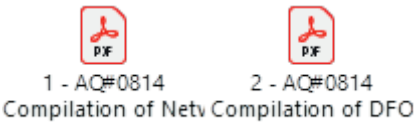
Please find attached the compilation of comments received from Network Agencies for AQ#0814. A compilation of DFO's requests for additional information to date is attached separately. Please note that DFO's final Letter of Advice and CSAS Report for this application are still pending.

In regard to Nova Scotia Department of Lands and Forestry's comments (see pages 39-41), we would like to set up a call to discuss and provide some clarification. To allow time for you to review the network comments and prepare any questions, would a call on **July 14th at 11 am** work for you?

Please let me know and I will follow up with a meeting request.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca



NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#0814x up to June 22, 2021, attached in this email.

From: Melissa Rommens <melissa@sustainaqua.ca>
Date: 2021-06-23 7:58 a.m. (GMT-04:00)
To: "'Feehan, Jennifer'" <Jennifer.Feehan@novascotia.ca>, 'donald' <donalddavis@waycobah.ca>
Cc: "'Greenwood, Megan N'" <Megan.Greenwood@novascotia.ca>, "'Feindel, Nathaniel J'" <Nathaniel.Feindel@novascotia.ca>, "'Ceschiutti, Robert'" <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

This time is good for me Jennifer.

Please await a reply from Donald before final scheduling.

Kind regards,

Melissa

From: donalddavis <donalddavis@waycobah.ca>
Sent: June 23, 2021 8:18 AM
To: Melissa Rommens <melissa@sustainaqua.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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That time is fine with me.....Regards Donald.

Sent from my Bell Samsung device over Canada's largest network.

NOTE: Please refer to correspondence in Appendix B for the July 14, 2021 Meeting Invitation.

From: Feehan, Jennifer
Sent: July 15, 2021 9:36 AM
To: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: FW: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Melanie,

I am looking to confirm that the NPA application sent in 2019 for the AQ#0814 boundary amendment application in Whycocomagh Bay is satisfactory and that the proponent does not need to reapply through the online portal.

As this application moves forward, is there anything outstanding on your end?

Thanks,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 26, 2021 4:44 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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Hello Jennifer:
Find attached a response to the compiled network comments as referred to in the email below.

There are a few outstanding items noted:

- Confirm if anything is outstanding with TC.
- Determine contact information for the Coordinator of Special Places Program of NSCCH.
- Confirm if anything is required for NSECC.
- Determine intention of bald eagle monitoring requested by NSDLF.
- Confirm if additional information is required for DFO.

We are available to discuss the above as well as the submission at your convenience.

Thank-you for the opportunity to discuss and respond to the network concerns.

Kind regards,
Melissa.

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0

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Network comment responses 0814x Jul

NOTE: Please refer to correspondence in Appendix B dated July 26, 2021, for the complete document attached in this email. The proponent's response specific to Transport Canada is attached below for reference.

4. Transport Canada; July 9, 2020+

No questions required a reply. *NSDFA to follow up to see if there are any concerns.*

From: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Sent: July 29, 2021 2:02 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Jennifer,

I have the application for the lease amendment for 0814, so no new application is required unless something has changed. We are waiting for the public comment period. We usually coordinate with NSDFA. Cheers
Melanie

From: Feehan, Jennifer
Sent: August 3, 2021 10:41 AM
To: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Melanie,

Thank you for the update.

Cheers,
Jennifer

From: Feehan, Jennifer
Sent: August 5, 2021 4:46 PM
To: Melissa Rommens <melissa@sustainaqua.ca>; 'donald' <donalddavis@waycobah.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

Hi Melissa,

Thank you for your submission of the response to network comments for AQ#0814. I am in the process of reviewing your responses and will get them sent out to the appropriate network agencies as soon as possible.

Regarding the outstanding items outlined in your email:

- TC has confirmed that they have the application and do not require you to reapply through the online portal.
- NSCCH has been contacted and we are waiting for a response. The general contact information for the Department is cch@novascotia.ca and (902) 424-2170, but I will see I can get you a direct contact.
- NSE has confirmed that they have not received comment from the compliance team and agreed that NSDFA will request comment directly from the Compliance and Enforcement Division for the compliance report, which is the regular process for receiving comment from the compliance team.
- I will follow up with NSDLF on the bald eagle monitoring when I send your response.
- I will confirm with DFO that no additional information is required when I send your response.

I will be in touch with any additional updates.

Kind regards,
Jennifer

From: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>
Sent: October 6, 2021 1:27 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Lynn,
I've taken over this file, and just wanted to touch base on it. Has a public notice already been done for this file? When will the province be ready to issue so I can get our documents ready?
Thanks very much,

Marina

Marina Carbonell
(she/her/elle)

Navigable Waters Protection Program Officer / Agent de protection des eaux navigables
Transport Canada, Government of Canada / Transports Canada, Gouvernement du Canada

Telephone / Téléphone: (709) 691-3794
Facsimile / télécopieur: (709) 772-0210
E-mail/courrier électronique: marina.carbonell@tc.gc.ca
John Cabot Building, 10 Barter's Hill, 6th Floor / 10, Barter's Hill, Immeuble John Cabot, 6e étage
St. John's, NL A1C 6H8 / Saint Jean, Terre-Neuve A1C 6H8

The *Canadian Navigable Waters Act* protects the rights of all Canadians to use and enjoy our waterways for travel, recreation, and transport. Watch this video to learn more: https://tc.canada.ca/en/corporate-services/video-gallery/canadian-navigable-waters-act.

