NOVA SCOTIA AQUACULTURE REVIEW BOARD

Application by Kelly Cove Salmon Ltd. for a boundary amendment to marine finfish licence and lease AQ#1039 in the Annapolis Basin, Digby County

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Affidavit of RONALD NEUFELD
affirmed on April 22, 2021

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Affidavit of RONALD NEUFELD
affirmed on April 22, 2021

I, Ronald Neufeld, of Louis Head, Nova Scotia, AFFIRM AS FOLLOWS:

1. Between 2007 and 2014 my wife and I lived in Port Wade, NS. Our property was located on the Annapolis Basin. Aquaculture site 1040 (the "**Port Wade site**") was located immediately behind our property. Aquaculture site 1039 (the "**Rattling Beach site**") was visible from our property, but was located approximately 2.7 km away on the Digby side of the Basin.

2. The Rattling Beach and Port Wade sites are both open net pen aquaculture sites operated by Kelly Cove Salmon Ltd. ("**KCS**"). KCS's lease and licence for the Rattling Beach site, which are granted by the Department of Fisheries and Aquaculture ("**DFA**"), allow the company to occupy an area of 8.75 hectares. KCS's current lease and licence for the site, which I accessed on the DFA website on April 21, 2021, are attached to my affidavit as **Exhibit "A"**.

3. KCS took over the 8.75 ha lease and licence at Rattling Beach in 2004. Since that time, although the lease and licence have been renewed several times, KCS has never been authorized to use an area larger than 8.75 ha. In 2014, I submitted a request under the provincial *Freedom of Information and Protection of Privacy Act* (***"FOIPOP Act"***) for all leases and licences for the Rattling Beach site from January 1995 to June 2014. The results of my request are attached to my affidavit as **Exhibit "B"**.

4. From 2007 to 2012, KCS did not use the Port Wade site. In fact, during that time my wife and I were unaware that there was an aquaculture lease and licence in the Port Wade area. However, in the summer of 2012, KCS began preparing operations at the Port Wade site. Based on our observations of the Port Wade site and our knowledge of the lease and licence boundaries, my wife and I concluded that KCS was placing gear outside of the company's leased area.

5. As a result of our observations of the Port Wade site, my wife and I became curious about KCS's operations at the Rattling Beach site across the Annapolis Basin. We decided to drive over to the Rattling Beach site to observe its configuration. As the

Rattling Beach site runs parallel to the road, I could immediately tell using the odometer in our car that KCS was operating outside of its lease and licence boundaries at the site.

6. Around April 2014, I confirmed my initial observations of lease and licence violations at the Rattling Beach site by taking measurements with a handheld GPS device. I emailed my GPS readings to Minister of Fisheries and Aquaculture Keith Colwell on May 4, 2014, following a meeting with the Minister a couple days earlier. My email to Minister Colwell is attached to this affidavit as **Exhibit "C"**.

7. As documented below, despite consistent and continuous efforts by both myself and my wife to notify DFA, and subsequently the Department of Environment ("**NSE**"), about the ongoing lease and licence violations at the Rattling Beach site, to the best of my knowledge Kelly Cove has never come into compliance with its lease and licence boundaries.

Reports to DFA

8. In the summer and fall of 2012, my wife and I arranged meetings with Stephen McNeil, MLA for Annapolis, to discuss the ongoing lease and licence violations at the Port Wade and Rattling Beach sites. Mr. McNeil told us that he would inquire with DFA about the violations. Although I did not keep notes of those meetings, I do have email records documenting our appointments. Our email chains with Mr. McNeil's Constituency Assistant are attached to my affidavit as **Exhibit "D"**.

9. Throughout the spring and summer of 2013, my wife and I communicated frequently with then DFA inspector Bill Haliburton about the lease and licence violations at the Port Wade and Rattling Beach sites. Mr. Haliburton said that DFA would look into the issue, but he never confirmed if any action was taken against KCS.

10. In November 2013, my wife and I sent an email to Mr. Barry MacPhee, then Acting Executive Director with DFA. In our email, we expressed concern that Kelly Cove was operating outside of its lease boundaries at both the Rattling Beach site and the Port Wade site. We indicated to Mr. MacPhee that, as a result of these lease violations, both sites contained significantly more cages than would otherwise be permitted by the size of their lease.

11. On December 19, Mr. MacPhee wrote back to us. He said DFA's most recent inspection records indicated that the Rattling Beach site was non-compliant with its "approved boundaries." He also indicated that DFA was working with Kelly Cove to establish "[...] corrective actions that will bring them into compliance." Our email correspondence with Mr. MacPhee is attached to this affidavit as **Exhibit "E"**.

12. In July 2014, I spoke to then-Premier Stephen McNeil over the phone about the ongoing lease and licence violations at the Rattling Beach and Port Wade sites. Following that phone call, my wife and I sent a letter to the Premier on July 28, 2014. The letter, which was sent as an email attachment, described our concerns about ongoing lease violations at the Rattling Beach and Port Wade sites. In the letter, I indicated that I had measured the location of Kelly Cove's buoys at the site using GPS from along the shore and estimated that Kelly Cove was occupying an area almost twice the size of their lease. Our letter is attached as **Exhibit "F"** to this affidavit.

13. In 2014, my wife and I moved away from Port Wade. Between late 2014 and 2016, although we would occasionally contact our former neighbours in Port Wade to ask about the status of the Port Wade and Rattling Beach sites, we did not correspond with DFA or with Premier McNeil about the ongoing lease and licence violations at either site.

14. In the summer of 2016, Kelly Cove's lease and licence for the Rattling Beach site came up for renewal. I submitted comments to DFA once again expressing concern about the ongoing, significant lease and licence violations at the site. My comments, as submitted to DFA via email, are attached to my affidavit as **Exhibit "G"**.

15. Despite my comments, in July 2016 DFA granted Kelly Cove a 10 year licence renewal and a 20 year lease renewal for the Rattling Beach site. DFA's decision did not mention any documented lease or licence violations at the site. DFA's renewal decision, which I downloaded from the DFA website in 2016, is attached to my affidavit as **Exhibit "H"**.

KCS's boundary amendment applications

16. Beginning in 2016, NSE took over aquaculture-related enforcement activities in the Province. On May 31, 2016, Adrian Fuller, then-Executive Director of NSE sent a letter to Kelly Cove indicating that the company was required to do one of two things if their site was not in compliance with the applicable licence:

    (1) Submit a scheduled re-alignment plan to NSE by October 26, 2016 detailing the steps Kelly Cove planned to take to move all equipment and produce back within their lease boundaries; or
    (2) Submit an application for a lease and licence expansion to DFA by October 26, 2016 in accordance with the *Aquaculture Licence and Lease Regulations.*

17. The letter is included in the "Report of the Performance Review of an Aquaculture Operation" filed by DFA.

18. On October 24, 2016, prior to NSE's deadline, KCS submitted a boundary amendment application for the Rattling Beach site to DFA. DFA released a copy of the October 24, 2016 boundary amendment application on its website in 2019 after I submitted a request

under the *FOIPOP Act.* The decision letter I received from DFA in response to my application for access to information in attached as **Exhibit "I"** to this affidavit.

19. To my knowledge, KCS did not hold a public meeting prior to submitting its October 24, 2016 boundary amendment application for the Rattling Beach site, contrary to the *Aquaculture Licence and Lease Regulations.* The application posted online by DFA in 2019 contains a section titled "Report on Public Engagement during Scoping," but that section describes a public meeting hosted by KCS on March 30, 2017 – 5 months after KCS submitted its boundary amendment application. KCS's October 24, 2016 application is attached to my affidavit as **Exhibit "J"**.

20. DFA did not publicly disclose the fact that KCS had submitted a boundary amendment application for the Rattling Beach site until I submitted my access to information request in 2019. However, after the deadline set by NSE had expired, my wife and I continued to observe lease violations at several aquaculture sites operated by KCS. As a result, around June 2017 we submitted a request under the *FOIPOP Act* to determine whether KCS had submitted applications for boundary amendments for the various sites operating outside of their lease boundaries, and whether public meetings had been held before any applications were submitted to DFA.

21. In response to our inquiry, DFA indicated that KCS had received "approval to pursue adjudicative amendments to their leases." DFA also confirmed that the March 30, 2017 public meeting was the only public meeting held by KCS with respect to any of its boundary amendment applications. Our correspondence with Lauren Smith from Information and Privacy Services is attached to my affidavit as **Exhibit "K"**.

22. In July 2017, my wife and I reached out to NSE to express our concern that KCS had not fulfilled the requirements of the May 2016 NSE letter, and yet the company continued to operate outside its lease and licence boundaries at several of its sites, including the Rattling Beach site. We submitted a written complaint to NSE noting that, since KCS had not held any public meetings before the NSE deadline, the company could not have submitted any boundary amendment applications to DFA by that date. Any such applications would have been in violation of the regulatory requirement that public meetings must be held before applying for an adjudicative amendment. Our written complaint to NSE, and an email exchange with NSE staff, are attached to my affidavit as **Exhibit "L"**.

23. Throughout 2018, I continued to inquire with NSE about the apparent lack of enforcement action against KCS despite persistent lease and licence violations at the Rattling Beach site, among others. On July 22, 2018, I received an email from Orlando Fraser, then Director of Conservation Enforcement with NSE, stating as follows:

> All the KCS sites you mentioned have submitted an application for an amendment with DFA. I spoke with DFA officials, and they have advised that KCS had met the deadline identified in the letter. I now consider this issue as being with DFA, and at the administrative process.

24. Email correspondence between myself and Mr. Fraser, dated January 2018, February 2018, and July 2018, is attached to my affidavit as **Exhibit "M"**.

25. In August 2018, I sent an email to Bruce Hancock, Director of the Aquaculture Division at DFA. I asked Mr. Hancock to explain how KCS could have submitted applications for boundary amendments for all of the company's noncompliant sites (including the Rattling Beach site) by the deadline imposed by NSE if the company had not held any public meetings by that deadline. Mr. Hancock responded as follows:

> As part of our regulatory framework transition, aquaculture licence and lease holders that believed they were operating outside of their lease boundaries were required to notify the Department of their plans to submit a boundary amendment application by October 26, 2016.
>
> Applications related to these plans will follow the regulatory process for adjudicative and administrative applications including scoping and public consultations.

26. My email correspondence with Mr. Hancock is attached to my affidavit as **Exhibit "N"**.

27. In 2019, the community group Protect Liverpool Bay Association (of which I am a member), and a number of other community groups and individuals working on aquaculture issues in Nova Scotia, connected with the organization Ecojustice about the ongoing lease and licence violations at various KCS sites around the Province. Ecojustice counsel drafted a letter to Minister Colwell and to then Minister of the Environment Gordon Wilson on our behalf requesting that the Ministers require KCS to come into compliance with its lease boundaries at all of its noncompliant sites, including the Rattling Beach site. The letter is attached to my affidavit as **Exhibit "O"**. I am informed by counsel and believe that neither Minister has yet replied to the letter.

28. Due to the newly initiated Aquaculture Review Board process for KCS's boundary amendment application for the Rattling Beach site, I am now aware that KCS submitted a second application to DFA for a boundary amendment at that same site in November 2017. The November 2017 application was submitted after the NSE deadline, and after KCS hosted its public meeting in March 2017. I have reviewed both the October 24, 2016 application and the November 22, 2017 application, and they appear to be substantially identical.

DFA lease inspection reports

29. My own observations of lease and licence violations at the Rattling Beach site have been confirmed by documents received from DFA in response to requests for access to information made under the *FOIPOP Act*. In July 2014, I requested "[a]ll lease inspections reports, including site drawings and photos, from Jan 2010 to June 2014" for the Rattling Beach site. The results reveal that DFA inspectors documented consistent lease and licence violations at the site between February 2010 and February 2014. The documents I received in response to my request are attached as **Exhibit "P"** to my affidavit.

30. More recently, in 2019 I submitted requests for access to information to both DFA and NSE. Among other things, I requested "[a]ll lease inspection reports and accompanying documentation for AQ#1039, AQ#1040, and AQ#0742 from July 2014 to present." The decision letters I received from both DFA and NSE in response to my requests are attached to my affidavit as **Exhibit "Q"**.

31. The documents I received from DFA and NSE in response to my 2019 request confirmed that inspectors continued to document consistent lease and licence violations at the Rattling Beach site throughout 2014 and 2015. Neither DFA nor NSE provided me with any lease inspections reports dated 2016 or later. Since I requested all lease inspections reports from July 2014 to the date of my request in 2019, I assume that no such reports exist.

32. The results of my 2019 request to DFA are attached to my affidavit as **Exhibit "R"**. The relevant pages are 27-53 and 83-85. The results of my 2019 request to NSE are attached to my affidavit as **Exhibit "S"**. The relevant pages are 6-9, 11, 13-14, and 16.

33. I affirm this affidavit in support of Mr. Gregory Heming's intervention before the Aquaculture Review Board, and for no other or improper purpose.

Affirmed before me on this)
22nd day of April 2021)
at Bridgewater, Nova Scotia)
)
)
)
)
)
)
)

A Commissioner of Oaths in and for the)
Province of Nova Scotia)

Ronald Neufeld

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

This is **Exhibit "A"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

Lease No. 1039

This lease made in duplicate this 15th day of August, 2016.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, as represented by the Administrator, Nova Scotia Department of Fisheries and Aquaculture, as appointed under section 54A of the Fisheries and Coastal Resources Act, SNS 1996, c. 25,

hereinafter referred to as **"THE ADMINISTRATOR"**

OF THE ONE PART

- and -

KELLY COVE SALMON LTD
1 FUNDY BAY DRIVE
ST. GEORGE, NB E5C3E2

hereinafter referred to as **"THE LESSEE"**

OF THE OTHER PART

WHEREAS the Administrator, under the provisions of the Fisheries and Coastal Resources Act, S.N.S. 1996, Chapter 25 (the "Act") and the Aquaculture Licence and Lease Regulations (the "Regulations"), is authorized to renew aquaculture licences and aquaculture leases;

AND WHEREAS pursuant to the Act the Lessee was issued Aquaculture Lease No. 1039 for February 8, 2012 for a five year term from April 27, 2011 to April 26, 2016;

AND WHEREAS the Lessee wishes to renew aquaculture Lease No. 1039;

NOW THEREFORE in consideration of the mutual covenants herein contained, the parties hereto agree as follows:

1. The Administrator hereby grants to the Lessee a lease to use a 8.75 hectare area located in the body of waters known as Annapolis Basin, more particularly described in Schedule "A" attached to and forming part of this Agreement (the "site") for the Marine suspended cage cultivation of ***Salmo salar*** (Atlantic salmon), ***Hippoglossus hippoglossus*** (Atlantic halibut), ***Gadus morhua*** (Atlantic cod), ***Oncorhynchus mykiss*** (Rainbow trout) and ***Meranogrammus aeglefinus*** (haddock).

2. The term of this lease shall be for twenty years commencing on the 27th day of April, 2016 to the 27th day of April, 2036 with the right of renewal, in accordance with the terms of the Act and the Regulations.

3. The Lessee shall pay to the Minister of Finance and Treasury Board an annual fee as set out in the Regulations. The annual payment must be received by the anniversary date of the lease. Late payments are subject to a fee as set out in the Regulations.

4. The undertakings set out in Schedule "B" to this lease (the "undertakings"), form part of this Agreement, and the Lessee hereby agrees to comply with any conditions or limitations contained in the undertakings unless compliance for licensing purposes is expressly waived by the Administrator. The Lessee is responsible for confirming any undertakings and ensuring compliance with them.

5. The Lessee agrees to comply with any permits, protocols, approvals, licenses or permissions (the "licensing requirements") which may be required under the laws of the relevant municipality, the Province or Canada. The Lessee is responsible for confirming any licensing requirements and ensuring compliance with them.

6. This lease must not be assigned except with the written approval of the Administrator. If the Lessee is a corporation, any change in the right to control the corporation shall be deemed to be an assignment. No assignment shall be binding on the Administrator until approved by him in accordance with the Regulations.

7. In the event that the Lessee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, the Administrator may revoke this lease and this Agreement shall be of no further force and effect subject only to the right of Her Majesty the Queen in right of the Province of Nova Scotia ("Her Majesty") to claim for damages.

8. The Lessee must adhere to the Farm Management Plan, as it is in effect for this lease from time to time, and any failure to adhere to the Farm Management Plan is a breach of this lease.

9. The Lessee shall submit to the Minister of the Nova Scotia Department of Fisheries and Aquaculture (the "Minister") an annual report stating such information as the Minister requires concerning the Lessee's use and the productivity of the site.

10. The Lessee is hereby prohibited from using the site in any way that would interfere with other leased aquaculture operations.

11. If the Administrator, in his or her sole discretion, is of the opinion that the aquaculture activities authorized by this lease are detrimental to or interfere with other leased facilities, the Administrator may revoke this lease without compensation.

12. Following the completion of a performance review, in accordance with the Regulations, of the aquacultural operation subject to this lease, the Administrator may vary any terms or conditions of this lease in order to address any concerns raised in the performance review.

13. The Administrator may revoke this lease without advance notice or compensation if the Lessee is found by a court of competent jurisdiction to be in violation of any law of the Province or Canada relating to fishery activities.

14. If the Lessee fails to perform any of its obligations under this lease, the Minister may have the obligations performed, with the amount of any costs incurred to be a debt due to Her Majesty, for which Her Majesty shall have a first priority charge on the aquacultural produce within the site.

15. If the Lessee is in breach of any term of this lease and such breach is not corrected within the time period set out in the notice from the Administrator, the Administrator may revoke this lease without further notice or compensation.

16. Should it become necessary for Her Majesty to expropriate the Lessee's rights under this lease, it is hereby agreed that the value of the lease for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the Lessee that cannot be removed from the site. No compensation may be claimed for the cancellation of this lease where compensation is paid or payable in relation to the expropriation of a lease for the same area.

17. Any notices required to be given under this lease may be sent by regular mail to the parties at their addresses set out in the heading of this Agreement, and notice will be deemed to have been received by the intended recipient thereof five business days from the date on which the notice is post-marked. The parties, by agreement, may effect notice by any other means. The Lessee must notify the Administrator of any change of address within thirty (30) days.

18. Nothing in this Agreement shall be taken as a warranty by the Administrator that the site may be used now or in the future by the Lessee for aquaculture purposes. The Administrator assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

19. This lease shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

20. This lease shall be subject to any changes made from time to time in the Act, the Regulations or any other relevant legislation.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of

[redacted]

Witness

[redacted]

Witness

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia, as represented by the Administrator, Nova Scotia Department of Fisheries and Aquaculture

[redacted]

Administrator, Nova Scotia Department of Fisheries and Aquaculture

Kelly Cove Salmon Ltd.
Per: [redacted]

Glenn Cooke

Schedule A

GPS COORDINATE INFORMATION SHEET

Application #:	1039		
Applicant:	Kelly Cove Salmon Ltd.		
Location:	Annapolis Basin	County:	Annapolis
Hydrographic Chart:	4396	Orthophoto #:	
Dimensions of site:	160m x 464m x 209m x 461m	Size:	8.75 ha.

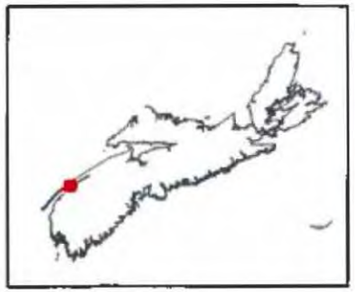
Approximate Coordinates of Application:

Datum used: NAD 83

Centre coordinates (Approx.) Lat. 44° 39' 12.48"
Long. -65° 45' 22.68"

Corner #1	Lat.	44° 39' 20.34"	Corner #2	Lat.	44° 39' 20.40"
	Long.	-65° 45' 27.36"		Long.	-65° 45' 20.10"
Corner #3	Lat.	44° 39' 08.76"	Corner #4	Lat.	44° 39' 05.52"
	Long.	-65° 45' 17.64"		Long.	-65° 45' 17.58"
Corner #5	Lat.	44° 39' 05.40"			
	Long.	-65° 45' 27.06"			

Note: The coordinates and dimensions for this site have been taken from the survey.



Aquaculture Site

1039

Centre
Lat 44° 39' 12.48" Long -65° 45' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
Corner 3
Lat 44° 39' 08.76" Long -65° 45' 17.64"
Corner 4
Lat 44° 39' 05.52" Long -65° 45' 17.58"
Corner 5
Lat 44° 39' 05.40" Long -65° 45' 27.06"

DATUM NAD 83
The above coordinates
are from a legal survey

Application Information

Proponent :	Kelly Cove Salmon Ltd.
Site Location :	Annapolis Basin
Dimensions :	160m x 464m x 209m x 461m
Area :	8.75 ha.

Issued Lease Low Water Mark

Chart No.

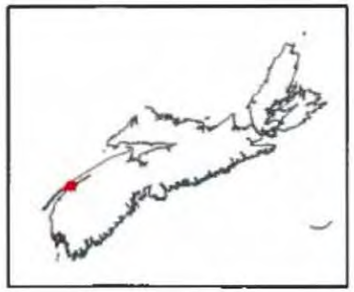
4396

NOVA SCOTIA
Fisheries and Aquaculture

Disclaimer

This map should not be used for navigation or legal purposes. It is intended for general reference use only.

MK-1039-MAR-2016



Aquaculture Site

1039

Centre
Lat 44° 39' 12.48" Long -65° 45' 22.68"
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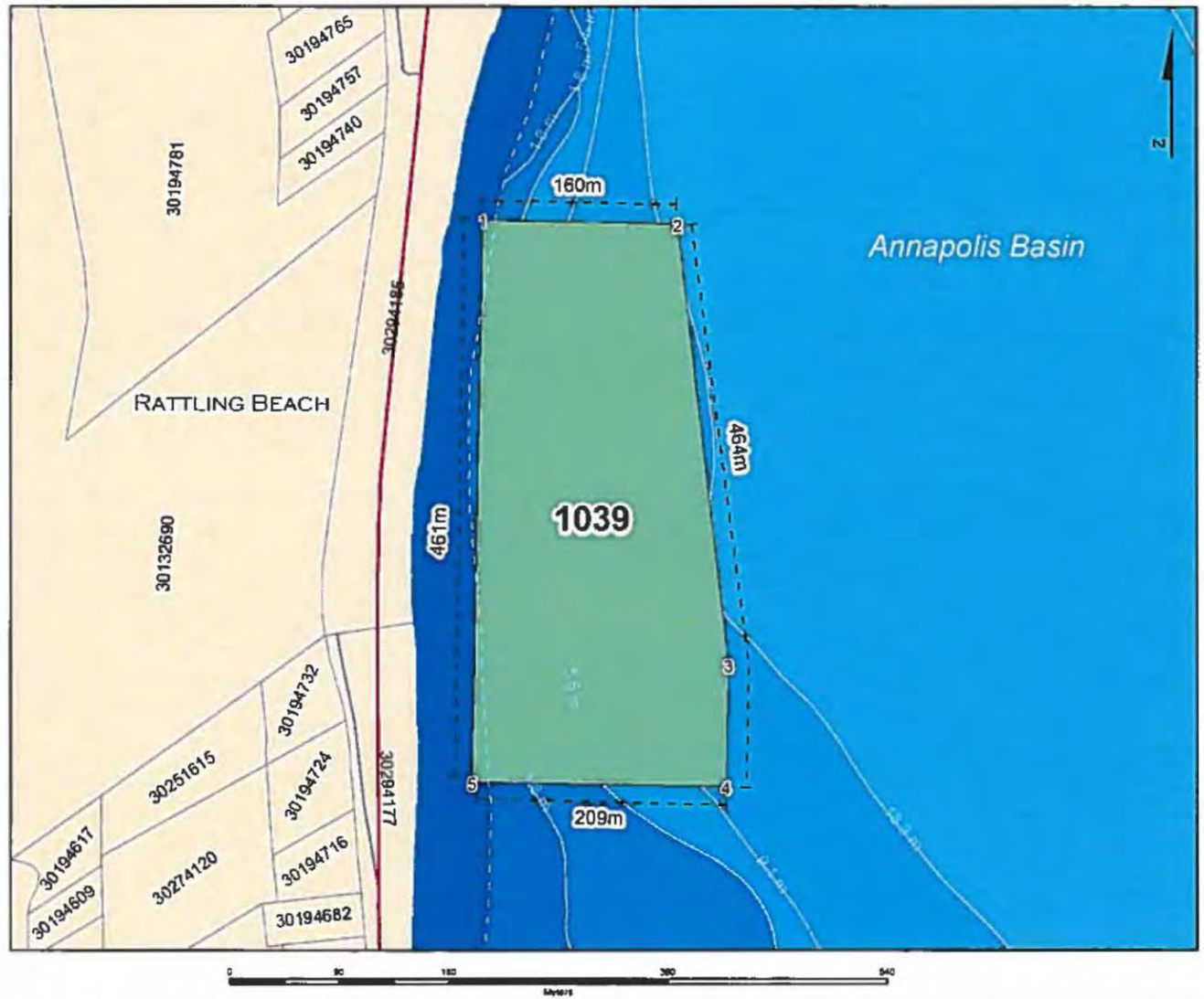

Application Information

Proponent :	Kelly Cove Salmon Ltd.
Site Location :	Annapolis Basin
Dimensions :	160m x 464m x 209m x 461m
Area :	8.75 ha.

Issued Lease
Property Boundary
NS Bathymetry
Low Water Mark

Chart No.
4396

NOVA SCOTIA
Fisheries and Aquaculture

Disclaimer

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MK-1039-MAR-2016

Schedule "B"

This Schedule sets out any undertakings required of the Lessee.

There are no undertakings required of the Lessee.

Licence No. 1039

This licence made in duplicate this 15th day of August, 2016.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, as represented by the Administrator, Nova Scotia Department of Fisheries and Aquaculture, as appointed under section 54A of the Fisheries and Coastal Resources Act, SNS 1996, c. 25,

hereinafter referred to as **"THE ADMINISTRATOR"**

OF THE ONE PART

- and -

KELLY COVE SALMON LTD
1 FUNDY BAY DRIVE
ST. GEORGE, NB E5C3E2

hereinafter referred to as **"THE LICENCEE"**

OF THE OTHER PART

WHEREAS the Administrator, under the provisions of the Fisheries and Coastal Resources Act, S.N.S. 1996, Chapter 25 (the "Act") and the Aquaculture Licence and Lease Regulations (the "Regulations"), is authorized to renew aquaculture licences and aquaculture leases;

AND WHEREAS pursuant to the Act the Licencee was issued Aquaculture Licence No. 1039 on February 8, 2012 for a term of five years of April 27, 2011 to April 26, 2016;

AND WHEREAS the Licencee wishes to renew aquaculture Licence No. 1039;

NOW THEREFORE in consideration of the mutual covenants herein contained, the parties hereto agree as follows:

1. The Administrator hereby grants to the Licencee a licence to use a 8.75 hectare area located in the body of waters known as Annapolis Basin, more particularly described in Schedule "A" attached to and forming part of this Agreement (the "site") for the marine suspended cage cultivation of ***Salmo salar*** (Atlantic salmon), ***Hippoglossus hippoglossus***, (Atlantic halibut) ***Gadus morhua*** (Atlantic cod), ***Oncorhynchus mykiss***, (rainbow trout) and ***Melanogrammus aeglefinus*** (haddock).

2. The term of this licence shall be for ten years commencing on the 27th day of April, 2016 to the 27th day of April, 2026 with the right of renewal, in accordance with the terms of the Act and the Regulations.

3. The Licencee shall pay to the Minister of Finance and Treasury Board an annual fee as set out in the Regulations. The annual payment must be received by the anniversary date of the licence. Late payments are subject to a fee as set out in the Regulations.

4. The undertakings set out in Schedule "B" to this licence (the "undertakings"), form part of this Agreement, and the Licencee hereby agrees to comply with any conditions or limitations contained in the undertakings unless compliance for licensing purposes is expressly waived by the Administrator. The Licencee is responsible for confirming any undertakings and ensuring compliance with them.

5. The Licencee agrees to comply with any permits, protocols, approvals, licenses or permissions (the "licensing requirements") which may be required under the laws of the relevant municipality, the Province or Canada. The Licencee is responsible for confirming any licensing requirements and ensuring compliance with them.

6. This licence must not be assigned except with the written approval of the Administrator. If the Licencee is a corporation, any change in the right to control the corporation shall be deemed to be an assignment. No assignment shall be binding on the Administrator until approved by him in accordance with the Regulations.

7. In the event that the Licencee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, the Administrator may revoke this licence and this Agreement shall be of no further force and effect subject only to the right of Her Majesty the Queen in right of the Province of Nova Scotia ("Her Majesty") to claim for damages.

8. The Licencee must adhere to the Farm Management Plan, as it is in effect for this licence from time to time, and any failure to adhere to the Farm Management Plan is a breach of this licence.

9. The Licencee shall submit to the Minister of the Nova Scotia Department of Fisheries and Aquaculture (the "Minister") an annual report stating such information as the Minister requires concerning the Licencee's use and the productivity of the site.

10. The Licencee is hereby prohibited from using the site in any way that would interfere with other licenced aquaculture operations.

11. If the Administrator, in his or her sole discretion, is of the opinion that the aquaculture activities authorized by this licence are detrimental to or interfere with other licenced facilities, the Administrator may revoke this licence without compensation.

12. Following the completion of a performance review, in accordance with the Regulations, of the aquacultural operation subject to this licence, the Administrator may vary any terms or conditions of this licence in order to address any concerns raised in the performance review.

13. The Administrator may revoke this licence without advance notice or compensation if the Licencee is found by a court of competent jurisdiction to be in violation of any law of the Province or Canada relating to fishery activities.

14. If the Licencee fails to perform any of its obligations under this licence, the Minister may have the obligations performed, with the amount of any costs incurred to be a debt due to Her Majesty, for which Her Majesty shall have a first priority charge on the aquacultural produce within the site.

15. If the Licencee is in breach of any term of this licence and such breach is not corrected within the time period set out in the notice from the Administrator, the Administrator may revoke this licence without further notice or compensation.

16. Should it become necessary for Her Majesty to expropriate the Licencee's rights under this licence, it is hereby agreed that the value of the licence for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the Licencee that cannot be removed from the site. No compensation may be claimed for the cancellation of this licence where compensation is paid or payable in relation to the expropriation of a licence for the same site.

17. Any notices required to be given under this licence may be sent by regular mail to the parties at their addresses set out in the heading of this Agreement, and notice will be deemed to have been received by the intended recipient thereof five business days from the date on which the notice is post-marked. The parties, by agreement, may effect notice by any other means. The Licencee must notify the Administrator of any change of address within thirty (30) days.

18. Nothing in this Agreement shall be taken as a warranty by the Administrator that the site may be used now or in the future by the Licencee for aquaculture purposes. The Administrator assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

19. This licence shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

20. This licence shall be subject to any changes made from time to time in the Act, the Regulations or any other relevant legislation.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of

[redacted]

Witness

[redacted]

Witness

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia, as represented by the Administrator, Nova Scotia Department of Fisheries and Aquaculture

[redacted]

Administrator - Nova Scotia Department of Fisheries and Aquaculture

Kelly Cove Salmon Ltd.
Per:

[redacted]

Glenn Cooke

Schedule A

GPS COORDINATE INFORMATION SHEET

Application #:	1039		
Applicant:	Kelly Cove Salmon Ltd.		
Location:	Annapolis Basin	County:	Annapolis
Hydrographic Chart:	4396	Orthophoto #:	
Dimensions of site:	160m x 464m x 209m x 461m	Size:	8.75 ha.

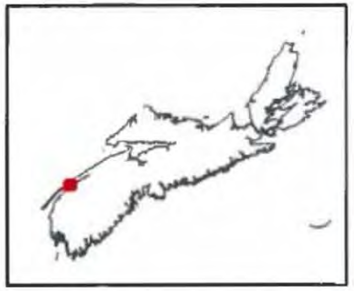
Approximate Coordinates of Application:

Datum used: NAD 83

Centre coordinates (Approx.) Lat. 44° 39' 12.48"
Long. -65° 45' 22.68"

Corner #1	Lat.	44° 39' 20.34"	Corner #2	Lat.	44° 39' 20.40"
	Long.	-65° 45' 27.36"		Long.	-65° 45' 20.10"
Corner #3	Lat.	44° 39' 08.76"	Corner #4	Lat.	44° 39' 05.52"
	Long.	-65° 45' 17.64"		Long.	-65° 45' 17.58"
Corner #5	Lat.	44° 39' 05.40"			
	Long.	-65° 45' 27.06"			

Note: The coordinates and dimensions for this site have been taken from the survey.



Aquaculture Site

1039

Centre
Lat 44° 39' 12.48" Long -65° 45' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
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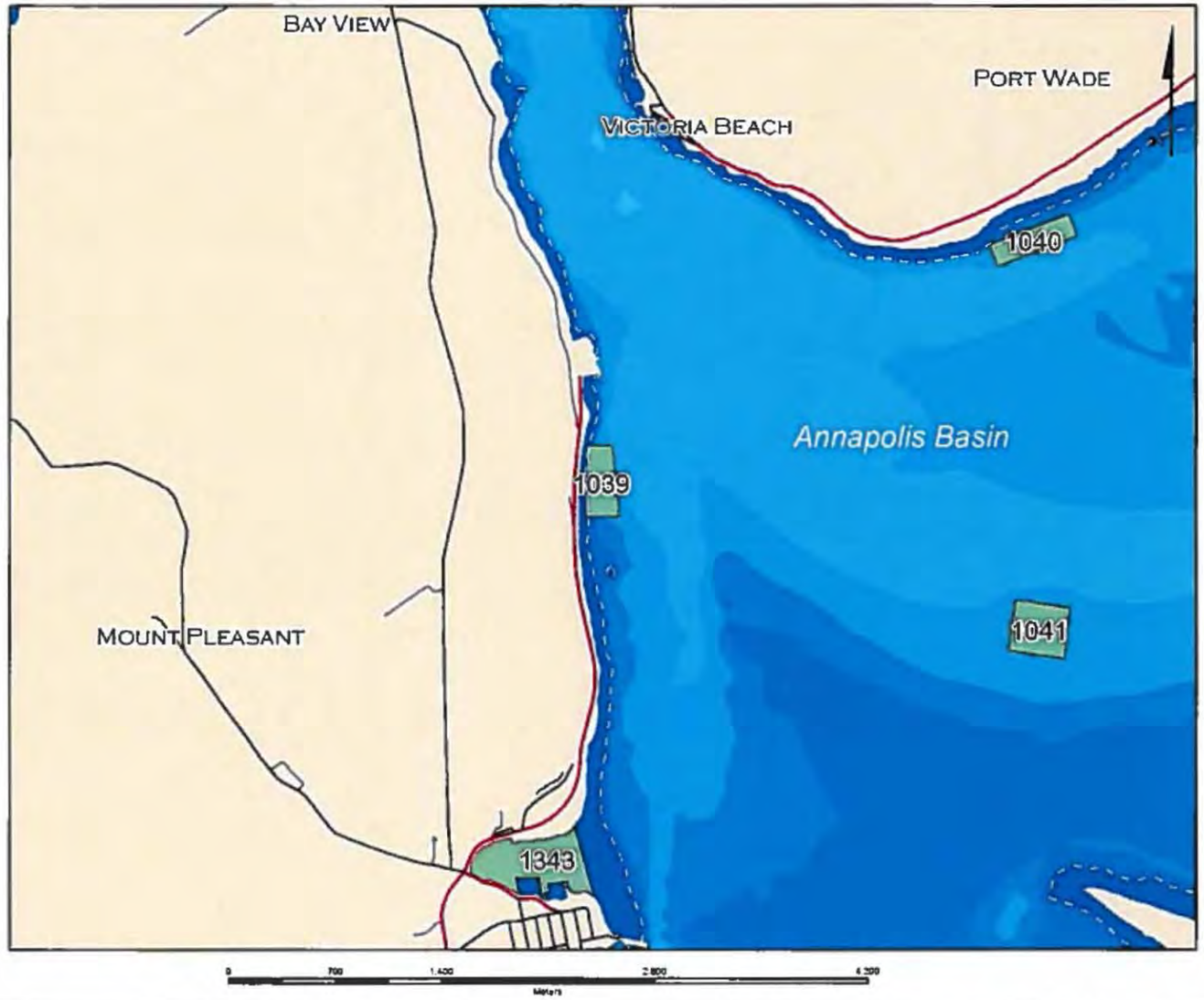
Corner 4
Lat 44° 39' 05.52" Long -65° 45' 17.58"
Corner 5
Lat 44° 39' 05.40" Long -65° 45' 27.06"

DATUM NAD 83
The above coordinates
are from a legal survey



Application Information

Proponent :	Kelly Cove Salmon Ltd.
Site Location :	Annapolis Basin
Dimensions :	160m x 464m x 209m x 461m
Area :	8.75 ha.

Issued Lease Low Water Mark

Chart No.
4396

NOVA SCOTIA
Fisheries and Aquaculture

Disclaimer

This map should not be used for navigation or legal purposes. It is intended for general reference use only.

MK-1039-MAR-2016

Aquaculture Site

1039

Centre
Lat 44° 39' 12.48" Long -65° 45' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
Corner 3
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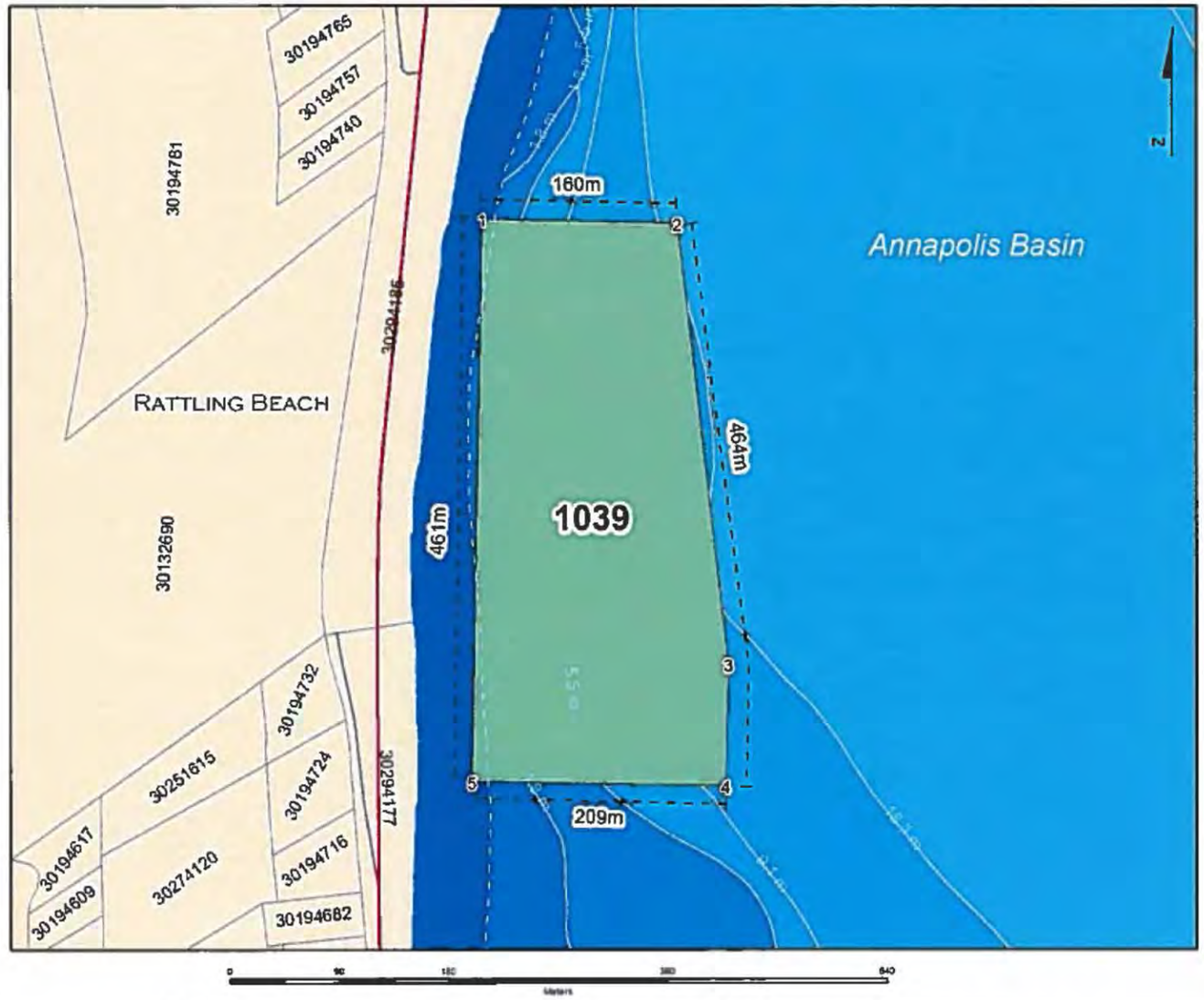
DATUM NAD 83
The above coordinates
are from a legal survey



Application Information

Proponent :	Kelly Cove Salmon Ltd.
Site Location :	Annapolis Basin
Dimensions :	160m x 464m x 209m x 461m
Area :	8.75 ha.

Issued Lease
Property Boundary
NS Bathymetry
Low Water Mark

Chart No.
4396

NOVA SCOTIA
Fisheries and Aquaculture

Disclaimer

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MK-1039-MAR-2016

Schedule "B"

This Schedule sets out any undertakings required of the Licencee.

There are no undertakings required of the Licencee.

This is **Exhibit "B"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

NOVA SCOTIA
Agriculture / Fisheries and Aquaculture
Policy and Corporate Services

60 Research Drive
Suite A
Bible Hill, Nova Scotia
B6L 2R2

902 424 2216 T
902 895 9403 F
www.novascotia.ca/
SHAWCM@gov.ns.ca

June 5, 2014

Ronald Neufeld
1396 Granville Road
RR2, Granville Ferry
Nova Scotia, B0S 1K0

Dear Mr. Neufeld:

Re: FOIPOP Application Number FIS-14-8

Thank you for your request for access to information under the Nova *Scotia Freedom of Information and Protection of Privacy (FOIPOP) Act* which was received at this office on June 3, 2014. You are requesting the following:

> "Re: Aquaculture site 1039, Annapolis Basin. All leases/licenses and any operating conditions specified from Jan 1995 to June 2014."

Pursuant to *Freedom of Information and Protection of Privacy Act* Section 7(2), the Department has 30 days to process your application. A response will be sent by July 4, 2014, unless we determine that an extension is required for consultations with third parties or other public bodies. We may also require an extension if we determine that there is a large number of records involved. If we require an extension, we will advise you immediately.

If you have any questions about this letter or would like to discuss your application, please contact me at 902-424-2216 or, Jennifer Dell, IAP Coordinator, at 902-424-6128.

Yours truly,

Cathy Shaw
Information, Access and Privacy Administrator
Freedom of Information and Protection of Privacy Act

NOVA SCOTIA
Fisheries and Aquaculture
Office of the Deputy Minister

PO Box 2223
Halifax, Nova Scotia
B3J 3C4

902 424-0300 T
902 424-0698 F
www.gov.ns.ca

June 25, 2014

Ronald Neufeld
1396 Granville Road
RR2, Granville Ferry
Nova Scotia, B0S 1K0

Dear Mr. Neufeld:

Re: FOIPOP Application Number FIS-14-8

Thank you for your request for access to information under the Nova *Scotia Freedom of Information and Protection of Privacy (FOIPOP) Act* which was received at this office on June 3, 2014. You requested:

> "Re: Aquaculture site 1039, Annapolis Basin. All leases/licenses and any operating conditions specified from Jan 1995 to June 2014."

Access to these records has been partially granted. Some records contain severed portions that have been edited pursuant to the following sections of the *Freedom of Information and Protection of Privacy Act*.

Section 20: The head of a public body shall refuse to disclose personal information to an applicant if the disclosure would be an unreasonable invasion of their party's personal privacy.

Your application is being transferred in part to Fisheries and Oceans Canada because it has custody or control of some of the records you applied to see. This transfer is being made under clause 10 (1) (a) of the *Freedom of Information and Protection of Privacy Act*. By copy of this letter, I am notifying Fisheries and Oceans Canada. You can expect to hear from Carl Ripley (506-851-7561) about your application shortly.

You have the right to ask for a review of this decision by a review officer. You have 60 days from the day you receive this letter to exercise this right. If you wish to ask for a review, you must do so on Form 7, a copy of which is attached. Send the completed form to Review Officer, PO Box 181, Halifax, NS B3J 2M4.

If you have any questions about this letter or would like to discuss your application, please contact Cathy Shaw, IAP Administrator at 902-424-2216 or, Jennifer Dell, IAP Coordinator, at 902-424-6128.