La *Loi sur les eaux navigables canadiennes* protège les droits de tous les Canadiens à utiliser et à profiter de nos voies navigables pour les voyages, les loisirs et le transport. Regardez cette vidéo pour en savoir plus : https://tc.canada.ca/fr/services-generaux/galerie-videos/loi-eaux-navigables-canadiennes

Canada Gouvernement du Canada Government of Canada

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Mes heures de travail sont peux-être différentes des vôtres alors ne vous sentez pas obligé de répondre si c'est en dehors de vos heures de travail.

From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: October 6, 2021 1:28 PM

To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: FW: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi,

Please see the below email from TC

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: October 6, 2021 1:31 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: FW: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Rob,

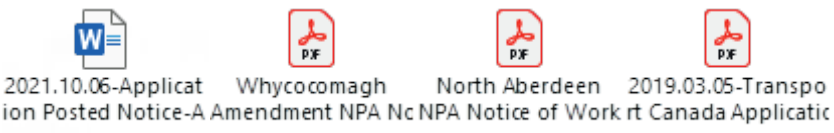
Please see Marina's email below regarding public posting.

Megan

From: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Sent: October 6, 2021 4:34 PM
To: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Hi Marina, would Thursday October 14th (2021) be okay with you for the official public posting date? I'd need Registry/NPP numbers for AQ#0814, as well as AQ#1430 and AQ#1431 by noon Friday, otherwise I'll need to delay the posting to a later date. Please see the attached draft notice with a spot for Transport Canada, and a copy of the applications initially sent to Transport Canada.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
Phone: 902-875-7430
Robert.Ceschiutti@novascotia.ca



NOTE: Please refer to the 'Notice of Applications Posted' attached below, and the Application Package, Volume 2, Section 4.2.4 – Development Plan Appendices (2019) for the Notice of Works applications attached in this email.

NOVA SCOTIA
Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
www.novascotia.ca

NOTICE OF APPLICATIONS POSTED

These documents have been submitted with respect to three applications from WAYCOBAH FIRST NATIONS BAND COUNCIL. One application for a boundary amendment to an existing marine aquaculture site, and two applications for new marine aquaculture sites. The applications follow a Scoping period, during which the applicant collected information to support their application. The information in these documents is provided as part of the routine disclosure of information by the Department of Fisheries and Aquaculture. Some information may be redacted as business confidential information or personal information.

These documents were provided to the Department by the applicant. The Department is not responsible for the content of these documents, including, but not limited to, the accuracy, reliability, or currency of the information contained within.

Adjudicative Application for Boundary Amendment	
Applicant: WAYCOBAH FIRST NATIONS BAND COUNCIL	**Species:** Atlantic salmon, Rainbow trout
Location: Whycocomagh Bay, Inverness County	**Method of Cultivation:** Marine cage cultivation
Aquaculture Site: AQ#0814	**Application Received:** April 8, 2019

Adjudicative Application for a New Aquaculture Licence and Lease	
Applicant: WAYCOBAH FIRST NATIONS BAND COUNCIL	**Species:** Rainbow trout
Location: North Aberdeen, Whycocomagh Bay, Inverness County	**Method of Cultivation:** Marine cage cultivation
Aquaculture Site: AQ#1430	**Application Received:** April 8, 2019

Adjudicative Application for a New Aquaculture Licence and Lease	
Applicant: WAYCOBAH FIRST NATIONS BAND COUNCIL	**Species:** Rainbow trout
Location: South Aberdeen, Whycocomagh Bay, Inverness County	**Method of Cultivation:** Marine cage cultivation
Aquaculture Site: AQ#1431	**Application Received:** April 8, 2019

To learn more about the the marine aquaculture lease and license application process, please visit

https://novascotia.ca/fish/aquaculture/licensing-leasing/Aqua-Licensing-and-Leasing-Overview.pdf

For information on the Nova Scotia Aquaculture Review Board, please visit https://arb.novascotia.ca/

Posting Date of this Notice: October 14, 2021

Please note that this application is being reviewed pursuant to the *Canadian Navigable Waters Act* by Transport Canada. Written comments regarding the effect of this work on marine navigation may be submitted to Transport Canada as follows, for a period of 30 days following the posting date of this notice.

1. On line at : http://cps.canada.ca/ under the following Registry/NPP numbers:
   AQ#0814: TBD
   AQ#1430: TBD
   AQ#1431: TBD
2. By Mail at: Manager
   Transport Canada - Navigation Protection Program
   P.O. Box 42, Moncton, NB E1C 8K6

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From: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>
Sent: October 7, 2021 3:30 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

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Hi Robert,
0814 is file 1993-200258. No registry number, this is an old application that wasn't submitted through the newer ESS system to a registry number was not generated.