Yours truly,

Brian Rogers
Information, Access and Privacy Administrator
Freedom of Information and Protection of Privacy Act

c. Carl Ripley, Transport Canada, 95 rue Foundry Street, P.O. Box 42, Moncton, NB, E1C 8K6

Lease No. 1039

This lease made in duplicate this 5th day of February, 2012.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of the Nova Scotia Department of Fisheries and Aquaculture,

hereinafter referred to as "**THE MINISTER**"

OF THE ONE PART

- and -

KELLY COVE SALMON LTD.
874 MAIN STREET
BLACK'S HARBOUR, NS E5H 1E6

COPY

hereinafter referred to as "**THE LESSEE**"

OF THE OTHER PART

WHEREAS the Minister, under the provisions of the Fisheries and Coastal Resources Act, R.S.N.S. 1996, Chapter 25, is authorized to grant aquaculture leases for the purpose of conducting aquaculture in Nova Scotia;

AND WHEREAS the Lessee wishes to conduct aquaculture in the Province.

1. The Minister hereby grants to the Lessee a lease to use a 8.74 hectare area located in the body of waters known as Annapolis Basin, more particularly described in Schedule "A" attached to and forming part of this Agreement for the marine cage cultivation of (Atlantic salmon) ***Salmo salar***, (rainbow trout) ***Oncorhynchus mykiss***, (Atlantic halibut) ***Hippoglossus hippoglossus***, (Atlantic cod) ***Gadus morhua*** and (haddock) ***Meranogrammus aeglefinus***.

2. The term of this lease shall be for five years commencing on the 27th day of April, 2011 to the 26th day of April, 2016 with the right of renewal, in accordance with the terms of the Act & Regulations.

3. The Lessee shall pay to the Minister an annual fee as set out in the Regulations. The first payment is due upon issuance of the lease, with further annual payments due in full within 60 days after each anniversary of the granting of the lease.

4. Any undertakings required by Schedule "B" to this lease, and any permits, protocols, approvals, leases or permissions which may be required under the laws of the Province or Canada form part of this Agreement, and the Lessee hereby agrees to comply with any conditions or limitations contained in these requirements unless compliance for leasing purposes is expressly waived by the Minister.

5. This lease may not be assigned without the express written consent of the Minister. If the Lessee is a corporation, any change in the right to control the corporation shall be deemed to be an assignment. No assignment shall be binding on the Minister until approved by him.

6. The Minister will not normally approve of a lease assignment unless the site has been in production for a period of at least one year.

7. In the event that the Lessee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, then, at the option of the Minister, this lease shall terminate and be of no further force and effect subject only to the right of the Minister to claim for damages.

8. The Lessee agrees to comply with any environmental monitoring program determined by the Minister. This data shall be submitted to the Minister or his designate for purposes of site evaluation. Failure to comply will be grounds for immediate revocation of the lease.

9. This lease does not include any rights as to minerals in or on the lease area.

10. The lease holder, its employees, workers and agents must not allow the release or escapement of finfish either through a deliberate act or acts or through negligence or accident. The lease holder, its employees, workers and agents shall take all measures necessary to prevent such an occurrence. In the event of a release or an escapement of finfish, the lease holder shall contact and notify the Nova Scotia Department of Fisheries and Aquaculture within four (4) hours of the lease holder having knowledge of the release or escapement of any of the aforesaid.

No finfish that have been released or that have escaped from an aquaculture facility may be recaptured, unless authorized in advance, by permit or licence from the appropriate authority or authorities.

11. Leasehold improvements shall remain the property of the Lessee and may be removed by him on the expiration of the lease, if this may be done without material damage to the sub-aquatic lands or water column, or after compensation for such material damage, however leasehold improvements may forfeit to the Minister at its sole discretion if the lease is lawfully terminated by the Minister because of breach or default by the Lessee.

12. The Lessee is hereby given the exclusive right to use the leased sub-aquatic lands and water column and the right to exclude all others from the leased area who do not have a statutory right to enter upon the premises.

13. The Lessee is hereby prohibited from using the site in any way that would interfere with other leased aquaculture operations.

14. If the Minister, in its sole discretion, is of the opinion that the aquaculture activities authorized by this lease are detrimental to or interfere with previously leased facilities, the Minister may cancel this lease upon reasonable notice without compensation.

15. If, in the opinion of the Minister, the Lessee fails to utilize all of the site for aquaculture purposes, the Minister may, in his sole discretion cancel that portion of the area that is unused.

16. The Minister may cancel this lease without advance notice or compensation if the Minister in his sole discretion finds any form of disease on the site which could adversely affect either aquatic flora or fauna, or render the aquacultural produce unsuitable for human consumption.

17. The Minister may cancel this lease without advance notice or compensation if the Lessee is found by a court of competent jurisdiction to be in violation of any Provincial or Federal law relating to fishery activities.

18. The Lessee shall immediately remove from the site and safely dispose of any deleterious substance.

19. If the Lessee fails to perform any of its obligations under this lease, the Minister may perform them at the Lessee's expense. In addition to any other remedies available, the Minister shall have a first priority charge for the amount due to it on the aquacultural produce within the site.

20. If the Lessee is in breach of the terms of this lease and such breach is not corrected within the time period set out in the notice from the Minister, the Minister may cancel this lease without further notice or compensation.

21. Should it become necessary for the Minister to expropriate the Lessee's rights under this lease, it is hereby agreed that the value of the lease for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the Lessee that cannot be removed from the site. No compensation may be claimed for the cancellation of this lease where compensation is paid or payable in relation to the expropriation of a lease for the same area.

22. Any notices required to be given under this lease may be sent to the parties at their addresses set out in the heading of this Agreement. Nothing in this section prohibits the giving of notice by any other means. The Lessee must notify the Minister of any change of address within 30 days.

23. Nothing in this Agreement shall be taken as a warranty by the Minister that the leased premises may be used now or in the future by the Lessee for aquaculture purposes. The Minister assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

24. This lease shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

25. This lease shall be subject to any changes made from time to time in the Fisheries and Coastal Resources Act, its regulations or any other relevant legislation.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of

Witness

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia

Minister of the Nova Scotia Department of Fisheries and Aquaculture

Kelly Cove Salmon Ltd.
Per:

Section 20

Witness

GPS CO-ORDINATE INFORMATION SHEET

App #: **1039**

Applicant: **Kelly Cove Salmon Ltd.**

COPY

Location: **Annapolis Basin** County: **Annapolis**

Hydrographic Chart: **4396** Orthophoto #:

Dimensions of site: **160m x 460m x 210m x 460 m** Size: **Approx. 8.74 Ha**

Approximate Co-ordinates of Application:

Datum used: **NAD 83**

Centre co-ordinates (approx.) **Lat. 44° 38 ' 12.68"**
Long. -65° 45' 22.68"

Corner #1	**Lat. 44° 39' 20.34"** **Long. -65° 45' 27.36"**	Corner #2	**Lat. 44° 39' 20.40"** **Long. -65° 45' 20.10"**
Corner #3	**Lat. 44° 39' 08.76"** **Long. -65° 45' 17.64"**	Corner #4	**Lat. 44° 39' 05.52** **Long. -65° 45' 17.58"**
Corner #5	**Lat. 44° 39' 05.40"** **Long. -65° 45' [illegible]**		

Section 20

Applicant's Signature: _____

Date: Sept 22/11.

Note: The coordinates and dimensions for this site have been taken from the survey.

6/62

Aquaculture Site

1039

Center
Lat 44° 38 ' 12.68" Long -65° 46' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
Corner 3
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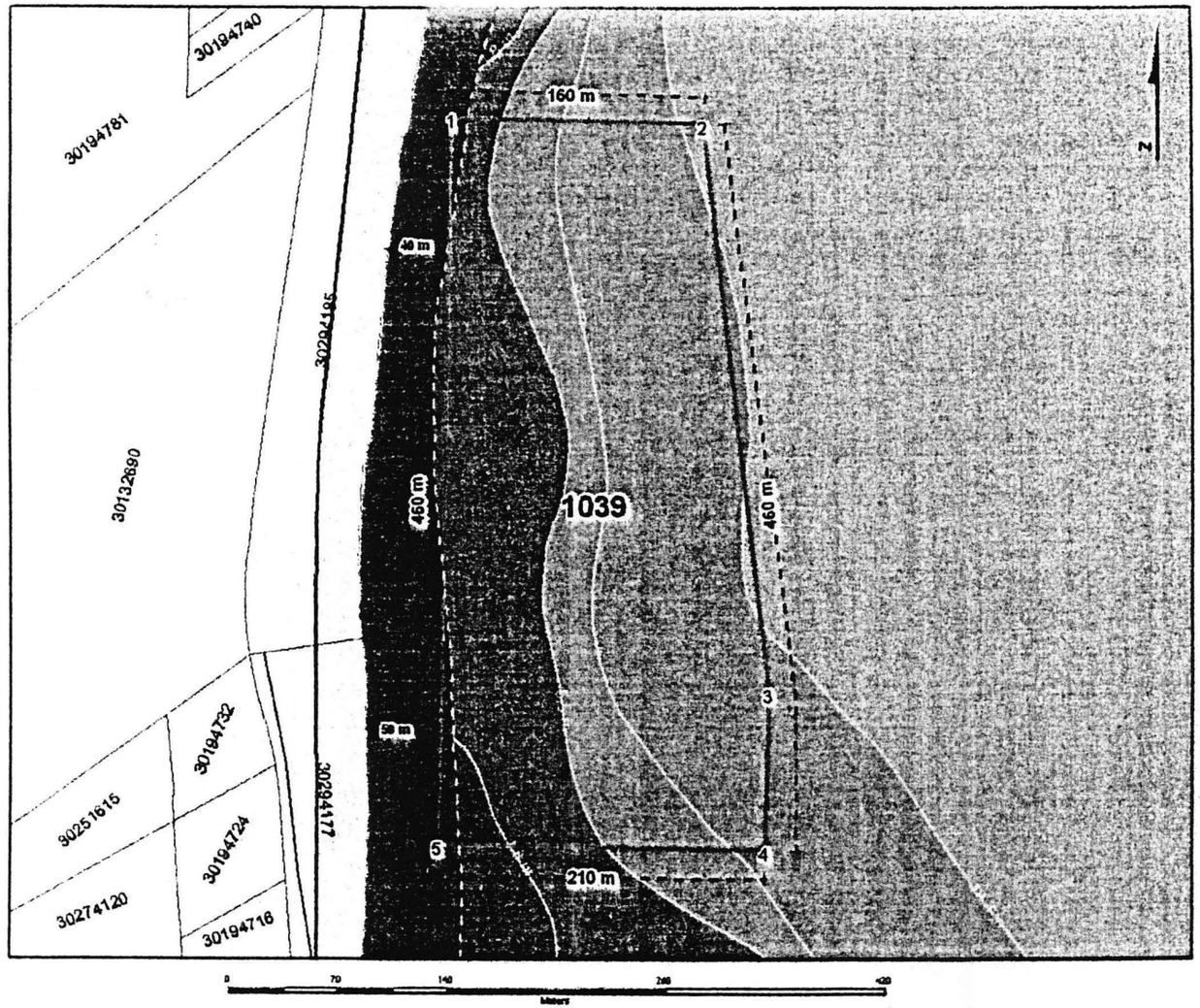
Lat 44° 39' 06.52" Long -65° 45' 17.58"
Corner 5
Lat 44° 39' 06.40" Long -65° 45' 27.06"

DATUM NAD 83
The above coordinates
are not from a legal survey



Application Information			Chart No	Signature
Proponent : Kelly Cove Salmon Ltd Site Location : Annapolis Basin Dimensions : 160m x 460 m x 210 m x 460m Area : Approx. 8.74 Ha	Issued Lease Proposed Lease	NS Bathymetry Low Water Mark	4396 NOVA SCOTIA Fisheries and Aquaculture	Proponent : Date : Aug 22/11. Drawn by : Josh Blakeney , Aug 4, 2011

COPY

291L

Aquaculture Site

1039

Center
Lat 44° 38 ' 12.68" Long -65° 45' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
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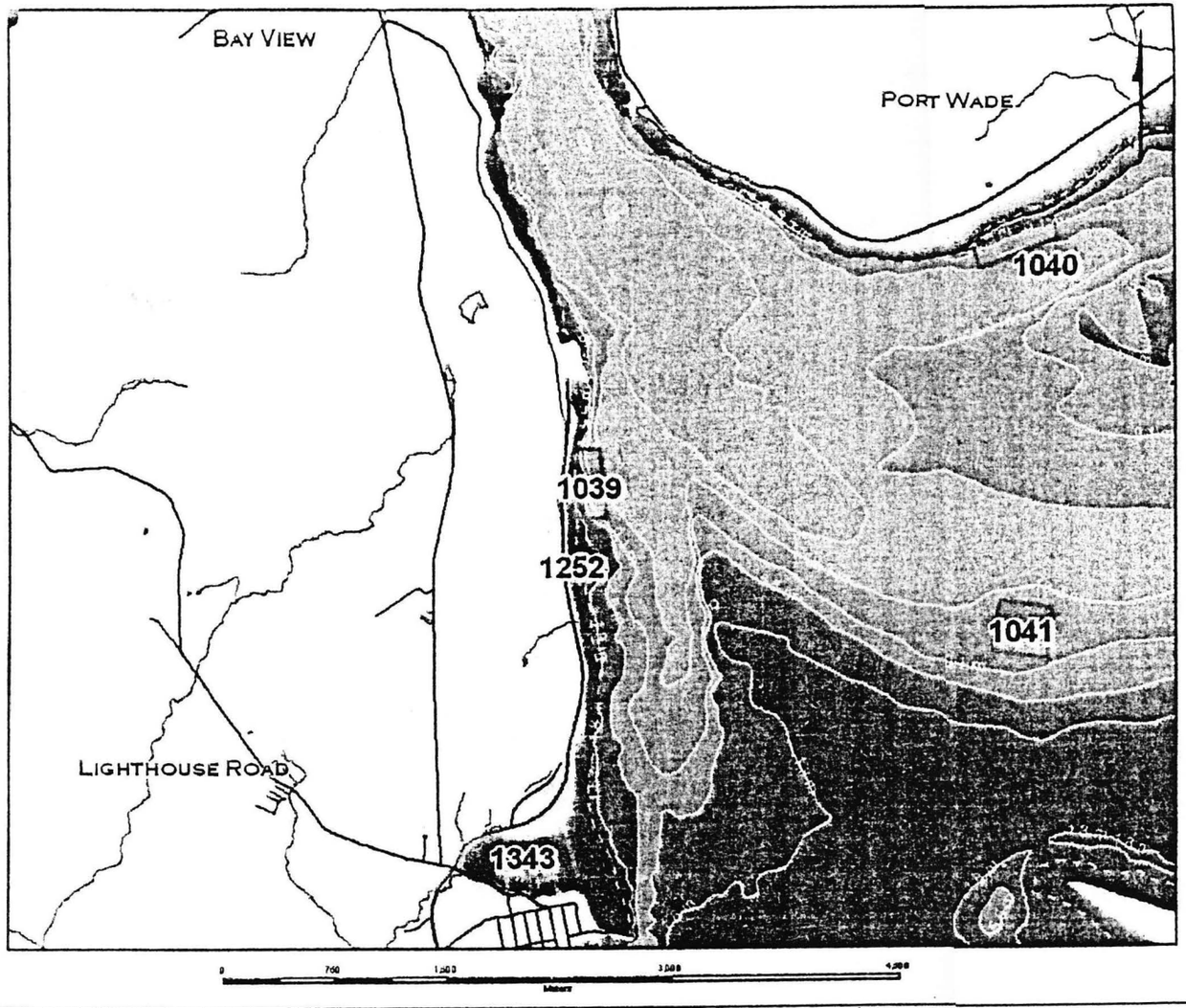


COPY

Application Information				Chart No	Signature
Proponent :	Kelly Cove Slamon Ltd	Issued Lease	NS Bathymetry	4396	Proponent :
Site Location :	Annapolis Basin	Proposed Lease	Low Water Mark		Date : Aug 22/11.
Dimensions :	160m x 460 m x 210 m x 460m			NOVA SCOTIA Fisheries and Aquaculture	Drawn by : Josh Blakeney , Aug 4, 2011
Area :	Approx. 8.74 Ha				

8/62

Licence No. 1039

This licence made in duplicate this 6th day of February, 20 12.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of the Nova Scotia Department of Fisheries and Aquaculture,

hereinafter referred to as **"THE MINISTER"**

OF THE ONE PART

- and -

COPY

KELLY COVE SALMON LTD.
874 MAIN STREET
BLACK'S HARBOUR, NB E5H 1E6

hereinafter referred to as **"THE LICENCEE"**

OF THE OTHER PART

WHEREAS the Minister, under the provisions of the Fisheries and Coastal Resources Act, R.S.N.S. 1996, Chapter 25, is authorized to grant aquaculture licences for the purpose of conducting aquaculture in Nova Scotia;

AND WHEREAS the Licencee wishes to conduct aquaculture in the Province.

1. The Minister hereby grants to the Licencee a licence to use a 8.74 hectare area located in the body of waters known as Annapolis Basin, more particularly described in Schedule "A" attached to and forming part of this Agreement for the marine cage cultivation of (Atlantic salmon) ***Salmo salar***, (rainbow trout) ***Oncorhynchus mykiss***, (Atlantic halibut) ***Hippoglossus hippoglossus***, (Atlantic cod) ***Gadus morhua*** and (haddock) ***Meranogrammus aeglefinus***.

2. The term of this licence shall be for five years commencing on the 27th day of April, 2011 to the 26th day of April, 2016 with the right of renewal, in accordance with the terms of the Act & Regulations.

3. The Licencee shall pay to the Minister an annual fee as set out in the Regulations. The first payment is due upon issuance of the licence, with further annual payments due in full within 60 days after each anniversary of the granting of the licence.

4. Any undertakings required by Schedule "B" to this licence, and any permits, protocols, approvals, licences or permissions which may be required under the laws of the Province or Canada form part of this Agreement, and the Licencee hereby agrees to comply with any conditions or limitations contained in these requirements unless compliance for licencing purposes is expressly waived by the Minister.

5. This licence may not be assigned without the express written consent of the Minister. If the Licencee is a corporation, any change in the right to control the corporation shall be deemed to be an assignment. No assignment shall be binding on the Minister until approved by him.

6. The Minister will not normally approve of a licence assignment unless the site has been in production for a period of at least one year.

7. In the event that the Licencee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, then, at the option of the Minister, this licence shall terminate and be of no further force and effect subject only to the right of the Minister to claim for damages.

8. The Licencee agrees to comply with any environmental monitoring program determined by the Minister. This data shall be submitted to the Minister or his designate for purposes of site evaluation. Failure to comply will be grounds for immediate revocation of the licence.

9. The licence holder, its employees, workers and agents must not allow the release or escapement of finfish either through a deliberate act or acts or through negligence or accident. The licence holder, its employees, workers and agents shall take all measures necessary to prevent such an occurrence. In the event of a release or an escapement of finfish, the licence holder shall contact and notify the Nova Scotia Department of Fisheries and Aquaculture within four (4) hours of the licence holder having knowledge of the release or escapement of any of the aforesaid. No finfish that have been released or that have escaped from an aquaculture facility may be recaptured, unless authorized in advance, by permit or licence from the appropriate

authority or authorities.

10. The Licencee shall submit to the Minister, if requested, a report stating such information as the Minister requires concerning the Licencee's use and the productivity of the licence area.

11. The Licencee is hereby prohibited from using the site in any way that would interfere with other licenced aquaculture operations.

12. If the Minister, in its sole discretion, is of the opinion that the aquaculture activities authorized by this licence are detrimental to or interfere with previously licenced facilities, the Minister may cancel this licence upon reasonable notice without compensation.

13. If, in the opinion of the Minister, the Licencee fails to utilize all of the site for aquaculture purposes, the Minister may, in his sole discretion cancel that portion of the area that is unused.

14. The Minister may cancel this licence without advance notice or compensation if the Minister in his sole discretion finds any form of disease on the site which could adversely affect either aquatic flora or fauna, or render the aquacultural produce unsuitable for human consumption.

15. The Minister may cancel this licence without advance notice or compensation if the Licencee is found by a court of competent jurisdiction to be in violation of any Provincial or Federal law relating to fishery activities.

16. The Licencee shall immediately remove from the site and safely dispose of any contaminated substance.

17. If the Licencee fails to perform any of its obligations under this licence, the Minister may perform them at the Licencee's expense. In addition to any other remedies available, the Minister shall have a first priority charge for the amount due to it on the aquacultural produce within the site.

18. If the Licencee is in breach of the terms of this licence and such breach is not corrected within the time period set out in the notice from the Minister, the Minister may cancel this licence without further notice or compensation.

19. Should it become necessary for the Minister to expropriate the Licencee's rights under this licence, it is hereby agreed that the value of the licence for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the Licencee that cannot be removed from the site. No compensation may be claimed for the cancellation of this licence where compensation is paid or payable in relation to the expropriation of a licence for the same area.

20. Any notices required to be given under this licence may be sent to the parties at their addresses set out in the heading of this Agreement. Nothing in this section prohibits the giving of notice by any other means. The Licencee must notify the Minister of any change of address within 30 days.

21. Nothing in this Agreement shall be taken as a warranty by the Minister that the licenced premises may be used now or in the future by the Licencee for aquaculture purposes. The Minister assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

22. This licence shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

23. This licence shall be subject to any changes made from time to time in the Fisheries and Coastal Resources Act, its regulations or any other relevant legislation.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of	**HER MAJESTY THE QUEEN** in right of the Province of Nova Scotia
Witness	Minister of the Nova Scotia Department of Fisheries and Aquaculture
	Kelly Cove Salmon Ltd. Per:
Witness	

Section 20

COPY

GPS CO-ORDINATE INFORMATION SHEET

App #: **1039**

Applicant: **Kelly Cove Salmon Ltd.**

Location: **Annapolis Basin** County: **Annapolis**

Hydrographic Chart: **4396** Orthophoto #:

Dimensions of site: **160m x 460m x 210m x 460 m** Size: **Approx. 8.74 Ha**

Approximate Co-ordinates of Application:

Datum used: **NAD 83**

Centre co-ordinates (approx.) **Lat. 44° 38 ' 12.68"**
Long. -65° 45' 22.68"

Corner #1 **Lat. 44° 39' 20.34"**
Long. -65° 45' 27.36"

Corner #2 **Lat. 44° 39' 20.40"**
Long. -65° 45' 20.10"

Corner #3 **Lat. 44° 39' 08.76"**
Long. -65° 45' 17.64"

Corner #4 **Lat. 44° 39' 05.52**
Long. -65° 45' 17.58"

Corner #5 **Lat. 44° 39' 05.40"**
Long. -65° 45' 27.06"

Section 20

Applicant's Signature: _____

Date: Sep 22/11.