For 1430 and 1431 – these are the same as 5010 and 5013 in our system, respectively. 5010 and 5013 have already been Approved by us, we only do one approval per site.

For 1431/5013 we can do an administrative change of the lease number on the paperwork when you are ready. This one won't be advertised because the actual Approval has already been completed and this is just an administrative change. Just let me know when you are ready for me to make that switch.

For 1430, it is an alteration of 5010 with the site layout changing, so we would need to advertise that one. The file number for **1430/5010 is 2019-200108**. No registry number for this one either.

Both 0814(X) and 1430/5010 are ready for advertising on our side, and I will set them both to start on the 14th.

I know this may be a bit confusing. If you have any questions just let me know.
Have a good evening,

Marina

Marina Carbonell
(she/her/elle)

Navigable Waters Protection Program Officer / Agent de protection des eaux navigables
Transport Canada, Government of Canada / Transports Canada, Gouvernement du Canada

Telephone / Téléphone: (709) 691-3794
Facsimile / télécopieur: (709) 772-0210
E-mail/courrier électronique: marina.carbonell@tc.gc.ca
John Cabot Building, 10 Barter's Hill, 6th Floor / 10, Barter's Hill, Immeuble John Cabot, 6e étage
St. John's, NL A1C 6H8 / Saint Jean, Terre-Neuve A1C 6H8

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Mes heures de travail sont peux-être différentes des vôtres alors ne vous sentez pas obligé de répondre si c'est en dehors de vos heures de travail.

From: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Sent: October 7, 2021 3:55 PM
To: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>; Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Okay, thanks for the feedback. I understand what will require advertising. Copying our review team for the record.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0
Phone: 902-875-7430
Robert.Ceschiutti@novascotia.ca

From: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>
Sent: January 24, 2022 3:40 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: AQ 0814

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Hi Lynn,
We are ready to proceed with the file for AQ 0814 – are you guys ready to proceed? Could I get an update on the file?
Thanks very much!

Marina

Marina Carbonell
(she/her/elle)

Navigable Waters Protection Program Officer / Agent de protection des eaux navigables
Transport Canada, Government of Canada / Transports Canada, Gouvernement du Canada

Telephone / Téléphone: (709) 691-3794
Facsimile / télécopieur: (709) 772-0210
E-mail/courrier électronique: marina.carbonell@tc.gc.ca
John Cabot Building, 10 Barter's Hill, 6th Floor / 10, Barter's Hill, Immeuble John Cabot, 6e étage

St. John's, NL A1C 6H8 / Saint Jean, Terre-Neuve A1C 6H8

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From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: January 25, 2022 7:28 AM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: FW: AQ 0814

Morning,

Please see the below email from Marina.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: Tuesday, January 25, 2022 10:08 AM
To: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ 0814

Hi Marina,

Lynn forwarded me your email as I am now the Licensing Coordinator that handles all of the We'koma'q files.

AQ#0814, 1430 and 1431 will all be proceeding the Aquaculture Review Board as one package, with one hearing. We are still waiting on a few network partners to provide their final advice. Until this is received, we are not able to proceed with sending this to the ARB.

Could you confirm that Transport Canada will not be issuing an approval prior to a decision from the ARB? Could you confirm whether there are any issues with the application?

Megan Greenwood
Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

From: Carbonell, Marina <Marina.Carbonell@tc.gc.ca>
Sent: January 25, 2022 11:09 AM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ 0814

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Hi Megan,
No problems with the application. We will not issue until you notify us – I just wanted to make sure we were correct in waiting. Sometimes there are many similar files and I like to stay on top of them so nothing gets forgotten!

Just let me know when you are ready to go, and we will be ready on our side.
Have a great afternoon,

Marina

Marina Carbonell
(she/her/elle)

Navigable Waters Protection Program Officer / Agent de protection des eaux navigables
Transport Canada, Government of Canada / Transports Canada, Gouvernement du Canada

Telephone / Téléphone: (709) 691-3794
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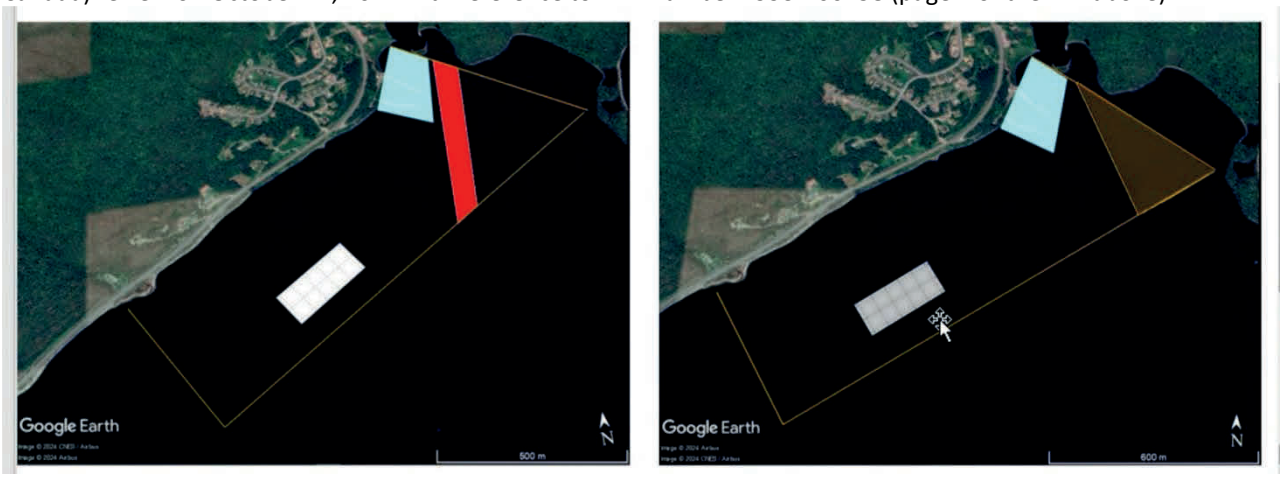
Mes heures de travail sont peux-être différentes des vôtres alors ne vous sentez pas obligé de répondre si c'est en dehors de vos heures de travail.

From: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Sent: April 9, 2024 1:57 PM
To: LeBlanc, Mélanie <melanie.leblanc@tc.gc.ca>
Cc: Holland, Susanne Cecelia <Susanne.Holland@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: AQ#0814 potential change to application and site boundaries

Hi Melanie, I was wondering if you could help provide some insight on what the impacts would be to your NPP approval workflow if one of our aquaculture applicants wished to modify their proposed site boundaries mid-process?

For the application submitted by We'koqma'q First Nation to expand site AQ#0814, the applicant is interested in modifying their original proposed site boundaries as follows:

The map on the left represents the initial submission by the applicant (see page 253 and 254 of the application package – link here: Application-Package-AQ0814-AQ1430-AQ1431-2021.10.14.pdf (novascotia.ca)). The area in white shows a cage array for marine finfish grow-out. The area in blue shows the area for overwintering of the finfish (also in cages). The area in red is the proposed navigation corridor from the river shown at the top to the main body of water. The application was published to the Department website for public notice and for network (i.e. Transport Canada) review on October 14, 2021 with reference to NPP number 1993-200258 (page 2 of the link above).



The map on the right (which is <u>not</u> to the same scale as the map on the left) is a proposed modification to the site boundaries which would see the orange triangle removed from the application and the red navigation corridor also removed. As a result, navigation is proposed to occur parallel to the right-side boundary.

Hypothetically, if the applicant proceeded with making this change to their application, what would you require from them in relation to the NPP application. For example:

1. Would you need an additional 30-day public notice period to satisfy any NPP application requirements?
2. Is there any application fee required?
3. What would the applicant need to submit to you themselves?

The applicant is still weighing their options but was interested in the impact to their NSDFA and TC (NPP) applications before deciding. If they decide to proceed with that change, we will let you know and provide you with another opportunity for network review.

I'm hoping to get your response by the end of this week, so that I can let the applicant know as well.

Regards,
Robert Ceschiutti (he/him) (why pronouns are included)
Manager, Licensing and Leasing, Aquaculture
NS Department of Fisheries and Aquaculture
1575A Lake Road, Sandy Point, NS B0T1W0
Cell/Text: 902-874-0996
robert.ceschiutti@novascotia.ca

From: LeBlanc, Mélanie (TC/TC) <melanie.leblanc@tc.gc.ca>
Sent: April 24, 2024 12:06 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Holland, Susanne Cecelia <Susanne.Holland@novascotia.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Subject: RE: [External/Externe]: AQ#0814 potential change to application and site boundaries

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Hi Robert,
To follow up on our phone conversation on 0814

I wanted to let you know that WFN Farm Limited Partnership's consultant has reached out and has provided TC with updated contact for the applications (0814, 1431 and 1430).

For lease 0814 amendment, with the provided sketch below (I also received the shapefile from Matt). I can confirm that due to the decrease in footprint and that there is sufficient water in the area, there will not be additional requirement for public notice.

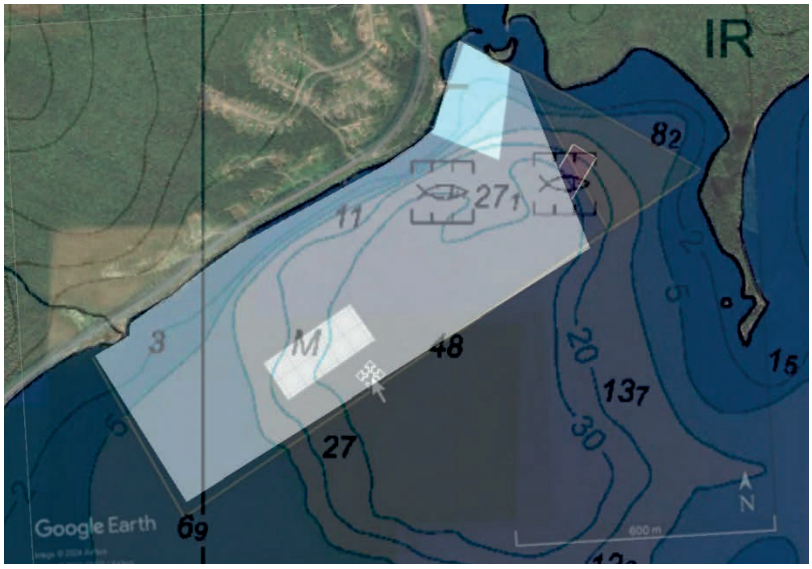
At this time there continues to be no fee associated for the application, and I have simply updated the current application (received on 2019-07-24) with the updated information.