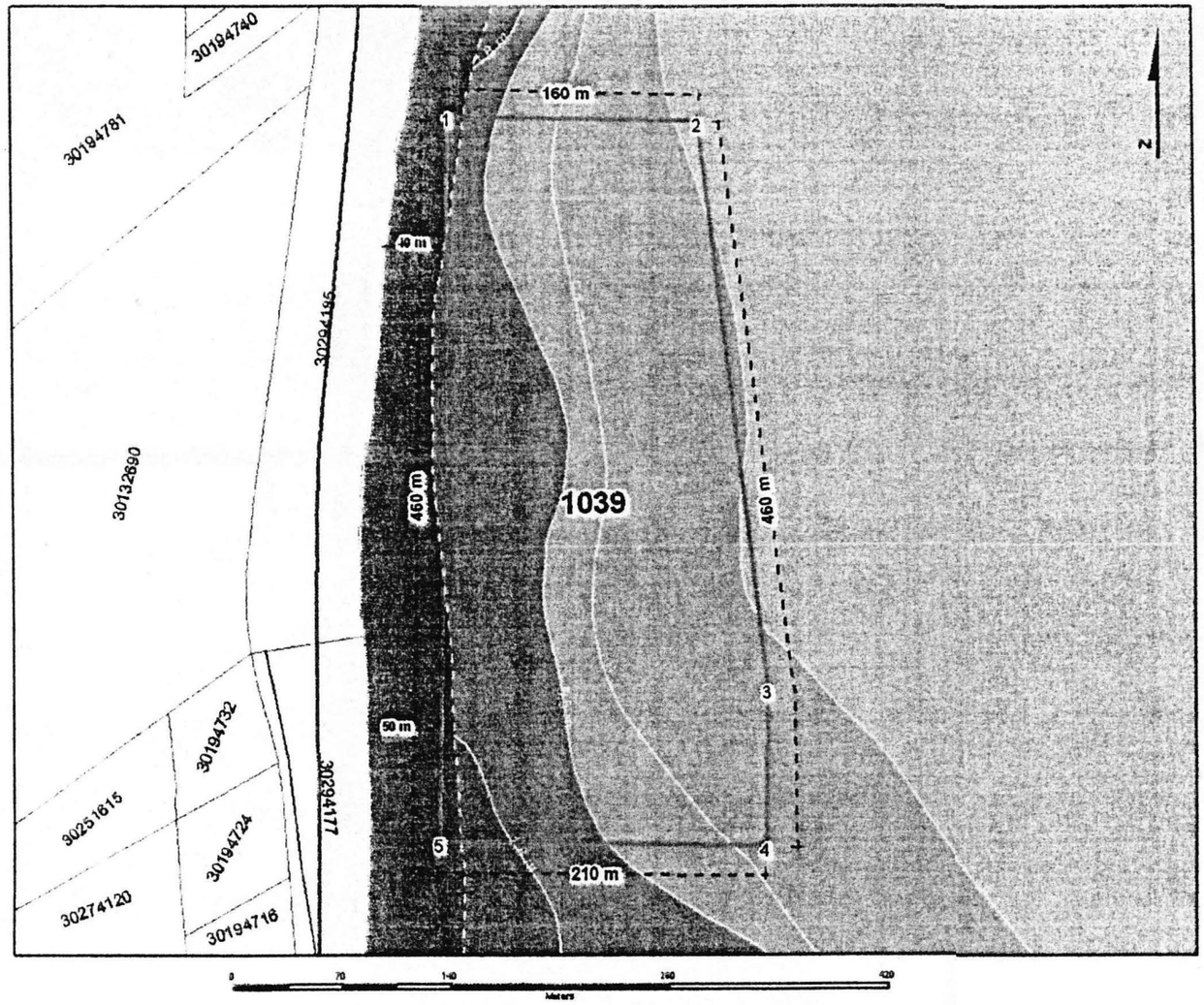
Note: The coordinates and dimensions for this site have been taken from the survey.

Aquaculture Site

1039

Center
Lat 44° 38 ' 12.68" Long -65° 45' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
Corner 3
Lat 44° 39' 08.76" Long -65° 45' 17.64"
Corner 4
Lat 44° 39' 05.52" Long -65° 45' 17.58"
Corner 5
Lat 44° 39' 05.40" Long -65° 45' 27.06"

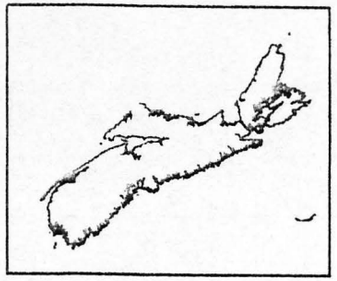
DATUM NAD 83
The above coordinates
are not from a legal survey



Application Information			Chart No.	Signature
Proponent : Kelly Cove Salmon Ltd Site Location : Annapolis Basin Dimensions : 160m x 460 m x 210 m x 460m Area : Approx. 8.74 Ha	Issued Lease Proposed Lease	NS Bathymetry Low Water Mark	4396 NOVA SCOTIA Fisheries and Aquaculture	Proponent Date : Aug 22/11. Drawn by : Josh Blakeney , Aug 4, 2011

COPY

29/51



Aquaculture Site

1039

Center
Lat 44° 38 ' 12.68" Long -65° 45' 22.68"
Corner 1
Lat 44° 39' 20.34" Long -65° 45' 27.36"
Corner 2
Lat 44° 39' 20.40" Long -65° 45' 20.10"
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Lat 44° 39' 08.76" Long -65° 45' 17.64"
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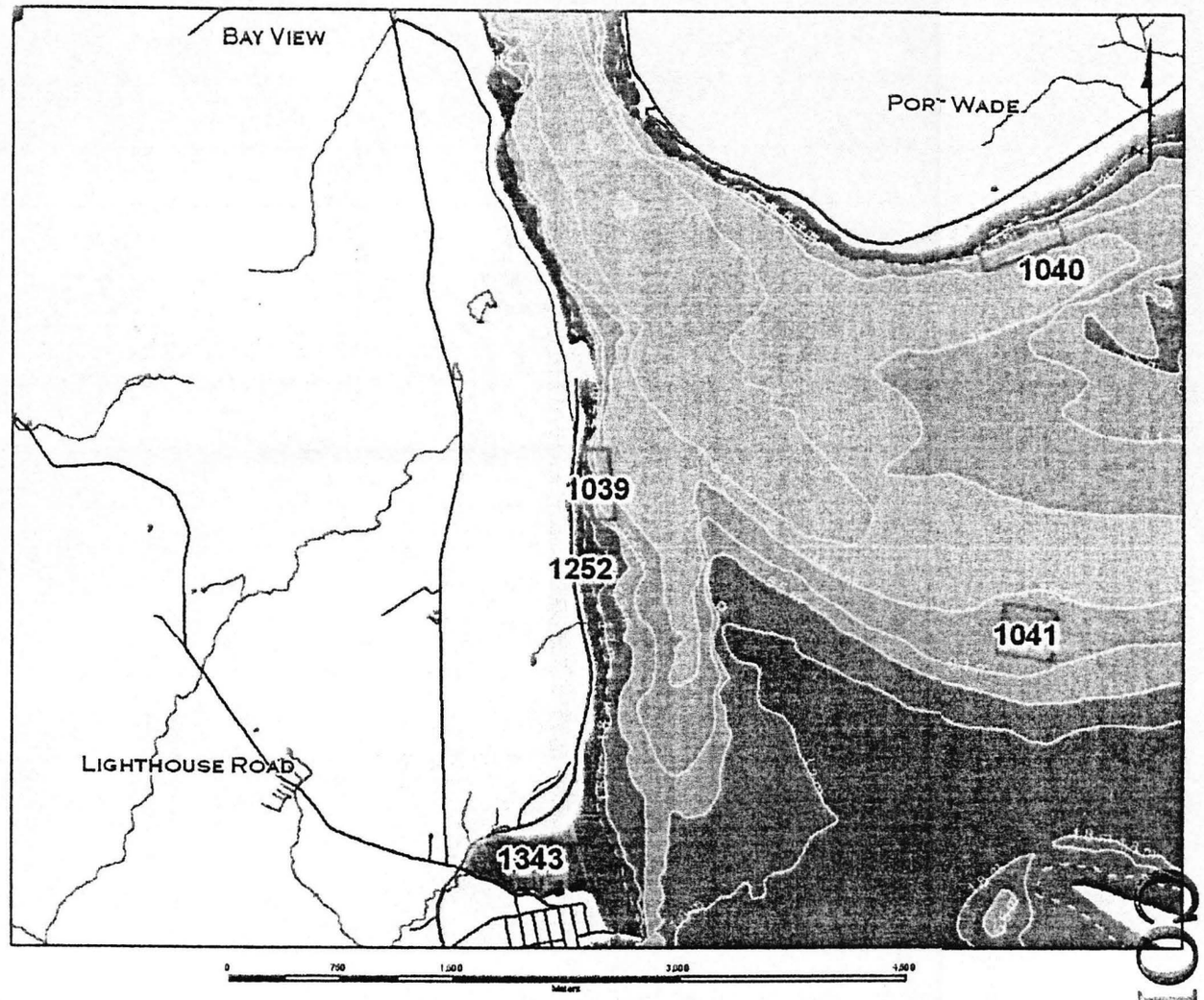
Lat 44° 39' 05.52" Long -65° 45' 17.58"
Corner 5
Lat 44° 39' 05.40" Long -65° 45' 27.06"

DATUM NAD 83
The above coordinates
are not from a legal survey



COPY

Application Information			Chart No	Signature
Proponent : Kelly Cove Salmon Ltd Site Location : Annapolis Basin Dimensions : 160m x 460 m x 210 m x 460m Area : Approx. 8.74 Ha	Issued Lease Proposed Lease	NS Bathymetry Low Water Mark	4396	Proponent : Date : May 22/11 Drawn by : Josh Blakeney , Aug 4, 2011

NOVA SCOTIA
Fisheries and Aquaculture

16/62

Lease No. 1039

COPY

This lease made in duplicate the 25th day of April, 2006.

BETWEEN:
HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of Nova Scotia Fisheries and Aquaculture,
hereinafter referred to as **"THE MINISTER"**

OF THE ONE PART

-and-

Kelly Cove Salmon Ltd.
14 Magaguadavic Dr.
St. George, NB
E5C 3H8

hereinafter referred to as **"THE LESSEE"**

OF THE OTHER PART

WHEREAS the Minister, under the provisions of the Fisheries and Coastal Resources Act, R.S.N.S. 1996, Chapter 25, is authorized to grant aquaculture leases for the purpose of conducting aquaculture in Nova Scotia;

AND WHEREAS the Lessee wishes to conduct aquaculture in the Province.

1. The Minister hereby grants to the Lessee a lease to use a 8.75 hectare area located in the body of water known as Annapolis Basin, more particularly described in Schedule "A" attached to and forming part of this Agreement for the marine cage culture of **Salmo salar** (Atlantic salmon), **Oncorhynchus mykiss** (rainbow trout), **Hippoglossus hippoglossus** (Atlantic halibut), **Gadus morhua** (Atlantic cod) and **Melanogrammus aeglefinus** (haddock).

2. The term of this lease shall be for five years commencing on the 27th day of April, 2006 to the 27th day of April, 2011 with the right of renewal, in accordance with the terms of the Act & Regulations.

3. The Lessee shall pay to the Minister an annual fee as set out in the Regulations. The first payment is due upon issuance of the lease, with further annual payments due in full within 60 days after each anniversary of the granting of the lease.

4. Any undertakings required by Schedule "B" to this lease, and any permits, protocols, approvals, leases or permissions which may be required under the laws of the Province or Canada form part of this Agreement, and the Lessee hereby agrees to comply with any conditions or limitations contained in these requirements unless compliance for leasing purposes is expressly waived by the Minister.

5. This lease may not be assigned without the express written consent of the Minister. If the Lessee is a corporation, any change in the right to control the corporation shall be deemed to be an assignment. No assignment shall be binding on the Minister until approved by him.

6. The Minister will not normally approve of a lease assignment unless the site has been in production for a period of at least one year.

7. In the event that the Lessee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, then, at the option of the Minister, this lease shall terminate and be of no further force and effect subject only to the right of the Minister to claim for damages.

8. This lease does not include any rights as to minerals in or on the lease area.

9. Leasehold improvements shall remain the property of the Lessee and may be removed by him on the expiration of the lease, if this may be done without material damage to the sub-aquatic lands or water column, or after compensation for such material damage, however leasehold improvements may forfeit to the Minister at its sole discretion if the lease is lawfully terminated by the Minister because of breach or default by the Lessee.

10. The Lessee is hereby given the exclusive right to use the leased sub-aquatic lands and water column and the right to exclude all others from the leased area who do not have a statutory right to enter upon the premises.

11. The Lessee is hereby prohibited from using the site in any way that would interfere with other leased aquaculture operations.

12. If the Minister, in its sole discretion, is of the opinion that the aquaculture activities authorized by this lease are detrimental to or interfere with previously leased facilities, the Minister may cancel this lease upon reasonable notice without compensation.

13. If, in the opinion of the Minister, the Lessee fails to utilize all of the site for aquaculture purposes, the Minister may, in his sole discretion cancel that portion of the area that is unused.

14. The Minister may cancel this lease without advance notice or compensation if the Minister in his sole discretion finds any form of disease on the site which could adversely affect either aquatic flora or fauna, or render the aquacultural produce unsuitable for human consumption.

15. The Minister may cancel this lease without advance notice or compensation if the Lessee is found by a court of competent jurisdiction to be in violation of any Provincial or Federal law relating to marine activities.

16. The Lessee shall immediately remove from the site and safely dispose of any deleterious substance.

COPY

17. If the Lessee fails to perform any of its obligations under this lease, the Minister may perform them at the Lessee's expense. In addition to any other remedies available, the Minister shall have a first priority charge for the amount due to it on the aquacultural produce within the site.

18. If the Lessee is in breach of the terms of this lease and such breach is not corrected within the time period set out in the notice from the Minister, the Minister may cancel this lease without further notice or compensation.

19. Should it become necessary for the Minister to expropriate the Lessee's rights under this lease, it is hereby agreed that the value of the lease for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the Lessee that cannot be removed from the site. No compensation may be claimed for the cancellation of this lease where compensation is paid or payable in relation to the expropriation of a lease for the same area.

20. Any notices required to be given under this lease may be sent to the parties at their addresses set out in the heading of this Agreement. Nothing in this section prohibits the giving of notice by any other means. The Lessee must notify the Minister of any change of address within 30 days.

21. Nothing in this Agreement shall be taken as a warranty by the Minister that the leased premises may be used now or in the future by the Lessee for aquaculture purposes. The Minister assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

22. This lease shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

COPY

23. This lease shall be subject to any changes made from time to time in the Fisheries and Coastal Resources Act, its regulations or any other relevant legislation.

IN WITNESS WHEREOF the Parties have causes this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of	) **HER MAJESTY THE QUEEN** in) right of the Province of Nova Scotia
Witness	) Minister of Nova Scotia Fisheries and) Aquaculture
	) Kelly Cove Salmon Ltd.) Per:
Witness	

Section 20

COPY

Schedule A

GPS CO-ORDINATE INFORMATION SHEET

App #:	**1039**		
Applicant:	**Kelly Cove Salmon Ltd. - Mike Szemerda**		
Location:	**Annapolis Basin**	County:	**Annapolis**
Hydrographic Chart:	**4396**	Orthophoto #:	**02323-100**
Dimensions of site:	**160m x 363m x 100m** **209m x 461m**	Size:	**c. 8.75 ha**

Approximate Co-ordinates of Application:

Datum used: **NAD 83**

Centre co-ordinates (approx.) **Lat. 44° 39.208'**
Long. -65° 45.378'

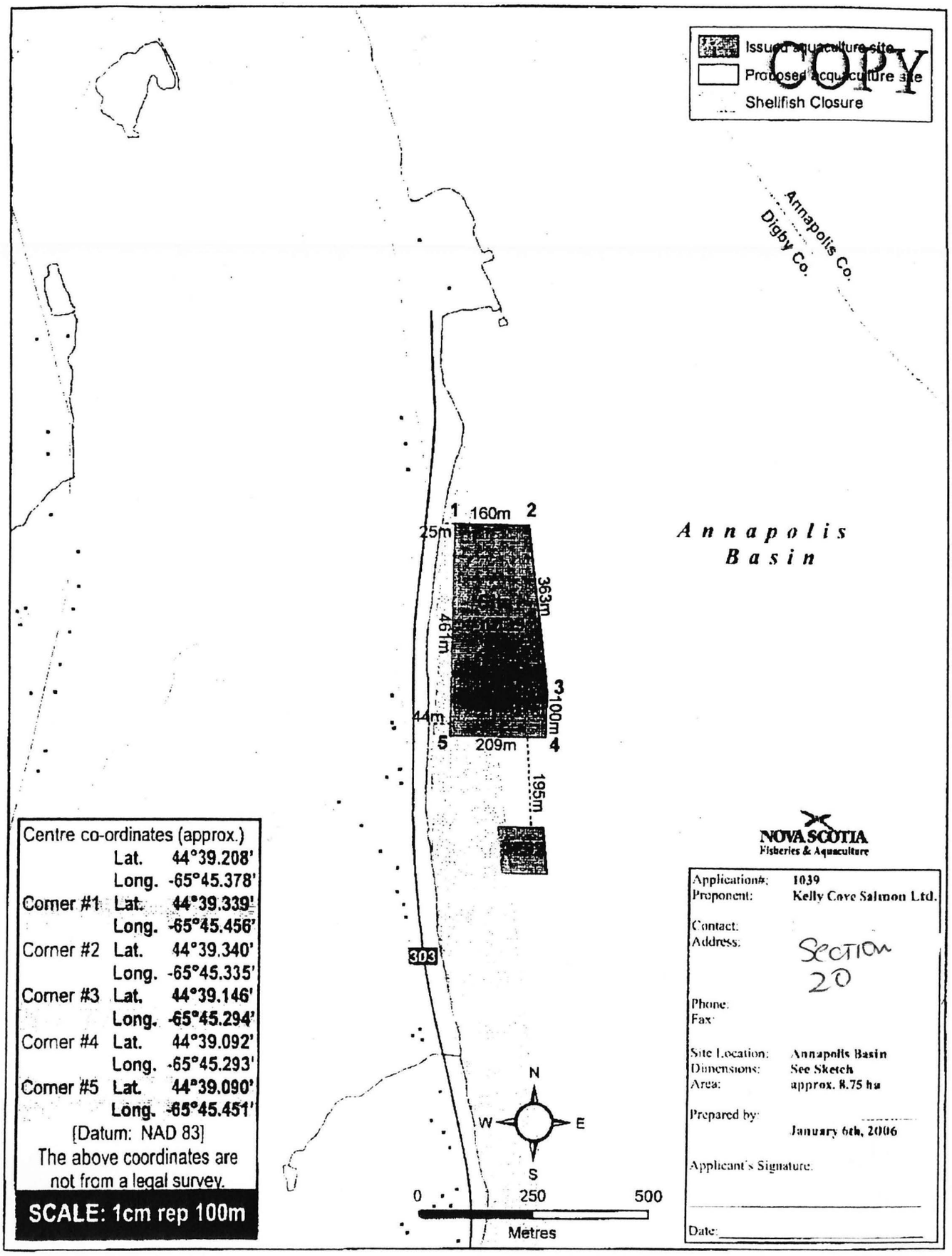
Corner #1	**Lat.**	**44° 39.339'**	Corner #2	**Lat.**	**44° 39.340'**
	Long.	**-65° 45.456'**		**Long.**	**-65° 45.335'**
Corner #3	**Lat.**	**44° 39.146'**	Corner #4	**Lat.**	**44° 39.092'**
	Long.	**-65° 45.294'**		**Long.**	**-65° 45.293**
Corner #5	**Lat.**	**44° 39.090'**			
	Long.	**-65° 45.451'**			

Section 20

Applicant's Signature: _____

Date: _____

Note: The coordinates and dimensions for this site have been taken from the survey.



Centre co-ordinates (approx.)		
	Lat.	44°39.208'
	Long.	-65°45.378'
Corner #1	Lat.	44°39.339'
	Long.	-65°45.456'
Corner #2	Lat.	44°39.340'
	Long.	-65°45.335'
Corner #3	Lat.	44°39.146'
	Long.	-65°45.294'
Corner #4	Lat.	44°39.092'
	Long.	-65°45.293'
Corner #5	Lat.	44°39.090'
	Long.	-65°45.451'

[Datum: NAD 83]

The above coordinates are not from a legal survey.

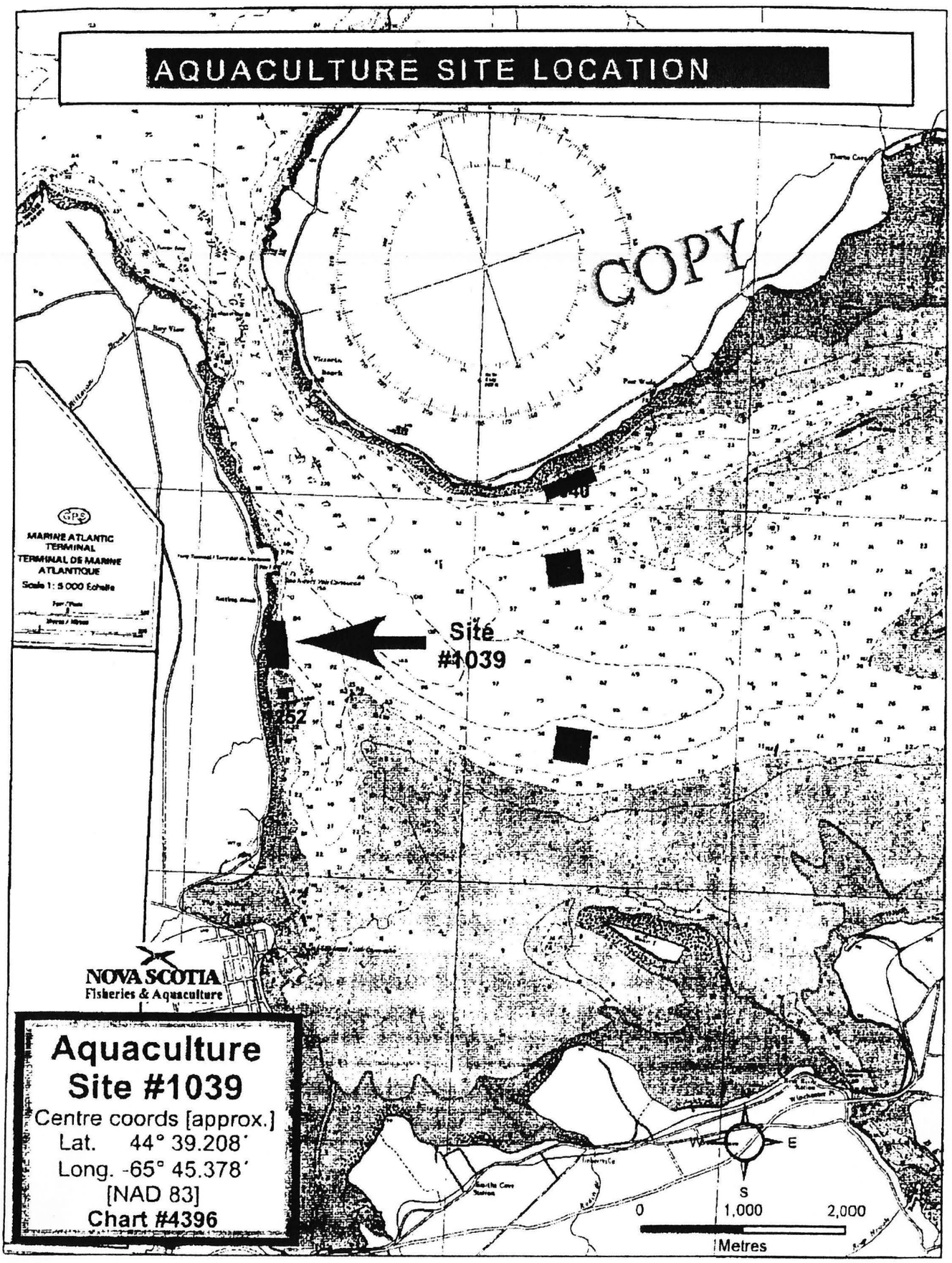
SCALE: 1cm rep 100m

NOVA SCOTIA
Fisheries & Aquaculture

Application#:	1039
Proponent:	Kelly Cove Salmon Ltd.
Contact:	
Address:	Section 20
Phone:	
Fax:	
Site Location:	Annapolis Basin
Dimensions:	See Sketch
Area:	approx. 8.75 ha
Prepared by:	January 6th, 2006

Applicant's Signature:

Date:


AQUACULTURE SITE LOCATION
COPY
GPS
MARINE ATLANTIC TERMINAL
TERMINAL DE MARINE ATLANTIQUE
Scale 1: 5 000 Echelle
Site #1039
NOVA SCOTIA
Fisheries & Aquaculture
Aquaculture Site #1039
Centre coords [approx.]
Lat. 44° 39.208'
Long. -65° 45.378'
[NAD 83]
Chart #4396
W
E
S
0
1,000
2,000
Metres

Licence No. 1039

This licence made in duplicate the 25th day of April, 2006.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of Nova Scotia Fisheries and Aquaculture,
hereinafter referred to as **"THE MINISTER"**

OF THE ONE PART

-and-

COPY

Kelly Cove Salmon Ltd.
14 Magaguadavic Dr.
St. George, NB
E5C 3H8

hereinafter referred to as **"THE LICENSEE"**

OF THE OTHER PART

WHEREAS the Minister, under the provisions of the Fisheries and Coastal Resources Act, R.S.N.S. 1996, Chapter 25, is authorized to grant aquaculture licences for the purpose of conducting aquaculture in Nova Scotia;

AND WHEREAS the Licensee wishes to conduct aquaculture in the Province.

1. The Minister hereby grants to the Licensee a licence to use a 8.75 hectare area located in the body of water known as Annapolis Basin, more particularly described in Schedule "A" attached to and forming part of this Agreement for the marine cage culture of **Salmo salar** (Atlantic salmon), **Oncorhynchus mykiss** (rainbow trout), **Hippoglossus hippoglossus** (Atlantic halibut), **Gadus morhua** (Atlantic cod) and **Melanogrammus aeglefinus** (haddock).

2. The term of this licence shall be for five years commencing on the 27th day of April, 2006 to the 27th day of April, 2011 with the right of renewal, in accordance with the terms of the Act & Regulations.

3. The Licensee shall pay to the Minister an annual fee as set out in the Regulations. The first payment is due upon issuance of the licence, with further annual payments due in full within 60 days after each anniversary of the granting of the licence.

4. Any undertakings required by Schedule "B" to this licence, and any permits, protocols, approvals, licences or permissions which may be required under the laws of the Province or Canada form part of this Agreement, and the Licensee hereby agrees to comply with any conditions or limitations contained in these requirements unless compliance for licensing purposes is expressly waived by the Minister.

5. This licence may not be assigned without the express written consent of the Minister. If the Licensee is a corporation, any change in the right to control the corporation shall be deemed to be an assignment. No assignment shall be binding on the Minister until approved by him.

6. The Minister will not normally approve of a licence assignment unless the site has been in production for a period of at least one year.

7. In the event that the Licensee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, then, at the option of the Minister, this licence shall terminate and be of no further force and effect subject only to the right of the Minister to claim for damages.

8. The Licensee agrees to comply with any environmental monitoring program determined by the Minister. This data shall be submitted to the Minister or his designate for purposes of site evaluation. Failure to comply will be grounds for immediate revocation of the licence.

9. The Licensee shall submit to the Minister, if requested, a report stating such information as the Minister requires concerning the Licensee's use and the productivity of the licence area.

10. The Licensee is hereby prohibited from using the site in any way that would interfere with other licenced aquaculture operations.

11. If the Minister, in its sole discretion, is of the opinion that the aquaculture activities authorized by this licence are detrimental to or interfere with previously licenced facilities, the Minister may cancel this licence upon reasonable notice without compensation.

12. If, in the opinion of the Minister, the Licensee fails to utilize all of the site for aquaculture purposes, the Minister may, in his sole discretion cancel that portion of the area that is unused.

13. The Minister may cancel this licence without advance notice or compensation if the Minister in his sole discretion finds any form of disease on the site which could adversely affect either aquatic flora or fauna, or render the aquacultural produce unsuitable for human consumption.

14. The Minister may cancel this licence without advance notice or compensation if the Licensee is found by a court of competent jurisdiction to be in violation of any Provincial or Federal law relating to marine activities.

15. The Licensee shall immediately remove from the site and safely dispose of any contaminated substance.

16. If the Licensee fails to perform any of its obligations under this licence, the Minister may perform them at the Licensee's expense. In addition to any other remedies available, the Minister shall have a first priority charge for the amount due to it on the aquacultural produce within the site.

COPY

17. If the Licensee is in breach of the terms of this licence and such breach is not corrected within the time period set out in the notice from the Minister, the Minister may cancel this licence without further notice or compensation.

18. Should it become necessary for the Minister to expropriate the Licensee's rights under this licence, it is hereby agreed that the value of the licence for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the Licensee that cannot be removed from the site. No compensation may be claimed for the cancellation of this licence where compensation is paid or payable in relation to the expropriation of a lease for the same area.

19. Any notices required to be given under this licence may be sent to the parties at their addresses set out in the heading of this Agreement. Nothing in this section prohibits the giving of notice by any other means. The Licensee must notify the Minister of any change of address within 30 days.

20. Nothing in this Agreement shall be taken as a warranty by the Minister that the licenced premises may be used now or in the future by the Licensee for aquaculture purposes. The Minister assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

21. This licence shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

22. This licence shall be subject to any changes made from time to time in the Fisheries and Coastal Resources Act, its regulations or any other relevant legislation.

COPY

IN WITNESS WHEREOF the Parties have causes this Agreement to be duly executed.

IN WITNESS WHEREOF the Parties have causes this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of

Witness

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia

Minister of Nova Scotia Fisheries and Aquaculture

Kelly Cove Salmon Ltd.

Per:

Section 20

Witness

Section 20

COPY

Schedule A

GPS CO-ORDINATE INFORMATION SHEET

App #: **1039**

Applicant: **Kelly Cove Salmon Ltd. -** Section 20

Location: **Annapolis Basin** County: **Annapolis**

Hydrographic Chart: **4396** Orthophoto #: **02323-100**

Dimensions of site: **160m x 363m x 100m**
209m x 461m Size: **c. 8.75 ha**

Approximate Co-ordinates of Application:

Datum used: **NAD 83**

Centre co-ordinates (approx.) **Lat. 44° 39.208′**
Long. -65° 45.378′

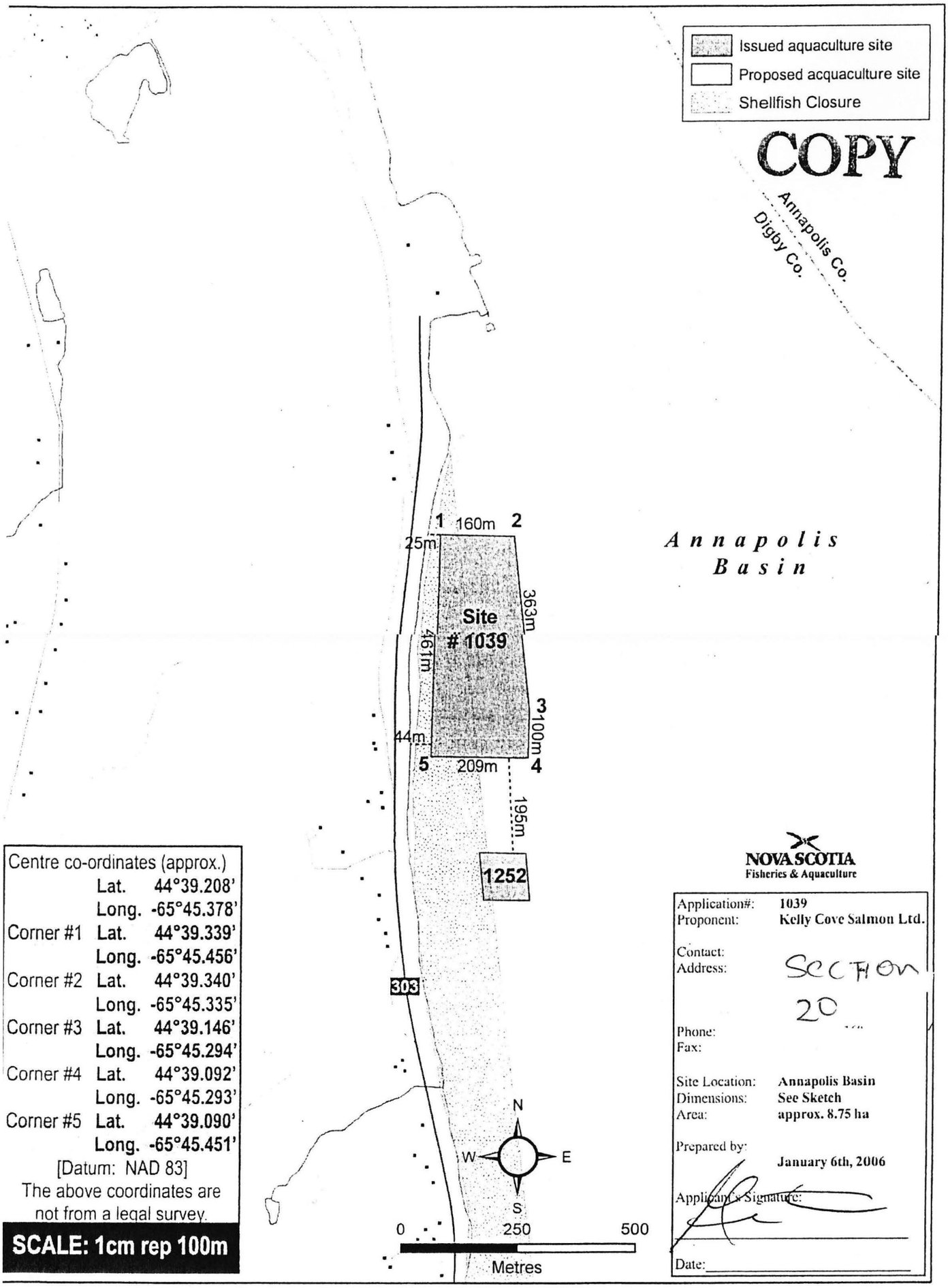
Corner #1	**Lat.**	**44° 39.339'**	Corner #2	**Lat.**	**44° 39.340'**
	Long.	**-65° 45.456'**		**Long.**	**-65° 45.335'**
Corner #3	**Lat.**	**44° 39.146'**	Corner #4	**Lat.**	**44° 39.092'**
	Long.	**-65° 45.294'**		**Long.**	**-65° 45.293**
Corner #5	**Lat.**	**44° 39.090'**			
	Long.	**-65° 45.451'**			

Section 20

Applicant's Signature: _____

Date: _____

Note: The coordinates and dimensions for this site have been taken from the survey.



Centre co-ordinates (approx.)		
	Lat.	44°39.208'
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Corner #1	Lat.	44°39.339'
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	Long.	-65°45.293'
Corner #5	Lat.	44°39.090'
	Long.	-65°45.451'

[Datum: NAD 83]
The above coordinates are not from a legal survey.

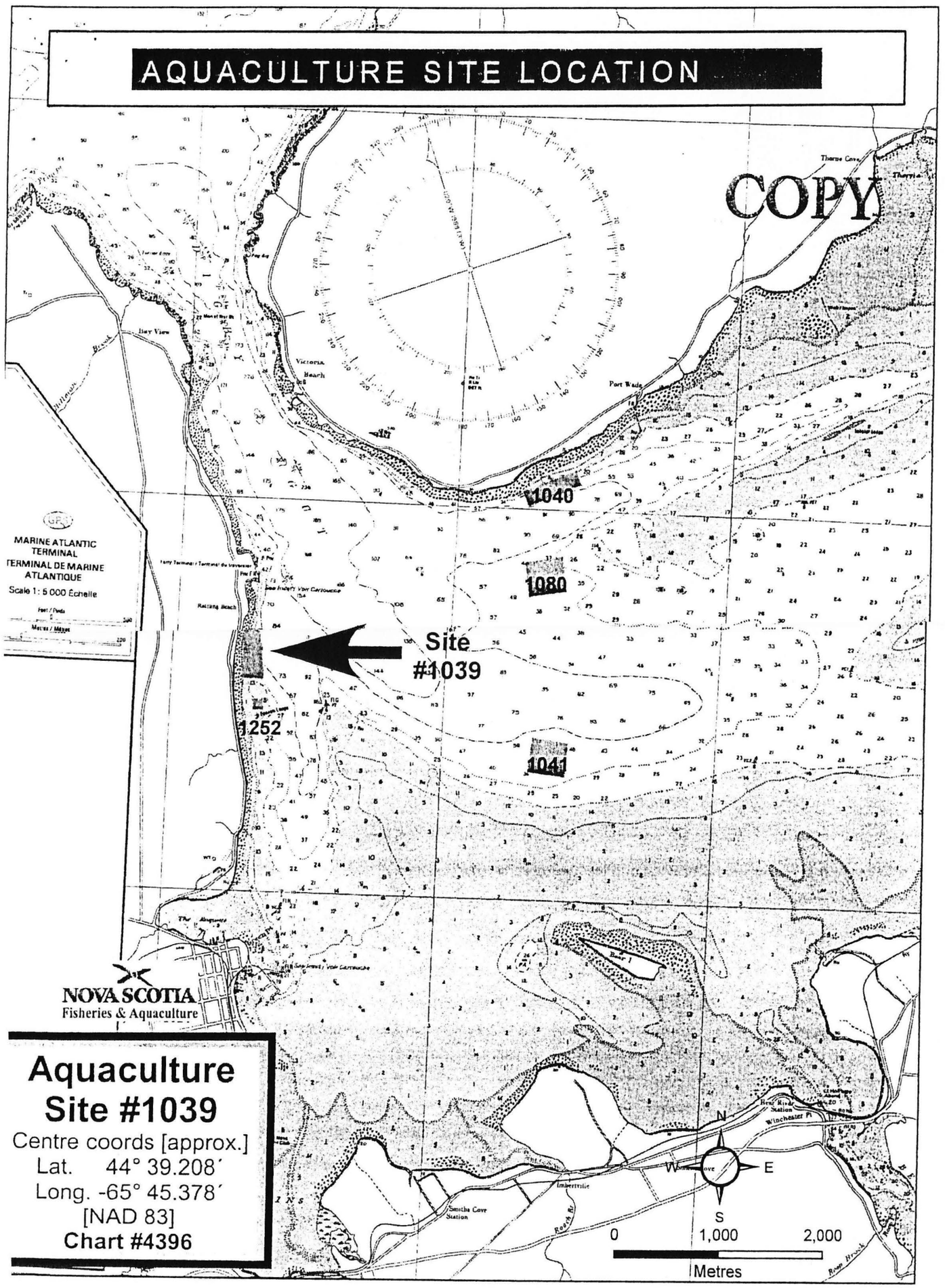
SCALE: 1cm rep 100m

NOVA SCOTIA
Fisheries & Aquaculture

Application#:	1039
Proponent:	Kelly Cove Salmon Ltd.
Contact:	
Address:	SECTION 20
Phone:	
Fax:	
Site Location:	Annapolis Basin
Dimensions:	See Sketch
Area:	approx. 8.75 ha
Prepared by:	
	January 6th, 2006
Applicant's Signature:	
Date:	

31/62

AQUACULTURE SITE LOCATION



32/62

PROVINCE OF NOVA SCOTIA
ASSIGNMENT OF AQUACULTURE LICENCE AND LEASE

THIS ASSIGNMENT made in duplicate this 10 day of June, 2004.

BETWEEN:

Di-Anna Aqua Incorporated
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

COPY

hereinafter referred to as the **"ASSIGNOR**

OF THE FIRST PART

- and -

Kelly Cove Salmon Ltd.
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

hereinafter referred to as the **"ASSIGNEE"**

OF THE SECOND PART

- and -

HER MAJESTY THE QUEEN in Right of the Province of Nova Scotia as represented in this behalf by the Honourable Minister of Agriculture and Fisheries,

hereinafter referred to as the **"MINISTER"**

OF THE THIRD PART

WITNESSETH that in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Assignor hereby fully and irrevocably assigns and transfers to the Assignee, his heirs executors, administrators and assigns, all his right, title and interest in and to Nova Scotia Aquaculture Licence and Lease No. 1039 located in the body of water known as Annapolis Basin, Digby County, containing 9.6 hectares (the "Licence" and the "Lease") and further requests that this Licence and Lease be registered in the names of the Assignee on the Register of Aquaculture maintained by the Minister under the Fisheries and Coastal Resources Act.

The Assignee hereby accepts this assignment and agrees to be bound by all of the terms of the Licence and Lease hereby assigned, the Fisheries and Coastal Resources Act, and the Aquaculture Regulations of the Province.

The Minister hereby consents to this assignment and agrees to record it in the Registry of Aquaculture maintained under the provisions of the Fisheries and Coastal Resources Act.

IN WITNESS WHEREOF the Assignor, Assignee and the Minister have caused this document to be signed, sealed and delivered this 10 day of June, 2004.

SIGNED, SEALED AND DELIVERED in the presence of

Section 20

Witness

Assignor
Di-Anna Aqua Incorporated

Section 20

Witness

Assignee
Kelly Cove Salmon Ltd.
Per:

Section 20

Witness

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA

Yvette Power

Witness

Minister of Agriculture and Fisheries

AMENDMENT TO LEASE AND LICENCE COPY

THIS INDENTURE made in duplicate the 8 day of October, 2003.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of Agriculture and Fisheries, (Lessor/Licensor)

hereinafter referred to as **"THE MINISTER"**

OF THE FIRST PART

-and-

Di-Anna Aqua Incorporated
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

hereinafter referred to as **"THE LESSEE/LICENSEE"**

OF THE SECOND PART

WHEREAS by Lease No. 1039 and Licence No. 1039 dated the 27th day of April, 1996 the Minister under the Provisions of the Fisheries and Coastal Resources Act, S.N.S. 1996, Chapter 25, authorized the exclusive use to the Lessee a 9.6 hectare area for the cage culture of **salmo salar** (Atlantic salmon) and **Oncorhynchus mykiss** (rainbow trout) located in the body of water known as Annapolis Basin, in the County of Digby.

AND WHEREAS the Lessee/Licensee is desirous of adding additional species to his lease and licence.

AND WHEREAS by this indenture the Licensor consents to the additional species.

35/62

COPY

The parties agree as follows:

1. The lease and licence are hereby amended by adding to clause 1 on the first page of the lease and licence, the cage culture of **Hippoglossus hippoglossus** (Atlantic halibut), **Gadus morhua** (Atlantic cod) and **Melanogrammus aeglefinus** (haddock).

2. Except as expressly amended herein the lease and licence shall continue in full force and effect.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

IN WITNESS WHEREOF the Parties have causes this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of

Witness

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia

Minister of Agriculture and Fisheries

Section 20

Witness

Di-Anna Aqua Incorporated

Per:

Section 20

PROVINCE OF NOVA SCOTIA
ASSIGNMENT OF AQUACULTURE LICENCE

THIS ASSIGNMENT made in duplicate this 9th day of March, A.D. 2001.

BETWEEN:

COPY

Rattling Beach Farm Ltd.
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

hereinafter referred to as the **"ASSIGNOR**

OF THE FIRST PART

- and -

Di-Anna Aqua Incorporated
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

hereinafter referred to as the **"ASSIGNEE"**

OF THE SECOND PART

- and -

HER MAJESTY THE QUEEN in Right of the Province of Nova Scotia as represented in this behalf by the Honourable Minister of Agriculture and Fisheries,

hereinafter referred to as the **"PROVINCE"**

OF THE THIRD PART

WITNESSETH that in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Assignor hereby fully and irrevocably assigns and transfers to the Assignee, his heirs executors, administrators and assigns, all his right, title and interest in and to Nova Scotia Aquaculture Licence No. 1039 situate in the waters of Annapolis Basin, Digby County, containing 9.6 hectares (the "Licence") and further requests that this Licence be registered in the names of the Assignee on the Register of Aquaculture maintained by the Province under the Fisheries and Coastal Resources Act.

37/62

The Assignee hereby accepts this assignment and agrees to be bound by all of the terms of the Licence hereby assigned, the Fisheries and Coastal Resources Act, and the Aquaculture Regulations of the Province.

The Province hereby consents to this assignment and agrees to record it in the Registry of Aquaculture maintained under the provisions of the Fisheries and Coastal Resources Act.

IN WITNESS WHEREOF the Assignor, Assignee and the Province have caused this document to be signed, sealed and delivered this 9th day of March, A.D. 2001.