Thanks

Mélanie LeBlanc

Navigation Protection Program Officer
Transport Canada / Atlantic Region / Heritage Court, 6th floor-95 Foundry Street, Moncton, NB E1C 5H7
melanie.leblanc@tc.gc.ca / Tel: 506-962-1412

Agente, Programme de la protection de la navigation
Transports Canada / Région de l'Atlantique / Place Héritage, 6e étage-95 rue Foundry, Moncton, NB E1C 5H7
melanie.leblanc@tc.gc.ca / Tél. : 506-962-1412


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APPENDIX E – ENVIRONMENT AND CLIMATE CHANGE CANADA – SHELLFISH WATER CLASSIFICATION PROGRAM

From: Winfield, Lynn
Sent: July 15, 2019 11:05 AM
To: 'Angela Smith' <angela.smith@inspection.gc.ca>; shane.hood@inspection.gc.ca; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>
Subject: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Good Morning,

Please see the attached information on the boundary amendment application No. 0814, in Whycocomagh Bay, Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by September 16, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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AQ0814 Network Memo.pdf
Dev Plan.pdf
AQ0814 Network Agency Review Form

NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.2.1 – AQ#0814x Development Plan (2019) and Section 4.2.4 – Development Plan Appendices, for the documents sent to and reviewed by Network.

From: MacArthur, David (EC) <david.macarthur@canada.ca>
Sent: August 21, 2019 3:17 PM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: AQ0814 - Boundary Amendment Application - We'koqma'q First Nation

Form attached.

David MacArthur
Senior Area Coordinator, Shellfish Water Classification Program - Atlantic
Environment & Climate Change Canada / Government of Canada
david.macarthur@canada.ca / Tel: 902-426-6296 / Fax: 902-426-8041

Coordonnateur Principal Zone, Programme de Classification des Eaux Coquillieres - Atlantique
Environnement & Changement Climatique Canada / Gouvernement du Canada
david.macarthur@canada.ca / Tél: 902-426-6296 / Téléc: 902-426-8041



Application 0814 - DMacArthur ECCC.d

Network Agency Review of an Aquaculture Application

Agency	**ECCC - CSSP**
Division (if applicable)	
Date	**August 21, 2019**
File No.	**AQ#0814 - Whycocomagh Bay, Inverness County**
Type of application	**Boundary Amendment - Marine Finfish Cage Cultivation (Rainbow trout & Atlantic salmon)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☐ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: Winfield, Lynn
Sent: October 29, 2019 4:03 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1430, in Whycocomagh Bay (North Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.2 – AQ#1430 Application Form (2019), Section 4.2.2 – AQ#1430 Development Plan (2019), Section 4.2.4 – Development Plan Appendices (2019) and Section 4.3 – Additional Information Requests and Responses (2019), for the documents sent to and reviewed by Network.

From: Winfield, Lynn
Sent: October 29, 2019 4:14 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: South Aberdeen, Whycobah Bay - AQ1431 We'koqma'q First Nation - New Marine Finfish Application

Good Afternoon,

Please see the attached information on a New Aquaculture Marine Finfish Site application No. 1431, in Whycocomagh Bay (South Aberdeen), Inverness County, along with the Network Agency Review Form.

Please respond with your feedback by December 28, 2019.

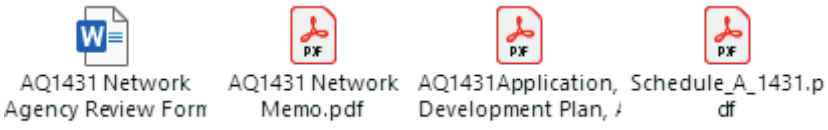
Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

1575 Lake Road
Shelburne, NS B0T 1W0
Phone: 902-875-7440
Fax: 902-875-7429
Email: Lynn.Winfield@novascotia.ca

NS Department of Fisheries & Aquaculture Website

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NOTE: Please refer to Appendix A for the Network Memo and Network Agency Review Form, and the Application Package, Volume 2, Section 4.1.3 – AQ#1431 Application Form (2019), Section 4.2.3 – AQ#1431 Development Plan (2019) and Section 4.2.4 – Development Plan Appendices (2019), for the documents sent to and reviewed by Network.