SIGNED, SEALED AND DELIVERED in the presence of

Section 20

Witness

Rattling Beach Farm Ltd.
Per:

Section 20

Witness

Di-Anna Aqua Incorporated
Per:

Yvette Poirier

Witness

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA

Minister of Agriculture and Fisheries

PROVINCE OF NOVA SCOTIA
ASSIGNMENT OF AQUACULTURE LEASE

THIS ASSIGNMENT made in duplicate this 9th day of March, A.D. 2001.

BETWEEN:

Rattling Beach Farm Ltd.
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

COPY

hereinafter referred to as the **"ASSIGNOR**

OF THE FIRST PART

- and -

Di-Anna Aqua Incorporated
14 Magaguadavic Drive
St. George, New Brunswick
E5C 3H8

hereinafter referred to as the **"ASSIGNEE"**

OF THE SECOND PART

- and -

HER MAJESTY THE QUEEN in Right of the Province of Nova Scotia as represented in this behalf by the Honourable Minister of Agriculture and Fisheries,

hereinafter referred to as the **"PROVINCE"**

OF THE THIRD PART

WITNESSETH that in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Assignor hereby fully and irrevocably assigns and transfers to the Assignee, his heirs executors, administrators and assigns, all his right, title and interest in and to Nova Scotia Aquaculture Lease No. 1039 situate in the waters of Annapolis Basin, Digby County, containing 9.6 hectares, (the "Lease") and further requests that this Lease be registered in the names of the Assignee on the Register of Aquaculture maintained by the Province under the Fisheries and Coastal Resources Act.

39/62

The Assignee hereby accepts this assignment and agrees to be bound by all of the terms of the Lease hereby assigned, the Fisheries and Coastal Resources Act, and the Aquaculture Regulations of the Province.

The Province hereby consents to this assignment and agrees to record it in the Registry of Aquaculture maintained under the provisions of the Fisheries and Coastal Resources Act.

IN WITNESS WHEREOF the Assignor, Assignee and the Province have caused this document to be signed, sealed and delivered this 9th day of March, A.D. 2001.

SIGNED, SEALED AND DELIVERED in the presence of

Witness

Rattling Beach Farm Ltd
Per:

Witness

Di-Anna Aqua Incorporated
Per

Witness

HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA

Witness

Minister of Agriculture and Fisheries

410/62

Schedule "B"

AMENDING AGREEMENT made in this 19th day of April, 2001.

BETWEEN:

COPY

DI-ANNA AQUA INCORPORATED a body corporate, incorporated pursuant to the laws of the Province of Nova Scotia (hereinafter referred to as "DI-ANNA")

OF THE FIRST PART

- and -

RATTLING BEACH FARM LIMITED a body corporate, incorporated pursuant to the laws of the Province of Nova Scotia (hereinafter referred to as "RATTLING BEACH"),

OF THE SECOND PART

- and -

STOLT SEA FARM INC. a body corporate, incorporated pursuant to the laws of the Province of New Brunswick (hereinafter referred to as "STOLT"),

OF THE THRID PART

- and -

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF NOVA SCOTIA, as represented by the Minister of Agriculture and Fisheries maintaining an office in the Halifax regional municipality the laws of the Province of Nova Scotia (hereinafter referred to as "THE MINISTER"),

OF THE FOURTH PART

WHEREAS the Parties entered into a Non Disturbance Agreement dated June 1st, 2000 attached hereto as Schedule "A".

AND WHEREAS Rattling Beach has assigned the Lease and Licence for Site 1039 to Di-Anna by Assignment dated February 14th, 2001.

WHEREAS the Parties wish the said Non Distrubance Agreement to continue in full force and effect reflecting the said assignment;

WITNESSETH that in consideration of the mutual covenants and agreements hereinafter contained, the parties hereto respectively covenant and agree as hereinafter set out.

AMENDING AGREEMENT

1.0 CONSENT

1.1 The Minister consents to the assignment of the Lease and Licence for site 1009 from Rattling Beach to Di-Anna.

2.0 NON DISTURBANCE AGREEMENT TO CONTINUE

COPY

2.1 The Parties all agree that the said Non-Disturbance Agreement will continue in full force and effect under its current terms with the following amendments:

Rattling Beach will no longer be the Sub Landlord.

Di-Anna will assume all the rights and obligations of Rattling Beach the "Sub-Landlord" under the said Non-Disturbance Agreement in addition to its current rights and obligations under the said Non-Disturbance Agreement.

IN WITNESS WHEREOF the Parties have signed this Agreement this 19th day of April, 2001.

SIGNED, SEALED AND DELIVERED
—in the presence of—

— Section 20 —

Section 20

Section 20

Yvette Poirier

DI-ANNA AQUA INCORPORATED

Per: Section 20

RATTLING BEACH FARM LIMITED

Per: Section 20 /s

STOLT SEA FARM INC.

Per: Section 20 /s

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF NOVA SCOTIA,
as represented by the
Minister of Agriculture and Fisheries

Minister

AMENDMENT TO LEASE AND LICENCE

THIS INDENTURE made in duplicate the 30th day of July, A. D. 1999.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of Fisheries and Aquaculture, (Lessor/Licensor)

hereinafter referred to as **"THE PROVINCE"**

OF THE FIRST PART

-and-

Rattling Beach Farm Ltd.
Box 561
Digby, Nova Scotia
B0V 1A0

hereinafter referred to as **"THE LESSEE/LICENCEE"**

OF THE SECOND PART

WHEREAS by Lease No. 1039 and Licence No.1039 dated the 27th day of April, 1996, the Province under the Provisions of the Aquaculture Act, R.S.N.S. 1989, Chapter 18, authorized the cage culture of **salmo salar** (Atlantic salmon) and **oncorhyncus mykiss** (rainbow trout) located in the waters of Annapolis Basin, in the County of Digby.

AND WHEREAS the Lessee/Licencee is desirous of cultivating an alternative species for experimental purposes only.

NOW THIS INDENTURE WITNESSETH that the parties hereto agree as follows:

1. The lease and licence is hereby amended by adding to clause 1 on the first page of the lease and licence, the cage culture of **Hoppoglossus hoppoglossus** (Atlantic halibut).

2. The lease and licence is hereby amended by adding to clause 2 on the second page of the lease and licence, the term for alternative species for experimental purposes shall be for five years from July 30,1999 to July 30, 2004.

3. The lease and licence is further amended by adding the following clause:

23. The Lessee/Licencee must submit a report at the end of the amended term (July 30, 2004) describing the results of the said experiment for Atlantic halibut.

4. Except as expressly amended herein the lease and licence shall continue in full force and effect as amended.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of

Section 20

Witness

Section 20

Witness

HER MAJESTY THE QUEEN in right of the Province of Nova Scotia

Minister of Fisheries and Aquaculture

Rattling Beach Farm Ltd

Per:

COPY

Licence No.1039

This licence made in duplicate the 27th day of April A.D. 1996.

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of Fisheries,

hereinafter referred to as **"THE PROVINCE"**

OF THE ONE PART

-and-

Rattling Beach Farm Ltd.
P.O. Box 1793
Digby, Nova Scotia
B0V 1A0

COPY

hereinafter referred to as **"THE LICENSEE"**

OF THE OTHER PART

WHEREAS the Province, under the provisions of the Aquaculture Act, R.S.N.S. 1989, Chapter 18, is authorized to grant aquaculture licenses for the purpose of encouraging aquaculture in Nova Scotia;

AND WHEREAS on April 27, 1994, the Province issued Experimental Aquaculture License No.9401, to the licensee so that the commercial viability of the licensed site could be determined;

AND WHEREAS the licensee has operated on the site for a sufficient time to determine that the site is commercially viable;

AND WHEREAS the licensee wishes to surrender the remaining term of its experimental license in exchange for a regular commercial license on the following terms and conditions;

COPY

AND WHEREAS the Province, after extensive study and consultation with local community groups, is prepared to grant a commercial license to the licensee for this site.

NOW THIS AGREEMENT WITHNESSETH that in exchange for the surrender of the licensee's interest in Experimental License No. 9401, dated April 27, 1994, effective on the date of issue of this license, the Province hereby grants to the licensee an exclusive license to use the 9.6 hectare area at Annapolis Basin, in the County of Digby, *more particularly described in Schedule "A" attached to* and forming a part of this Agreement, for the purpose of cage culture of **salmo salar** (Atlantic salmon) and **oncorhyncus mykiss** (rainbow trout).

AND WHEREAS the licensee wishes to commence an aquaculture project in the Province.

AND WHEREAS the Province, after extensive consultation with local community groups, is prepared to grant this aquaculture license for the Annapolis Basin;

1. **NOW THIS AGREEMENT WITNESSETH** that the Province hereby grants to the licensee an exclusive licence to use the 9.6 hectare area at Annapolis Basin, in the County of Digby, more particularly described in Schedule "A" attached to and forming part of this Agreement for the purpose of cage culture of **Salmo salar** (Atlantic salmon) and **Oncorhynchus mykiss** (rainbow trout).

2. The term of this licence shall be ten years commencing on the 27th day of April A.D. 1996 to the 27th day of April, A.D. 2006 with the right of renewal by the licensee, subject to the approval of the Province, for further periods of five years each, said options to be exercised at least three months prior to the expiration of each term, and each additional term renewal as requested must show intent consistent with the aims and objectives of the first ten year licence or subsequent renewal approval.

3. The licensee shall pay to the Province an annual fee of One Hundred Dollars ($100.00) for this licence, the first payment due upon issuance of the licence with further annual payments due in full within 60 days of each anniversary of the granting of the licence.

4. The maximum number of fish per year class shall not exceed 120,000. The maximum number of fish to be on site an any one time shall not exceed 240,000 fish at any given time.

5. The Minister will not normally approve of a licence assignment unless the site has been in production for a period of at least one year.

6. The licensee agrees to comply with the on-site environmental monitoring program as determined by the Minister. This data shall be submitted to the Minister or his designate for purposes of evaluating future aquaculture development in the Annapolis Basin.

7. The licensee further agrees to comply with the long-term environmental monitoring program as determined by the Minister throughout the duration of this license. Failure to comply will be grounds for immediate revocation of the license.

8. Any undertakings required of the licensee and any permits, approvals, licenses or permissions which may be required under the Water Act, the Environmental Protection Act, the Fisheries Act (Canada) or the Navigable Waters Protection Act (Canada) are included in *Schedule "B" attached to and forming* part of this Agreement and the licensee hereby agrees to comply with any conditions or limitations contained in these approvals unless compliance for licensing purposes is expressly waived by the Province.

9. The Minister reserves the right to require all produce raised in whole or in part on the licence site to be inspected to the satisfaction of the Minister prior to sale.

10. In the event that the licensee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, then, at the option of the Province, this licence shall terminate and be of no further force and effect subject only to the right of the Province to claim for damages.

11. The licensee is hereby prohibited from using the site in any way that would interfere with other licensed aquaculture operations. If the Province, in its sole discretion, is of the opinion that the aquaculture activities authorized by this licence are detrimental to or interfere with previously licensed aquaculture operations, the Province may cancel this licence upon reasonable notice without compensation.

12. The Province may cancel this licence without advance notice or compensation if the licensee is found by a court of competent jurisdiction to be in violation of the Aquaculture Act or its regulations, or if the Government in its sole discretion finds any form of disease on the site which could adversely affect either aquatic flora or fauna, or render the aquacultural produce unsuitable for human consumption. The licensee shall immediately remove from the site and safely dispose of any contaminated product.

13. If the licensee is in breach of the terms of this licence and such breach is not corrected within 10 days of receiving notice from the Province, the Province may cancel this licence without advance notice or compensation.

14. The licensee shall, in addition to any specific marking requirements, specified by the Minister, mark and maintain the site in accordance with current Canadian Coast Guard Standards.

15. If the licensee fails to perform any of its obligations under this licence, the Province may perform them at the licensee's expense. In addition to any other remedies available to the Province to recover amounts due under this licence, the Province shall have a first priority charge for the amount due to it on the aquacultural produce within the site.

16. Should it become necessary for the Province to expropriate the licensee's rights under this licence, it is hereby agreed that the value of the licence for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the licensee that cannot be removed from the site. No compensation may be claimed for the cancellation of this licence where compensation is paid or payable in relation to the expropriation of a lease for the same area.

17. Any notices required to be given under this licence may be sent to the parties at their addresses set out in the heading to this Agreement.

18. Nothing in this Agreement shall be taken as a warranty by the Province that the licensed premises may be used now or in the future by the licensee for aquaculture purposes. The Province assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

COPY

19. This licence shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

20. This licence shall be subject to any changes made from time to time in the Aquaculture Act, its regulations or any other relevant legislation.

IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of	**HER MAJESTY THE QUEEN** in right of the Province of Nova Scotia
Section 20	
Witness	Minister of Fisheries
Section 20	Rattling Beach Farm Ltd.
Witness	Per: Section 20

Schedule A

GPS CO-ORDINATE INFORMATION SHEET

App # : 1039

Applicant : Rattling Beach Farms

Location : Annapolis Basin **County :** Annapolis

Hydrographic Chart : 4396 **Orthophoto # :** 10 44 6500 65 700

Dimensions of site : see sketch **Size :** Approx. 9.6 Ha

Approximate Co-ordinates of Application:

Datum used: NAD ~~83~~ 27 __X__

Corner #1	Lat.	44° 39.339'	Corner #2	Lat.	44° 39.340'
	Long.	65° 45.456'		Long.	65° 45.335'
Corner #3	Lat.	44° 39.146'	Corner #4	Lat.	44° 39.092'
	Long.	65° 45.294'		Long.	65° 45.293
Corner #5	Lat.	44° 39.090'			
	Long.	65° 45.451'			

Applicant's Signature : _____

Date: April 27/96

NOTE: THESE CO-ORDINATES ARE NOT FROM A LEGAL SURVEY.

#1039 NAD27 8.75 ha

1) 44. 655650°
65. 75-7600°

2) 44. 655667°
65. 755583°

3) 44. 652433°
65. 754400°

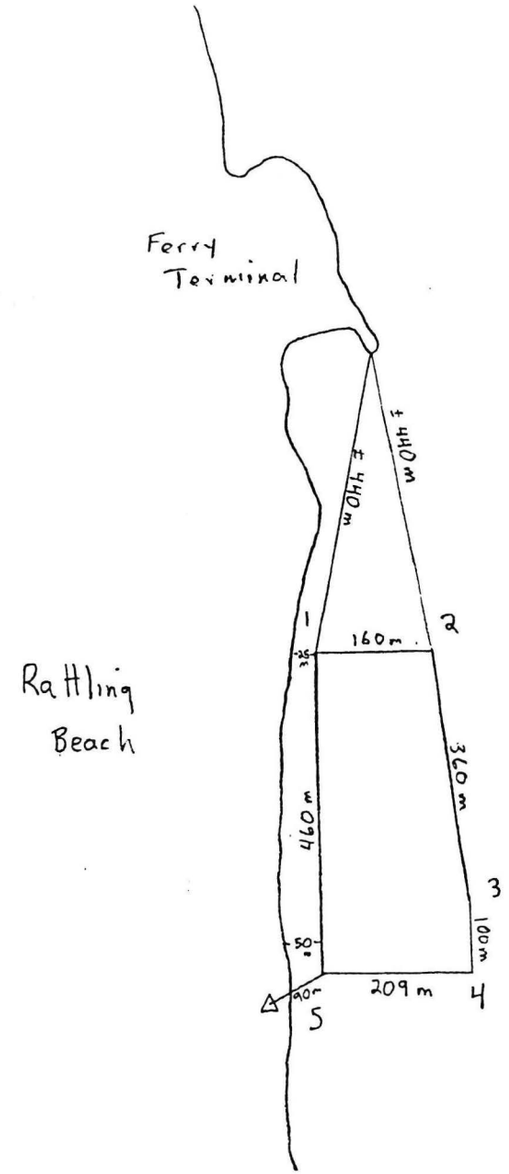
4) 44. 651533°
65. 754833°

5) 44. 651500°
65. 757517°

→ NAD83
8.75 ha
Coords taken as NAD83 in GIS since they match the sketch !!
RH

NS DE

NS DEPARTMENT OF FISHERIES AQUACULTURE SITE SKETCH



APPLICATION #: 1039

APPLICANT: Rattling Beach Farms

LOCATION: Annapolis Basin

AREA: ± 9.6 Ha

DIMENSIONS: 160m x 460m x 209m

ORTHO # (S):

SIGNATURE:

DATE:

PREPARED BY: Bruce

REVISED BY:

SCALE

1 CM = 100M

DATE: March 22, 1996

COPY

29/hs

Lease No. 1039

This lease made in duplicate the 27th day of April, A.D. 1996.

COPY

BETWEEN:

HER MAJESTY THE QUEEN, in right of the Province of Nova Scotia, represented in this behalf by the Honourable Minister of Fisheries,

hereinafter referred to as **"THE PROVINCE"**

OF THE ONE PART

-and-

Rattling Beach Farm Ltd.
P.O. Box 1793
Digby, Nova Scotia
B0V 1A0

WHEREAS the Province, under the provisions of the Aquaculture Act, R.S.N.S. 1989, Chapter 18, is authorized to grant aquaculture leases for the purpose of encouraging aquaculture in Nova Scotia;

AND WHEREAS on April 27, 1994, the Province issued Experimental Aquaculture Lease No. 9401, to the lessee so that the commercial viability of the leased site could be determined;

AND WHEREAS the lessee has operated on the site for a sufficient time to determine that the site is commercially viable;

AND WHEREAS the lessee wishes to surrender the remaining term of its experimental lease in exchange for a regular commercial lease on the following terms and conditions;

AND WHEREAS the Province, after extensive study and consultation with local community groups, is prepared to grant a commercial lease to the lessee for this site.

NOW THIS AGREEMENT WITHNESSETH that in exchange for the surrender of the lessee's interest in Experimental Lease No.9401, dated April 27, 1994, effective on the date of issue of this lease, the Province hereby grants to the lessee an exclusive lease to use the 9.6 hectare area at Annapolis Basin, in the County of Digby, more particularly described in Schedule "A" attached to and forming a part of *this Agreement, for the purpose of cage culture of* **salmo salar** (Atlantic salmon) and **oncorhyncus mykiss** (rainbow trout).

AND WHEREAS the lessee wishes to commence an aquaculture project in the Province.

AND WHEREAS the Province, after extensive consultation with local community groups, is prepared to grant this aquaculture lease for the Annapolis Basin;

1. **NOW THIS AGREEMENT WITNESSETH** that the Province hereby grants the lessee an exclusive lease to use the 9.6 hectare area at Annapolis Basin, in the County of Digby, more particularly described in Schedule "A" attached to and forming part of this Agreement for the purpose of cage culture of **Salmo salar** (Atlantic salmon) and **Oncorhynchus mykiss** (rainbow trout).

2. The term of this lease shall be ten years commencing on the 27th day of April, A.D.1996, to the 27th day of April, A.D. 2006 with the right of renewal by the lessee, subject to the approval of the Province, for further terms of five years each, said options to be exercised at least three months prior to the expiration of each term, and each additional term renewal as requested must show intent consistent with the aims and objectives of the first ten year lease or subsequent renewal approval.

3. The lessee shall pay to the Province an annual fee of $19.20 for this lease, being Two Dollars ($2.00) per hectare, the first payment due upon issuance of this lease with further annual payments due in full within 60 days of each anniversary of the granting of the lease.

4. The maximum number of fish per year class shall not exceed 120,000. The maximum number of fish to be on site an any one time shall not exceed 240,000 fish at any given time.

5. The Minister will not normally approve of a lease assignment unless the site has been in production for a period of at least one year.

6. The lessee agrees to comply with the on-site environmental monitoring program as determined by the Minister. This data shall be submitted to the Minister or his designate for purposes of evaluating future aquaculture development in the Annapolis Basin.

7. The lessee further agrees to comply with the long-term environmental monitoring program as determined by the Minister throughout the duration of this lease. Failure to comply will be grounds for immediate revocation of the lease.

8. Any undertakings required of the lessee and any permits, approvals, leases or permissions which may be required under the Water Act, the Environmental Protection Act, the Fisheries Act (Canada) or the Navigable Waters Protection Act (Canada) are included in Schedule "B" attached to and forming part of this Agreement and the lessee hereby agrees to comply with any conditions or limitations contained in these approvals unless compliance for licensing purposes is expressly waived by the Province.

9. The lessee shall submit to the Province within 60 days of each anniversary of the granting of the lease a report stating such information as the Province requires concerning the lessee's use and the productivity of the leased area.

10. This lease does not include any rights as to minerals in or on the leased area.

11. Leasehold improvements shall remain the property of the lessee and may be removed by him on the expiration of the lease, if this may be done without material damage to the sub-aquatic lands or water column, or after compensation for such material damage, however leasehold improvements may forfeit to the Province at its sole discretion if the lease is lawfully terminated by the Province because of breach or default by the lessee.

12. The lessee is hereby given the exclusive right to use the leased sub-aquatic lands and water column and the right to exclude all others from the leased area who do not have a statutory right to enter upon the premises.

13. In the event that the lessee shall cease conducting an aquaculture business in the normal course, become insolvent, make a general assignment for the benefit of creditors, suffer or permit the appointment of a receiver of its business assets, or avail itself of any proceeding in bankruptcy under any statute relating to insolvency or the protection of rights of creditors, then, at the option of the Province, this lease shall terminate and be of no further force and effect subject only to the right of the Province to claim for damages.

14. The lessee is hereby prohibited from using the site in any way that would interfere with other leased aquaculture operations. If the Province, in its sole discretion, is of the opinion that the aquaculture activities authorized by the lease are detrimental to or interfere with previously leased aquaculture operations, the Province may cancel this lease upon reasonable notice without compensation.

15. The Province may cancel this lease without advance notice or compensation if the lessee is found by a court of competent jurisdiction to be in violation of the Aquaculture Act or its regulations, or if the Province in its sole discretion finds any form of disease on the site, which could adversely affect either aquatic flora or fauna, or render the aquacultural produce unsuitable for human consumption. The lessee shall immediately remove from the site and safely dispose of any contaminated product.

16. The lessee shall, in addition to any specific marking requirements, specified by the Minister, mark and maintain the site in accordance with current Canadian Coast Guard Standards.

17. If the lessee fails to perform any of its obligations under this lease, the Province may perform them at the lessee's expense. In addition to any other remedies available to the Province to recover amounts due under this lease, the Province shall have a first priority charge for the amount due to it on the aquacultural produce within the site.

18. Should it become necessary for the Province to expropriate the lessee's rights under this lease, it is hereby agreed that the value of the lease for purposes of expropriation compensation shall not exceed the depreciated value of improvements made by the lessee that cannot be removed from the site.

19. Any notices required to be given under this lease may be sent to the parties at their addresses set out in the heading to this Agreement.

20. Nothing in this Agreement shall be taken as a warranty by the Province that the leased premises may be used now or in the future by the lessee for aquaculture purposes. The Province assumes no responsibility whatsoever for any private property rights or for the actions of other levels of government which may interfere with the use of the site for aquaculture purposes.

21. This lease shall be subject to the laws of the Province of Nova Scotia and the parties hereby agree to attorn to its courts.

22. This lease shall be subject to any changes made from time to time in the Aquaculture Act, its regulations or any other relevant legislation.

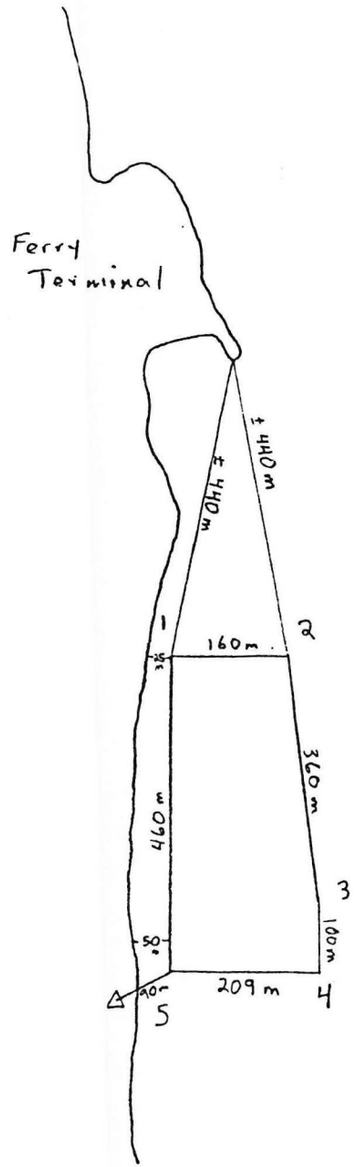
IN WITNESS WHEREOF the Parties have caused this Agreement to be duly executed.

SIGNED, SEALED AND DELIVERED in the presence of	**HER MAJESTY THE QUEEN** in right of the Province of Nova Scotia
Witness	Minister of Fisheries
	Rattling Beach Farm Ltd. Per:
Witness	

NS DEPARTMENT OF FISHERIES AQUACULTURE SITE SKETCH

62/62

COPY



Rathling Beach

Annapolis Basin

APPLICATION #: 1039

APPLICANT: Rathling Beach Farms

LOCATION: Annapolis Basin

AREA: ± 9.6 Ha

DIMENSIONS: 160 m x 460 m x 209 m

ORTHO # (S):

SIGNATURE:

DATE:

PREPARED BY: Bruce

REVISED BY:

SCALE

1 CM = 100M

DATE: March 22 1996

This is **Exhibit "C"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

Ronald Neufeld
Kathaleen Milan
1396 Granville Rd.
RR2, Granville Ferry, NS
B0S 1K0
T 902-532-1929

2curmudge0ns@ns.sympatico.ca

May 4, 2014

The Honorable Keith Colwell
Minister of Fisheries and Aquaculture

Dear Minister Colwell,

Thank you for meeting with us on friday May 2.

I am writing to give you additional information on the lease violation subject that I talked about at the meeting. You asked that we provide facts so I have done a measurement of the length of aquaculture sites 1039 and 1040. This was done along the shore parallel to the sites, using GPS. My measurements agree quite well with satellite photos of the sites and they show that anchors have been placed far outside of the leases.

	1039		1040
N Anchors	N 44.65755 W-65.75781	NE Anchors, approx	N 44.67212 W-65.71798
S Anchors	N 44.65061 W-65.75809	SW Anchors	N 44.66924 W-65.72561
Total Length	774 meters	Total Length	683 meters, approx
Lease length	460 meters	Lease length	550 meters

Sincerely yours,

This is **Exhibit "D"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

From: **Stephen McNeil** stephenmcneil@ns.aliantzinc.ca
Subject: RE: meeting
Date: October 15, 2012 at 9:11 AM
To: Kathaleen and Ron 2curmudge0ns@ns.sympatico.ca

SM

Hi Kathaleen,
Friday, October 19th at 10 am at 142 Commercial St. in Middleton.
Look forward to seeing you then.
Pam

Pam VanRoestel
Constituency Assistant
Stephen McNeil
MLA Annapolis
-----Original Message-----
From: Kathaleen and Ron [mailto:2curmudge0ns@ns.sympatico.ca]
Sent: Friday, October 12, 2012 4:34 PM
To: Stephen McNeil
Subject: Re: meeting

What Friday would that be please?

Thanks,
Kathaleen

On 2012-10-12, at 4:15 PM, Stephen McNeil wrote:

> Hi Kathaleen,
> Can you and Ron come to a meeting on Friday at 10?
> Pam
>
> Pam VanRoestel
> Constituency Assistant
> Stephen McNeil
> MLA Annapolis
> -----Original Message-----
> From: Kathaleen and Ron [mailto:2curmudge0ns@ns.sympatico.ca]
> Sent: Thursday, October 11, 2012 10:02 PM
> To: Stephen McNeil
> Subject: meeting
>
> Hi Pam,
>
> Ron and I would still like a meeting with Stephen to verify what
> exactly he asked for in the request he made so that we can decide what
> we could do ourselves.
>
> Thanks,
> Kathaleen

From: **Stephen McNeil** stephenmcneil@ns.aliantzinc.ca
Subject: RE: meeting
Date: October 12, 2012 at 4:15 PM
To: Kathaleen and Ron 2curmudge0ns@ns.sympatico.ca

SM

Hi Kathaleen,
Can you and Ron come to a meeting on Friday at 10?
Pam

Pam VanRoestel
Constituency Assistant
Stephen McNeil
MLA Annapolis
-----Original Message-----
From: Kathaleen and Ron [mailto:2curmudge0ns@ns.sympatico.ca]
Sent: Thursday, October 11, 2012 10:02 PM
To: Stephen McNeil
Subject: meeting

Hi Pam,

Ron and I would still like a meeting with Stephen to verify what exactly he asked for in the request he made so that we can decide what we could do ourselves.

Thanks,
Kathaleen

From: **Kathaleen and Ron** 2curmudge0ns@ns.sympatico.ca
Subject: Re: A meeting
Date: July 19, 2012 at 5:27 PM
To: Stephen McNeil stephenmcneil@ns.aliantzinc.ca

KR

9 a.m. on Monday would be good for us.

I didn't get your reply until late today so I couldn't make it for tomorrow.

Thank you,
Kathaleen

On 2012-07-19, at 10:34 AM, Stephen McNeil wrote:

> Hi Kathaleen and Ron,
> The dates I have available for meetings are tomorrow afternoon at 2, Monday anytime or Tuesday 9 am at Stephen's office at 142 Commercial St. in Middleton. Let me know what works best for you as I have a number of other meetings pending.
> Thanks,
> Pam
>
> Pam VanRoestel
> Constituency Assistant
> Stephen McNeil
> MLA Annapolis
>
> -----Original Message-----
> From: Kathaleen and Ron [mailto:2curmudge0ns@ns.sympatico.ca]
> Sent: Thursday, July 19, 2012 6:08 AM
> To: Stephen McNeil
> Subject: A meeting
>
> Hi Pam,
>
> Would you be good enough to set up an appointment for Ron and I with Stephen McNeil?
>
> Thanks,
> Kathaleen Milan
> 1396 Granville Rd.,
> Port Wade
> 532-1929=

This is **Exhibit "E"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

From: **MacPhee, Barry** MACPHEJB@gov.ns.ca
Subject: RE: Aquaculture regulations and sites 1039 & 1040
Date: December 19, 2013 at 4:12 PM
To: Kathaleen and Ron 2curmudge0ns@ns.sympatico.ca

MB

Kathaleen and Ron

I would like to bring you up to date on the current status of the positioning of the two sites (#1039 and 1040) that you identified in your email. As you are aware, the issues of equipment positioning and site markings has been ongoing for both sites.

Our Department is committed to growing a responsible aquaculture industry in Nova Scotia and as such we believe that it is important that operators abide by the rules. We share your concerns about operators placing equipment outside of their lease boundaries.

Our Department and Transport Canada, both found site 1040 to be non-compliant earlier this year with respect to keeping gear within the boundaries of the site. We brought this matter to the attention of the operator which resulted in several corrective actions. Both our own subsequent inspection (August 30, 2013) and Transport Canada's inspection, found the site to be compliant with respect to location and markings. To answer your specific question about the placement of underwater gear, neither our Department nor Transport Canada preforms underwater inspections to determine the precise location of anchoring systems. We do not believe, at this time, that that degree of precision is required to satisfy our two main concerns, navigation and operation size.

Our most recent inspection records indicate that site 1039 is non-compliant with respect to the location of the gear within the approved boundaries. We have notified the company of their non-compliance and are working with the operator on establishing corrective actions that will bring them into compliance. I would also encourage you to participate in the Doelle-Lahey Panel, The Independent Aquaculture Regulatory Review for Nova Scotia (http://www.aquaculturereview.ca/), to insure your issues are considered in a new regulatory framework.

Please be assured the Department will address this matter.

Yours sincerely,

J.Barry MacPhee

Acting Executive Director
Department of Fisheries and Aquaculture
173 Haida St., Cornwallis NS.
B0S 1H0
Office 902-638-2017
Fax 902-638-2389

From: Kathaleen and Ron [mailto:2curmudge0ns@ns.sympatico.ca]
Sent: Monday, December 09, 2013 12:15 PM
To: MacPhee, Barry
Subject: Re: Aquaculture regulations and sites 1039 & 1040

Dear Mr MacPhee

We have been trying for quite a while to have this issue resolved so please excuse us if we seem impatient. Kelly Cove Salmon continues to use their expanded lease and are possibly only one month away from removing the fish for processing. Could you tell us if any steps have or will be taken to address our complaint?

Ron & Kathaleen

On 2013-11-20, at 7:02 AM, "MacPhee, Barry" <MACPHEJB@gov.ns.ca> wrote:

Thank you again for the email. We are continuing to look into your issues and we be back to you with a response

---

From: Kathaleen and Ron
Sent: Tuesday, November 19, 2013 11:01 PM
To: MacPhee, Barry
Subject: Re: Aquaculture regulations and sites 1039 & 1040

Dear Mr MacPhee

I am writing to follow up on this issue (I wasn't quite sure how long to leave it). Could you please let me know what actions have been taken.

Thank you
Ron and Kathaleen

On 2013-11-05, at 5:50 PM, MacPhee, Barry wrote:

> Kathaleen and Ron
>
> Thank you for your email. You have raised a number of concerns. I have asked staff to look into those concerns and I should have a response for you in the near future.
>
> Thank you
>
> Barry MacPhee
>
> -----Original Message-----
> From: Kathaleen and Ron [mailto:2curmudge0ns@ns.sympatico.ca]
> Sent: Sunday, November 03, 2013 8:44 AM
> To: MacPhee, Barry
> Cc: Premier; Colwell, Hon. Keith (DFA); Minister, ENV
> Subject: Aquaculture regulations and sites 1039 & 1040
>
> Dear Mr. MacPhee
>
> We understand that fisheries inspectors are tasked with handling complaints about aquaculture operations. We are addressing this to you as our contact with an inspector has not resulted in corrective

actions that would bring these sites into compliance.
>
> This is our complaint:
>
> Aquaculture sites 1039 and 1040 in the Annapolis Basin are exceeding the size set out in their leases.
>
> Site 1039 has cages right up to the lease boundary on both ends of the site. In order to do that the anchors for the site have to be placed outside the leased area. If all of the equipment was inside the leased area the site would contain approximately 6 cages, not 20 as there are now.
>
> At site 1040 anchors on three sides of the site are off the leased area. If all of the gear including the anchors was placed inside of the leased area the site would contain approximately 4 cages, not 13 as there are now.
>
> After the company tried to anchor their feeding barge off the lease we complained to NSDFA. On May 7, 2013, site 1040 was inspected. From a FOIPOP we know the inspector found several anchors outside of the lease and told the company to bring the lease into compliance. In the days before his return on May 21, 2013, the company removed all of the buoys that marked the out-of-bounds anchors. This same FOIPOP indicates that the inspector was told by the company that the anchors had been moved into the leased area. Because we live next door to site 1040 we know that the company did not do this. We watched the company simply remove the buoys that marked their locations. The feeding barge and its anchors were moved onto the site, but not the anchors for the cages.
>
> The inspector did not verify the location of the anchors yet declared the site to be compliant. Through the FOIPOP we know he acknowledged that he could not confirm without a doubt that the anchors were on or off the lease without taking a diver out to locate them. Rather than get the diver he chose to believe the company when they told him they had moved the anchors back on site. We would expect an experienced inspector to be able to look at the layout and know the anchors had to be off the lease.
>
> These two sites were intentionally enlarged. Were they enlarged without the knowledge of the NSDFA and the ex-minister of aquaculture/environment or were blind eyes turned when the company enlarged the sites to their advantage? The Annapolis Basin now receives more than twice the amount of fish and medical waste than if the company had placed all of their equipment within the leased area.
>
> If Nova Scotia's aquaculture and environment regulations are to mean anything then this situation has to be corrected.
>
> Please let us know what actions will be taken to bring both sites into compliance with the regulations.
>
>
> Sincerely
>
> Ronald Neufeld
> Kathaleen Milan
> 1396 Granville Rd.
> Port Wade
>
> 532-1929

This is **Exhibit "F"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

Monday, July 28, 2014

Hello Mr. McNeil

Thank you for calling Saturday morning. Your news on the stocking and cage configuration plan was disappointing and we still cannot follow the logic for not releasing it. I believe we mentioned that we have sent in a Request for Review. On the subject of the anchors being outside of the lease, I suspect that the misunderstanding was cleared up in our phone call but I am sending this letter to add some graphics and to attempt to state our position clearly.

Our complaint is about the size of the 'farms' that have been built at sites 1040 and 1039, not their exact location.

KCS/Cooke Aquaculture has placed their moorings (anchors) over an area of approximately twice the size of the leases.

When the government responds by saying that they don't have any issue with the farm being slightly off of the lease, they are not addressing our complaint.

Our complaint is quite specific and is:

> The company has set up their 'farms' at 1040 & 1039 on over 16 hectares instead of the 8.25 and 8.75 hectares allowed in the leases.
> Why is this allowed to continue? (two years at 1040 and several more at 1039)
> The company seems to anticipate no consequences. Why?

The fact that the company installed more cages and therefore more salmon than would have been possible if they had stayed within the leases is actually not surprising, coming from them.

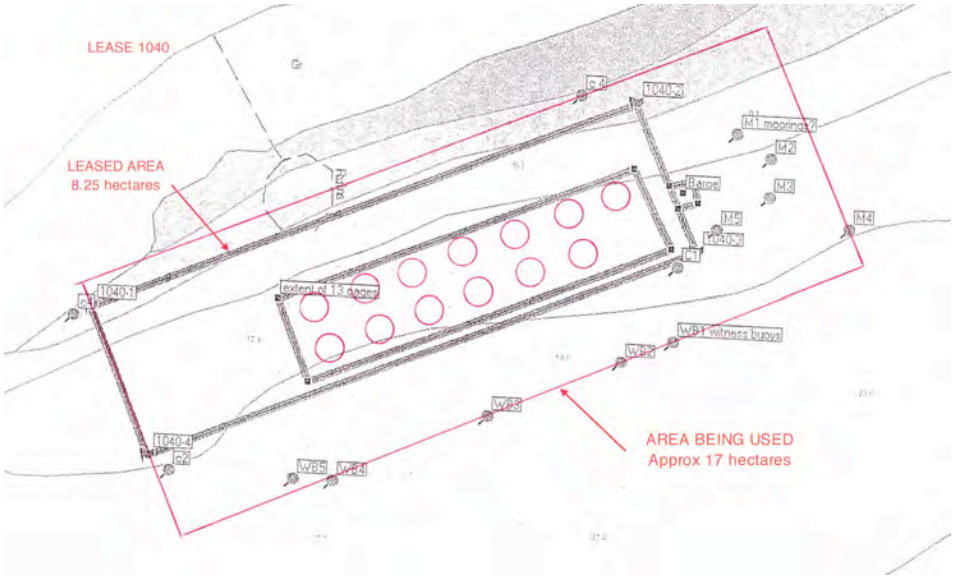
It is our governments response that is so infuriating.

No effective action has been taken to enforce the regulations, the inspector was apparently lied to but does not seem to have the resources or the will to actually find out where the anchors are, and the company carries on knowing there will be no consequences.

Sincerely

Ronald Neufeld
Kathaleen Milan
1396 Granville Rd.
Port Wade, NS
902-532-1929

This is lease 1040 at Port Wade. The original drawing is from the DFA inspector and shows the location of the cages and the 8.25 hectare leased area. I have added the red lines showing the approximately 17 hectares that the company is using.

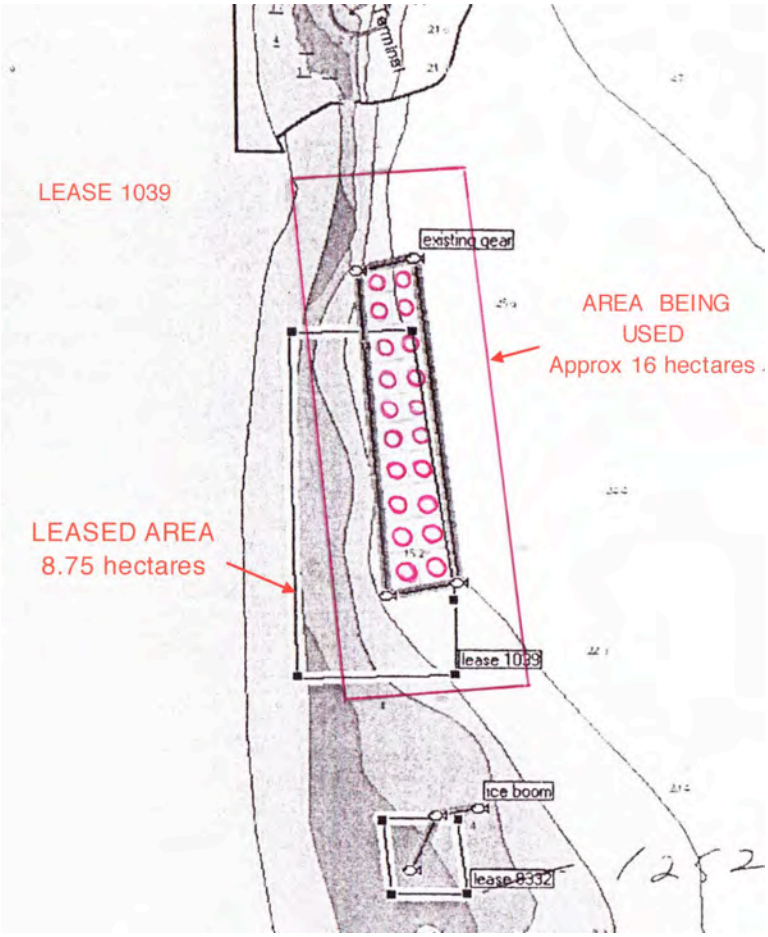


This is Lease 1039 at Rattling Beach near the Digby ferry terminal. Again the original drawing is from the fisheries inspector, showing the location of the cages and the 8.75 hectare leased area.

The cages are outside of the lease but that is not our complaint.

We take issue with the company installing over 700 metres of gear when the lease is only 460 metres long.

Measuring the location of their buoys using GPS from along the shore I estimate they have established a ‘farm’ that occupies approximately 16 hectares when the lease is for 8.75 hectares.



This is **Exhibit "G"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
In and for the Province of Nova Scotia

I am commenting on the renewal application for aquaculture site 1039 at Rattling Beach.

I meet all of the submission requirements;

a. Identification: Ronald Neufeld
1741 W Sable Rd
Sable River, NS
B0T 1V0
902-656-2371
neufeldr@eastlink.ca

b. I am connected to the matter because it seems NSDFA cannot monitor aquaculture sites, which means it is up to citizens to inform you about what is actually happening.

c. My comments are submitted within the 30 day period ending June 3, 2016.

d. My comments are in relation to d.(iii), fishery activities in the public waters surrounding the site.

To: the Administrator, Nova Scotia Department of Fisheries and Aquaculture

The equipment at this site has been found to be outside of the leased area by both provincial and federal inspectors. When I compared the length of the two rows of ten cages on the site to the length of the lease using the car odometer and later with GPS it was clear that the equipment extended past the lease boundaries, and not by some small margin. I measure the cages alone to be longer than the lease, and of course that means the anchors are far outside the boundaries.

The lease-holder has been in violation of their licence/lease continuously since at least 2012. How can Nova Scotia Fisheries and Aquaculture even consider renewing it?

Thank You,
Ronald Neufeld

This is **Exhibit "H"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

Findings and Decision - Renewal Application of Kelly Cove Salmon Ltd. for AQ#1039

1. Overview:

On April 27, 2016, the Nova Scotia Department of Fisheries and Aquaculture (NSDFA) received an application from Kelly Cove Salmon Ltd. (KCS) to renew Aquaculture Licence and Lease #1039 (AQ#1039), as described below:

Table 1. Description of Aquaculture Licence and Lease #1039

Type: Marine Finfish	**Size:** 8.75 HA
Number: AQ#1039	**Cultivation Method:** Suspended Cage Cultivation
Applicant: Kelly Cove Salmon Ltd.	**Species:** Atlantic salmon, Atlantic halibut, Atlantic cod, Rainbow trout, Haddock
Location: Rattling Beach, Annapolis Basin, Digby County	**Proposed Term:** 10 year Licence/20 year Lease

2. History

AQ#1039 was issued to Rattling Beach Farm Ltd. on April 27, 1996 for a ten year term (April 27, 1996 to April 27, 2006). AQ#1039 was amended on July 3, 1999 to allow for the cultivation of Atlantic halibut for a period of five years. AQ#1039 was subleased from Rattling Beach Farms Ltd. to Di-Anna Aqua Incorporated on April 1, 1998 for a four year term (April 1, 1998 to April 1, 2002). AQ#1039 was assigned from Rattling Beach Farms Ltd. to Di-Anna Aqua Incorporated on March 9, 2001. AQ#1039 was amended on October 8, 2003 to permanently allow for the cultivation of Atlantic halibut, Atlantic cod, and Haddock. AQ#1039 was assigned from Di-Anna Aqua Incorporated to Kelly Cove Salmon Ltd. on June 10, 2004. AQ#1039 was renewed on April 25, 2006 for a five year term (April 27, 2006 to April 27, 2011). AQ#1039 was renewed on February 8, 2012 for a five year term (April 27, 2011 to April 26, 2016).