From: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Sent: December 18, 2019 12:34 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: RE: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

Attn: Network Review Agencies:

Please be reminded that our office has not received comments from your Department for the proposed new aquaculture marine finfish Licence and Lease #1430 for We'koqma'q First Nations in Whycocomagh Bay (North Aberdeen), Inverness County. Your comments are requested on or before December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: Winfield, Lynn
Sent: December 18, 2019 12:36 PM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; Daniel.Houlihan@dfo-mpo.gc.ca; david.macarthur@ec.gc.ca; rachel.gautreau@ec.gc.ca; Birch, Angela <Angela.Birch@novascotia.ca>; Miller, L (Dawn) <Dawn.Miller2@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; Murrant, Darryl D <Darryl.Murrant@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

Attn: Network Review Agencies:

Please be reminded that our office has not received comments from your Department for the proposed new aquaculture marine finfish Licence and Lease #1431 for We'koqma'q First Nations in Whycocomagh Bay (South Aberdeen), Inverness County. Your comments are requested on or before December 28, 2019.

Thanks,
Lynn

E. Lynn Winfield
Licensing Coordinator,
Nova Scotia Department of Fisheries and Aquaculture

From: MacArthur, David (EC) <david.macarthur@canada.ca>
Sent: December 20, 2019 11:19 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: South Aberdeen Whycobah Bay AQ1431 Wekoqmaq First Nation New Marine Finfish Application

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Attached is my response.
Thanks,
David MacArthur
Senior Area Coordinator, Shellfish Water Classification Program - Atlantic
Environment & Climate Change Canada / Government of Canada
david.macarthur@canada.ca / Tel: 902-426-6296 / Fax: 902-426-8041
Coordonnateur Principal Zone, Programme de Classification des Eaux Coquillieres - Atlantique
Environnement & Changement Climatique Canada / Gouvernement du Canada
david.macarthur@canada.ca / Tél: 902-426-6296 / Téléc: 902-426-8041



Application 1431 - DMacArthur ECCC.do

Network Agency Review of an Aquaculture Application

Agency	**ECCC**
Division (if applicable)	**SWCP**
Date	**Dec 20, 2019**
File No.	**We'koqma'q First Nation AQ#1431** **South Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☐ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: MacArthur, David (EC) <david.macarthur@canada.ca>
Sent: December 20, 2019 11:23 AM
To: Winfield, Lynn <Lynn.Winfield@novascotia.ca>
Subject: RE: North Aberdeen, Whycobah Bay - AQ1430 We'koqma'q First Nation - New Marine Finfish Application

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Lynn,

Attached is my response. Late again…thanks for reminder.

Merry Christmas!

David MacArthur
Senior Area Coordinator, Shellfish Water Classification Program - Atlantic
Environment & Climate Change Canada / Government of Canada
david.macarthur@canada.ca / Tel: 902-426-6296 / Fax: 902-426-8041

Coordonnateur Principal Zone, Programme de Classification des Eaux Coquillieres - Atlantique
Environnement & Changement Climatique Canada / Gouvernement du Canada
david.macarthur@canada.ca / Tél: 902-426-6296 / Téléc: 902-426-8041



Application 1430 - DMacArthur ECCC.d

Network Agency Review of an Aquaculture Application

Agency	**ECCC**
Division (if applicable)	**SWCP**
Date	**Dec 20, 2019**
File No.	**We'koqma'q First Nation AQ#1430** **North Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☐ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

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All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 10:24 AM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: Discussion regarding AQ 1430, 1431

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Hello Robert:
I am wondering if we can arrange a call to discuss the lease applications for AQ 1430, 1431. We'koqma'q has learned some things in the past year of working the experimental site (AQ 5010) and we'd like to apply that knowledge to the lease applications.

Please let me know if/when this would be possible.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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From: Ceschiutti, Robert [mailto:Robert.Ceschiutti@novascotia.ca]
Sent: Monday, July 13, 2020 12:02 PM
To: Melissa Rommens
Cc: Feehan, Jennifer; Winfield, Lynn; donald
Subject: RE: Discussion regarding AQ 1430, 1431

Hi Melissa, sounds good. I'll find out who else on our team would like to join the call, which will help determine when we can arrange the meeting. I should have a reply for you by tomorrow afternoon.

Regards,
Robert Ceschiutti
Manager, Licensing and Leasing
NS Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, Nova Scotia

B0T 1W0
Phone: 902-875-7430
Cell: 902-874-0996
Robert.Ceschiutti@novascotia.ca

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 13, 2020 12:31 PM
To: Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; Winfield, Lynn <Lynn.Winfield@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Subject: RE: Discussion regarding AQ 1430, 1431

Thank you Robert.
Melissa

NOTE: Please refer to correspondence in Appendix B for the July 23, 2020 Meeting Invitation.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: September 9, 2020 12:07 PM
To: Aquaculture <Aquaculture@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Cc: donald <donalddavis@waycobah.ca>
Subject: Changes to applications for AQ 1430 and 1431

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Please find attached a formal request for production plan changes to the applications for AQ 1430 and 1431. Please be sure to reach out with questions or concerns.

Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Revisions to 1430 1431.pdf

NOTE: Please refer to the Application Package, Volume 2, Section 4.4 – Development Plan Revisions AQ#1430 and AQ#1431 (2020), for the attachment in this email.

From: Feehan, Jennifer
Sent: March 29, 2021 4:27 PM
To: 'donald' <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>
Subject: Network Comments AQ#1430 & 1431

Hi Donald and Melissa,

Please be advised that the amended development plans with revised production plans and cage configuration for AQ#1430 and AQ#1431 have been sent to Network for review.

I have attached a compilation of network comments received to date based on the original development plans. Network may have additional questions or comments pending review of the amended plans. You may begin preparing any required responses as per the comments to date, and we will be in touch when final comments or questions from Network have been submitted.

Please do not hesitate to reach out if you have any questions.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca


AQ#1430 Compilation of Netv


AQ#1431 Compilation of Netv

NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#1430 and AQ#1431 up to March 29, 2021, attached in this email.

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: March 30, 2021 9:47 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela

<Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: FW: AQ#1430 Network Memo-Amended Plan

Good morning,

My apologizes, I didn't include to template form for comment.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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NOTE: Please refer to Appendix A for the Network Agency Review Form attachment in this email.

From: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Sent: March 30, 2021 9:49 AM
To: Parker, Edward V <Edward.Parker@dfo-mpo.gc.ca>; daniel.houlihan@dfo-mpo.gc.ca; Smith, Angela (CFIA/ACIA) <angela.smith@canada.ca>; MacArthur, David (EC) <david.macarthur@canada.ca>; Gautreau, Rachel (EC) <rachel.gautreau@canada.ca>; Kittilsen, Michael A <Michael.Kittilsen@novascotia.ca>; Birch, Angela <Angela.Birch@novascotia.ca>; Cottreau-Robins, Catherine M <Catherine.Cottreau-Robins@novascotia.ca>; McNeill, Alan J <Alan.McNeill@novascotia.ca>; Blackburn, Lori M <Lori.Blackburn@novascotia.ca>; Boudreau, Louise O <Louise.Boudreau@novascotia.ca>
Subject: FW: AQ#1431 Network Memo-Amended Plan

Good morning,

My apologizes, I didn't include the template in the original email.

Megan Greenwood

Licensing Coordinator
Nova Scotia Department of Fisheries and Aquaculture
1575 Lake Road
Shelburne, NS
B0T 1W0
Phone 902-875-7443
Fax 902-875-7429

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NOTE: Please refer to Appendix A for the Network Agency Review Form attachment in this email.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: April 21, 2021 2:22 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: Network Comments AQ#1430 & 1431

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Hello Jennifer:
Find attached responses to network comments you had received as of March 29, 2020 for AQ 1430 and AQ 1431.
Please let us know if a different kind of formatting for responses is preferred.
Just reach out with questions or concerns.
Kind regards,
Melissa

SustainAqua
Sustainable Solutions for Long Term Growth

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Response to Network Comments


Response to Network Comments

NOTE: Please refer to correspondence in Appendix B dated April 21, 2021, for the complete documents attached in this email. The proponent's responses specific to ECCC-SWCP have been extracted and attached below for reference.

Response to network comments AQ # 1430 (North Aberdeen)

Network Comments, as received March 29, 2021

2. **ECCC, SWCP (CSSP); Dec. 20, 2019:** No comments on the application. No reply required.

Response to network comments AQ # 1431 (South Aberdeen)

Network Comments, as received March 29, 2021

2. **ECCC, SWCP (CSSP); Dec. 20, 2019:** No comments on the application. No reply required.

From: MacArthur, David (EC) <david.macarthur@canada.ca>
Sent: May 17, 2021 2:32 PM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ#1430 Network Memo-Amended Plan

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Attached is my form. I have no comments.

David MacArthur
Senior Area Coordinator, Shellfish Water Classification Program - Atlantic
Environment & Climate Change Canada / Government of Canada
david.macarthur@canada.ca / Tel: 902-426-6296 / Fax: 902-426-8041

Coordonnateur Principal Zone, Programme de Classification des Eaux Coquillieres - Atlantique
Environnement & Changement Climatique Canada / Gouvernement du Canada
david.macarthur@canada.ca / Tél: 902-426-6296 / Téléc: 902-426-8041



Application 1430
Amended Plan - DMa

Network Agency Review of an Aquaculture Application

Agency	**ECCC**
Division (if applicable)	**SWCP**
Date	**May 17, 2021**
File No.	**We'koqma'q First Nation AQ#1430-Amended plan North Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

☐ No concerns regarding the proposed development
☐ Concerns with development are expressed below
☐ Request modifications to the proposed development (described below)
☐ Required or recommended conditions (described below)
☐ Request additional information (described below)
☐ Request meeting with applicant and NSDFA (described below)
☒ No comments on the application

Comments, concerns, recommendations, and/or required conditions including the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. (Attach comments if preferred, or add additional pages, as required.):

Public Notice and Disclosure

As part of the process for deciding on an application, it may be necessary for the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") to disclose the collected network review information to the applicant and other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application in question.

In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture will disclose aquaculture application information, including network review information, on the departmental website.

Privacy Statement

The network review information collected as part of an aquaculture application will only be used or disclosed by Fisheries and Aquaculture for the purpose of deciding on the application.

All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

From: MacArthur, David (EC) <david.macarthur@canada.ca>
Sent: May 17, 2021 2:33 PM
To: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>
Subject: RE: AQ#1431 Network Memo-Amended Plan

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David MacArthur
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Application 1431
Amended Plan - DM

Network Agency Review of an Aquaculture Application

Agency	**ECCC**
Division (if applicable)	**SWCP**
Date	**May 14, 2021**
File No.	**We'koqma'q First Nation AQ#1431-Amended plan South Aberdeen, Whycocomagh Bay, Inverness County**
Type of application	**Marine Finfish Cage Cultivation (Rainbow Trout)**
Information Provided	

Please provide comments, concerns, recommendations, or requirements on the above stated application for a marine aquaculture licence. Please include the criterion /criteria within your jurisdiction or mandate that your feedback is based upon. Similarly, if additional information is required to make a determination, please include the criterion /criteria within your jurisdiction or mandate that your request is based upon.

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All application information collected is subject to the Freedom of Information and Protection of Privacy Act ("FOIPOP") and will only be used or disclosed in accordance with FOIPOP.

Sent: June 22, 2021 4:06 PM
To: donald <donalddavis@waycobah.ca>; Melissa Rommens <melissa@sustainaqua.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: AQ#0814 Compilation of Network Comments

Hi Donald and Melissa,

Please find attached the compilation of comments received from Network Agencies for AQ#0814. A compilation of DFO's requests for additional information to date is attached separately. Please note that DFO's final Letter of Advice and CSAS Report for this application are still pending.

In regard to Nova Scotia Department of Lands and Forestry's comments (see pages 39-41), we would like to set up a call to discuss and provide some clarification. To allow time for you to review the network comments and prepare any questions, would a call on **July 14th at 11 am** work for you?

Please let me know and I will follow up with a meeting request.

Kind regards,
Jennifer

Jennifer Feehan
Aquaculture Advisor
Nova Scotia Department of Fisheries and Aquaculture
1800 Argyle Street, 6th Floor WTCC
Halifax, NS B3J 2R5
902-237-0771
jennifer.feehan@novascotia.ca

1 - AQ#0814 Compilation of Netv

2 - AQ#0814 Compilation of DFO

NOTE: Please refer to Appendix N for the Compilation of Network Comments for AQ#0814x up to June 22, 2021, attached in this email.

From: Melissa Rommens <melissa@sustainaqua.ca>
Date: 2021-06-23 7:58 a.m. (GMT-04:00)
To: "'Feehan, Jennifer'" <Jennifer.Feehan@novascotia.ca>, 'donald' <donalddavis@waycobah.ca>
Cc: "'Greenwood, Megan N'" <Megan.Greenwood@novascotia.ca>, "'Feindel, Nathaniel J'" <Nathaniel.Feindel@novascotia.ca>, "'Ceschiutti, Robert'" <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

This time is good for me Jennifer.

Please await a reply from Donald before final scheduling.

Kind regards,

Melissa

From: donalddavis <donalddavis@waycobah.ca>
Sent: June 23, 2021 8:18 AM
To: Melissa Rommens <melissa@sustainaqua.ca>; Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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That time is fine with me.....Regards Donald.

Sent from my Bell Samsung device over Canada's largest network.

NOTE: Please refer to correspondence in Appendix B for the July 14, 2021 Meeting Invitation.

From: Melissa Rommens <melissa@sustainaqua.ca>
Sent: July 26, 2021 4:44 PM
To: Feehan, Jennifer <Jennifer.Feehan@novascotia.ca>; 'donald' <donalddavis@waycobah.ca>
Cc: Greenwood, Megan N <Megan.Greenwood@novascotia.ca>; Feindel, Nathaniel J <Nathaniel.Feindel@novascotia.ca>; Ceschiutti, Robert <Robert.Ceschiutti@novascotia.ca>; donald <donalddavis@waycobah.ca>
Subject: RE: AQ#0814 Compilation of Network Comments

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Hello Jennifer:
Find attached a response to the compiled network comments as referred to in the email below.

There are a few outstanding items noted:

- Confirm if anything is outstanding with TC.
- Determine contact information for the Coordinator of Special Places Program of NSCCH.
- Confirm if anything is required for NSECC.
- Determine intention of bald eagle monitoring requested by NSDLF.
- Confirm if additional information is required for DFO.

We are available to discuss the above as well as the submission at your convenience.

Thank-you for the opportunity to discuss and respond to the network concerns.

Kind regards,
Melissa.

MELISSA ROMMENS
Phone 902.675.4980
Fax 902.675.3659

Melissa@sustainaqua.ca
1475 Peters Rd, Emyvale, PE, C0A 1Y0
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Network comment responses 0814x Jul

NOTE: Please refer to correspondence in Appendix B dated July 26, 2021, for the complete document attached in this email. The proponent's response specific to ECCC-SWCP are attached below for reference.

2. ECCC -CSSP; Aug. 21, 2019: No comments on the application. No reply required.