3. Procedure

3.1 Performance Review

A performance review of the information submitted by the operator in support of their renewal application was completed. This review recommended that the site be renewed based on the technical and biological assessment. This performance review is required pursuant to Subsection 72(c) of the Aquaculture Licence and Lease Regulations, and was completed on May 2, 2015.

3.2 Public Comment Period

Notice of the application for the renewal of AQ#1039 for the 30-day public comment period was published on NSDFA's website (http://novascotia.ca/fish/aquaculture/public-information/) for the period of May 5, 2016 to June 3, 2016. Notice of the application was also published in the Royal Gazette Part I on May 4, 2016, May 11, 2016, May 18, 2016, and May 25, 2016

One submission was received by NSDFA during the 30-day public comment period. This submission pertained to the site operating outside of its authorized boundaries. These concerns are addressed below.

4. Factors to be considered

Review of the file indicates the site has had consistent production and records indicate continuous employment. The renewal plan indicates continued production is planned for this site and therefore resulting employment. Should the operator not operate the site as indicated, the Department's site utilization review procedures will be triggered. The renewal plan indicates contribution to the economy through supporting supplies and services.

The performance review noted the presence of other fishery activities in the area of the site. There were no ecological concerns identified in the past performance of this site with respect to negative impacts on other fisheries. Environmental Monitoring Program (EMP) results over the past five years demonstrated that oxic conditions were maintained. KCS is required to adhere to all Environmental monitoring provisions of the Aquaculture Management regulations, including the need to maintain sufficient oxic conditions.

AQ#1039 is one of three marine finfish aquaculture sites issued to Kelly Cove Salmon Ltd. in the Annapolis Basin, along with AQ#1040 and AQ#1041. Aquaculture site #1039 is located approximately 2.0 km from the nearest marine aquaculture site (AQ#1343, issued to Innovative Fishery Products Ltd. for shellfish aquaculture). AQ#1040 and AQ#1041, both issued to Kelly Cove Salmon Ltd., are each within 3.0 km of AQ#1039. There is no indication that the surrounding waters have exceeded their carrying capacity.

AQ#1039 is approximately 30 metres from the shoreline at is nearest point along the western boundary of the site. AQ#1039 is approximately 400 metres south of the Digby-Saint John ferry terminal. There are instances of complaints on file pertaining to noise from the operation of the site. Section 14(f) of the *Aquaculture Management Regulations* requires the operator to address issues of noise in their Farm Management Plan, which must be submitted to NSDFA on or before October 26, 2016.

KCS will be required to complete, for NSDFA approval, a Farm Management Plan (to be completed on or before October 26, 2016) as required by the Aquaculture Management Regulations. The Farm Operations section of the Farm Management Plan form AQ#1040 will require the operator to indicate how they will operate AQ#1040 in accordance with industry best practices with respect to items such as interactions with wildlife, noise, maintaining the site in good order, the removal of decommissioned farm supplies and equipment, and the retrieval of gear or debris that has broken loose.

Section 55 of the *Licence and Lease Regulations* requires an aquaculture licence holder to mark each of their sites in a manner determined by the Minister and keep each site marked during the term of their licence. Also, it is a requirement for the equipment and aquacultural produce to remain within the geographic boundaries of that site. Issues surrounding site boundaries were identified during the renewal process, and the operator will be required to adhere to prescribed

measures for ensuring the site is within the approved boundaries. Specifically, the operator is required to submit either a boundary amendment application to NSDFA or a site realignment application to Nova Scotia Environment on or before October 26, 2016.

Kelly Cove Salmon Ltd. is required to adhere to all elements of the *Aquaculture Management* regulations. Said regulations outline criteria for containment management. KCS will be required to implement a Farm Management Plan, to be approved by the Department, which will further define their measures to minimize potential impacts on wild salmon. There is no information on file regarding ecological concerns involving species listed through the *Species at Risk Act (SARA)*, including wild Atlantic salmon.

5. Decision

Based on the considerations above, Aquaculture Licence #1039 shall be renewed for a period of 10 years (April 27, 2016 to April 27, 2026) and Aquaculture Lease #1039 shall be renewed for a period of 20 years (April 27, 2016 to April 27, 2036). The Licence and Lease documents shall be prepared in accordance with the standard operating documents of NSDFA, and shall be made publically available subject to the provisions of the *Freedom of Information and Protection of Privacy Act*.

Also, should the operator fail to avail themselves of the prescribed measures for ensuring site boundary compliance, the site boundaries as prescribed in the Licence and Lease document shall be enforced.

In addition, the following condition shall apply.

6. Condition(s)

Kelly Cove Salmon Ltd. shall adhere to the following site marking requirements:

(a) mark all corners of the leased site with cautionary yellow buoys of a minimum of 60 cm in diameter;

(b) mark all corners of the leased bottom with a cement block or similar device of a weight sufficient to ensure the cement block or device remains in place at all times; and

(c) display the licence or lease number at 1 corner of the licensed or leased area.

Brennan Gorcham — 7/11/16

Brennan Gorcham — **Date**
Aquaculture Administrator
Nova Scotia Department of Fisheries and Aquaculture

This is **Exhibit "1"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
in and for the Province of Nova Scotia

NOVA SCOTIA
Agriculture
Fisheries and Aquaculture

PO Box 2223
Halifax, Nova Scotia
B3J 3C4

902-424-0301 T
902-424-0698 F
www.novascotia.ca

Ronald Neufeld
1741 W SABLE RD
Sable River, NS B0T 1V0

Dear Ronald Neufeld:

Re: The information has been publicly posted – 2019-00770-FIS

Fisheries and Aquaculture received your application for access to information under the Freedom of Information and Protection of Privacy Act on September 9, 2019.

In your application, you requested a copy of the following records:

All applications for adjudicative amendments submitted by KCS and/or Cooke for AQ#1039, AQ#1040 and AQ#0742 to DFA from May 31, 2016 to present.

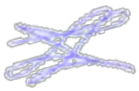
Please exclude duplicates and drafts (unless a final version of the document is not available).

The information you requested has now been posted publicly on our website. You can view and download the records at: https://novascotia.ca/fish/aquaculture/ .

You have the right to ask for a review of this decision by the Information Access and Privacy Commissioner (formerly the Review Officer). You have 60 days from the date of this letter to exercise this right. If you wish to ask for a review, you may do so on Form 7, a copy of which is attached. Send the completed form to the Information Access and Privacy Commissioner, P.O. Box 181, Halifax, Nova Scotia B3J 2M4.

Please be advised that a de-identified copy of this disclosure letter and the attached response to your FOIPOP application will be made public after 14 days. The package will be posted online at informationaccess.novascotia.ca. The letter will not include your name, address or any other personal information that you have supplied in the course of making your application under FOIPOP.
Please contact Lauren Smith at 902-424-3786 or by e-mail at Lauren.Smith@novascotia.ca, if you need further assistance in regards to this application.

Yours truly,



Loretta Robichaud
Acting Deputy Minister

Attach.

cc: Carmen Stuart, Acting Information and Privacy Officer

This is **Exhibit "J"** mentioned and referred to in the affidavit of **Ronald Neufeld** affirmed before me on this 22nd day of April, A.D. 2021

a Commissioner for taking affidavits

Sarah McDonald
Barrister, Solicitor, Notary Public
and a Commissioner of Oaths
In and for the Province of Nova Scotia

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

APPLICATIONS POSTED NOTICE

The documents associated with the applications from Kelly Cove Salmon Ltd. for a boundary amendment of an existing site are available below. The information in these documents is provided as part of the routine disclosure of information by the Department of Fisheries and Aquaculture. Included is the original submission by the applicant, as well as supplementary information requested by the Department. Some information may be redacted as business confidential information or personal information.

This application is currently under review by the Department and other relevant provincial and federal departments and agencies. Please note, the review process may require the applicant to submit additional information to the Department which will be posted to the Department's website.

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.

Boundary Amendment	
Applicant: Kelly Cove Salmon Ltd.	**Species:** Atlantic salmon, Atlantic halibut, Atlantic cod, Rainbow trout, Haddock
Location: AQ#1039, Annapolis Basin, Digby County	**Method of Cultivation:** Marine cage cultivation

To learn more about 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/

Sweeney International Marine Corp.
46 Milltown Blvd.
St. Stephen, New Brunswick
Canada E3L 1G3
Tel: (506) 467-9014
Fax: (506) 467-9503
www.simcorp.ca

October 24, 2016

SIMCorp File #SW2016-059

Ms. E. Lynn Winfield
Licencing Co-ordinator
Nova Scotia Department of Fisheries & Aquaculture
Aquaculture Division
1575 Lake Road
Shelburne, Nova Scotia
BOT 1W0

Dear: Ms. Winfield

Reference: **Boundary Amendment Application for Site #1039 / Rattling Beach**

On behalf of our client, Kelly Cove Salmon Ltd., we are submitting the following in support of an application for a boundary amendment for Site #1039 / Rattling Beach:

1) A completed "Aquaculture Amendment Application" Form;
2) A cheque in the amount of $1,000 ($500 application fee for the licence plus $500 application fee for the lease) payable to the Minister of Finance;
3) Supporting information as required by Network Agencies and the Aquaculture Review Board; and,
4) A complete set of Site Development Plans detailing the proposed amended lease boundaries, bathymetry, cage configuration, cross-sections and proposed marking plan.

If you require anything further please do not hesitate to contact our office at any time.

Yours truly,

[redacted]
Sr. Project Manager

cc. [redacted] VP Saltwater Operations, Cooke Aquaculture Inc.
Jeff Nickerson, NS Production Manager, Kelly Cove Salmon Ltd.
[redacted] SIMCorp

NOVA SCOTIA
Fisheries and Aquaculture

Office Use Only

Aquaculture Amendment Application

Licence/Lease No.: 1039

Name of licence/lease holder:

Applicant: Kelly Cove Salmon Ltd Business Registration Number: [redacted]

Contact Person Jeff Nickerson, NS Production Manager

Telephone No. (Work): (902) 875-8603 (Home): _____ (Cell) [redacted]

Fax No. (902) 755-1492 Email Address jnickerson@cookeaqua.com

Mailing Address: P.O. Box 1546
Shelburne, NS

Postal Code B0T 1W0

Civic Address: 80B Ohio Road
Shelburne, NS

Postal Code B0T 1W0

Is this aquaculture amendment application for: check (✓) appropriate box(s):

- ☐ Change of species
- ☐ Change of culture method
- ☑ Change of site boundaries

Provide explanation: A boundary amendment application is being filed to encompass existing occupation including all cages, mooring lines and anchors.

A complete aquaculture amendment application includes the following: check (✓) appropriate box(s):

- ☑ Amendment fee (payable to Minister of Finance)
- ☑ Development Plan (provided by NSDFA)
- ☑ Amendment Application Forms (Provided by NSDFA)
- ☑ Gear configuration sketches (if applicable)
- ☐ Department of Environment fresh water withdrawal permit (if applicable)
- ☐ Deed or Property Lease for land-based (if applicable)
- ☐ Orthophoto with site layout (land based)
- ☑ Hydrographic chart with site layout (marine based)
- ☑ GPS coordinates of lease corners or boundary

Application packages are available at your local Coastal Resource Coordinator Office (see attached list) or the Shelburne Office at:

Nova Scotia Department of Fisheries and Aquaculture
Attention: Aquaculture Division
1575 Lake Road
Shelburne, Nova Scotia
B0T 1W0

Telephone Number (902) 875-7439
E-Mail: aquaculture@gov.ns.ca

For the purpose of assessing aquaculture amendment applications, it is necessary to provide information to other government departments and interested public. Business plan information is not released to the public. By signing this amendment application, the applicant agrees to the Department releasing application information about the proposed development.

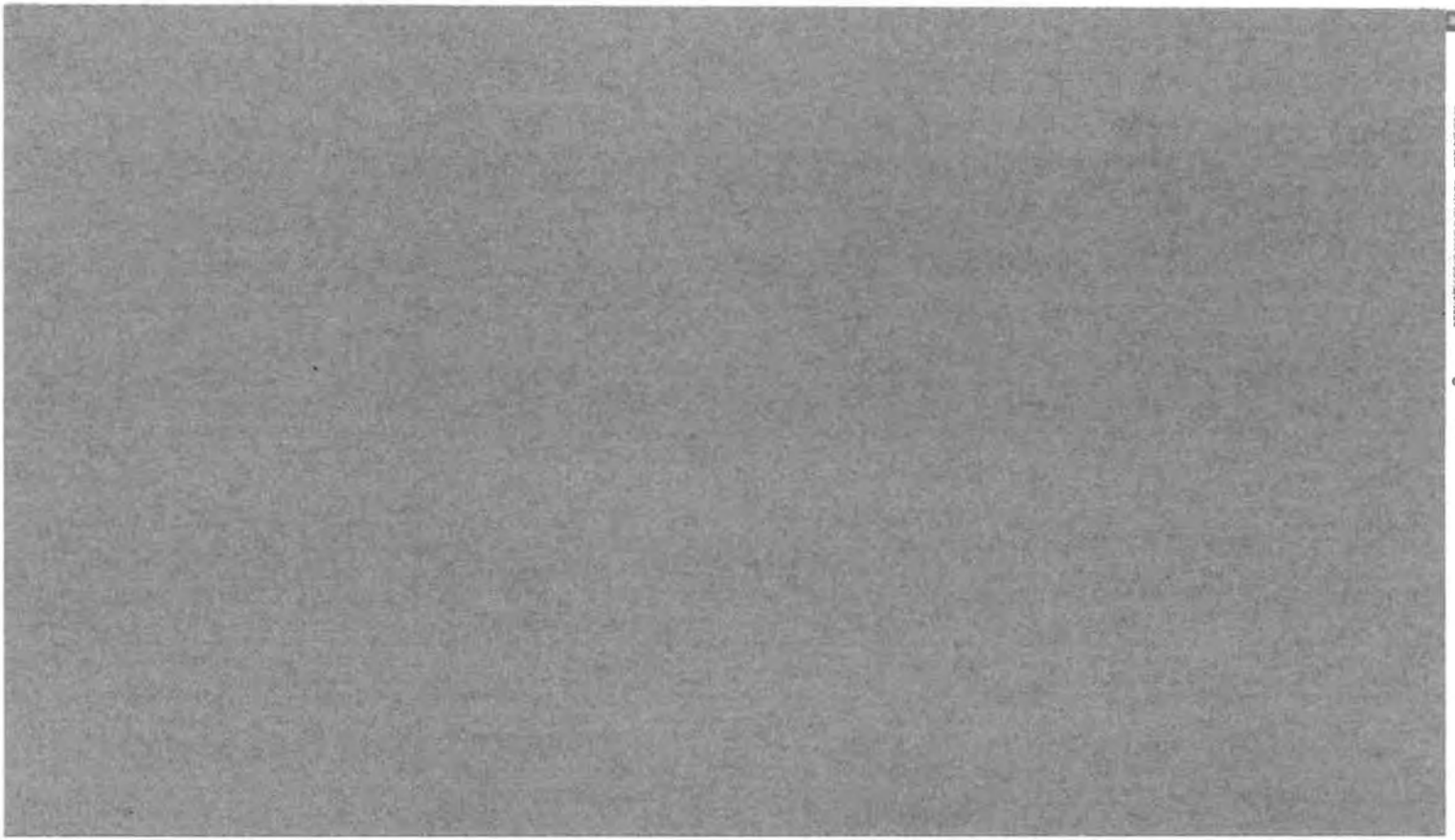
[redacted]

Signature of Applicant

Oct 24, 2016
Date

Signature of
Nova Scotia Department of Fisheries and Aquaculture Designate

Date



Total	**1,000.00**

Boundary Amendment Application

Boundary Amendment for Site #1039
Rattling Beach
County of Digby
Province of Nova Scotia

October 20, 2016

Prepared for:
Kelly Cove Salmon Ltd.
P.O. Box 1546
Shelburne, NS
B0T 1W0

Prepared by:
Sweeney International Marine Corp.
46 Milltown Blvd.
St. Stephen, NB
E3L 1G3
Canada
Tel: (506) 467-9014
Fax: (506) 467-9503
www.simcorp.ca

SIMCorp File #SW2016-059

New Brunswick Newfoundland Nova Scotia

46 Milltown Blvd.
St. Stephen, NB
Canada, E3L 1G3
Tel: (506) 467-9014
Fax: (506) 467-9503
www.simcorp.ca

October 20, 2016

SIMCorp File # SW2016-059

Jeff Nickerson
Kelly Cove Salmon Ltd.
P.O. Box 1546
Shelburne, NS
B0T 1W0

Dear Mr. Nickerson:

Reference: **Application for a boundary amendment for aquaculture site #1039, Rattling Beach, Nova Scotia**

Please find enclosed the supporting materials for the above mentioned boundary amendment at marine aquaculture site #1039, in Annapolis Basin, NS.

If you have any questions or comments on the above noted report, please do not hesitate to contact me at 506-467-9014.

Sincerely,

[redacted]

Sr. Marine Environmental Biologist
Atlantic Region
Sweeney International Marine Corp.
[redacted]t@simcorp.ca

cc: [redacted] (SIMCorp)
Brennan Goreham (NSDFA)
[redacted] (KCS)

EXECUTIVE SUMMARY

Project: Application for a boundary amendment of aquaculture site #1039 in Annapolis Basin, Nova Scotia

The following report and associated documents have been prepared by Sweeney International Marine Corp. (SIMCorp) for Kelly Cove Salmon Ltd. (KCS) in order to satisfy the criteria of the Nova Scotia Department of Fisheries and Aquaculture (NSDFA) Regulation 347/2015 Schedule A: *Regulations Respecting Aquaculture Licences and Leases*, section 3: Factors to be considered in decisions related to marine aquaculture sites. The purpose of this report is to formally apply for a boundary amendment of marine aquaculture site #1039 in Annapolis Basin, in Digby County, Nova Scotia. The farm would consist of twenty, 49-m, grid cells in a 2 x 10 configuration. The proposed lease dimensions are 190 x 180 x 720 x 370 x 630 x 280 m, resulting in a farm with an area of 29.08 ha. The site is approved for 1,100,000 Atlantic salmon in twenty cages.

SIMCorp is assisting KCS in this application for a boundary amendment of site #1039 through the preparation of this report and other supporting roles. All correspondence should be copied to SIMCorp.

PROJECT TEAM AND CONTACT INFORMATION

The project team, their qualifications, and roles with respect to the preparation of this report are summarised as follows:

Team Member	Affiliation	Role	Qualification
[redacted]	KCS	Corporate Support	Vice President of Salt Water Operations
Jeff Nickerson	KCS	Corporate Support	NS Production Manager
[redacted]	SIMCorp	Sr. Project Manager	Company Owner
[redacted]	SIMCorp	Sr. Marine Environmental Biologist, Atlantic Region	M.Sc.
[redacted]	SIMCorp	Nova Scotia Division Manager	M.Sc.
Stephen Acker	Acker & Doucette Surveying Inc.	Survey Plan Preparation	N.S.L.S.

CONTACT INFORMATION

Proponent:

Company Name:	Kelly Cove Salmon Ltd.
Principal Contact:	Jeff Nickerson
Mailing Address:	P.O. Box 1546 Shelburne, NS, B0T 1W0
Telephone:	(902) 875-8603
Facsimile:	(506) 755-1492
Cellular:	[redacted]
E-mail:	jnickerson@cookeaqua.com

Project Management:

Company Name:	Sweeney International Marine Corp.
Principal Contact:	[redacted]
Mailing Address:	46 Milltown Blvd. St. Stephen, New Brunswick, E3L 1G3
Telephone:	(506) 467-9014
Facsimile:	(506) 467-9503
Cellular:	[redacted]
E-mail:	[redacted]@simcorp.ca

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Appendix A – Baseline Assessment Report

FACTORS TO BE CONSIDERED IN DECISIONS RELATED TO MARINE AQUACULTURE SITES

a. Optimum Use of Marine Resources

Location Identification and Geographic Description of Site

Aquaculture site Rattling Beach (#1039) is owned and operated by Kelly Cove Salmon Ltd. (KCS). The marine farm consists of twenty, 49-m grid cells in a 2 x 10 configuration. The proposed lease incorporates all aquaculture-related gear, above and below the water line, with lease dimensions of 190 x 180 x 720 x 370 x 630 x 280 m, resulting in a farm area of 29.08 ha.

The general area around site #1039 appears on Canadian Hydrographic Service (CHS) Nautical chart #4396 (Annapolis Basin) and National Topographic System Map, Sector 021A (Annapolis Royale, Nova Scotia). The coordinates, obtained using DGPS, of the corners of the proposed lease area are located in Table 1.

Site #1039 is located on the western side of the Annapolis Basin, near the mouth of the Digby Gut channel in Digby County, Nova Scotia (Fig. 1). The site is approximately 2.5 km north of Digby. Rattling Beach is located in the Annapolis Basin, along with seven marine shellfish and two other marine finfish aquaculture sites. The basin also provides a number of different resources for humans and animals (Fig. 2). Fishing, specifically lobster, scallops, and harvesting of rockweed, are also important activities contributing to the economic wellbeing of cities and towns surrounding the basin. In addition, this area is considered to be a significant habitat for migratory birds supported by the presence of unique microenvironments such as salt marshes, bogs, and fens. The basin is a tourist destination, were people enjoy whale watching, kayaking, camping, recreational fishing, and boating to name a few activities, in and surrounding Annapolis Basin. KCS has implemented policies and procedures to manage their farms and protect wildlife. Aquaculture in the Annapolis Basin has been able to successfully co-exist with other resources in the area.

Table 1. Coordinates for the Boundary Amendment in Annapolis Basin

APPROXIMATE SITE CO-ORDINATES (NAD 83)		
Corner	**Latitude**	**Longitude**
1	44° 39' 27.6"	65° 45' 24.3"
2	44° 39' 28.2"	65° 45' 15.7"
3	44° 39' 22.8"	65° 45' 12.5"
4	44° 38' 59.6"	64° 45' 09.6"
5	44° 38' 58.5"	64° 45' 26.3"
6	44° 39' 18.8"	64° 45' 27.0"
Approximate Site Center	44° 39' 13.6"	65° 45' 19.8"

Figure 1. Proposed Boundary Location for Rattling Beach #1039 in Annapolis Basin

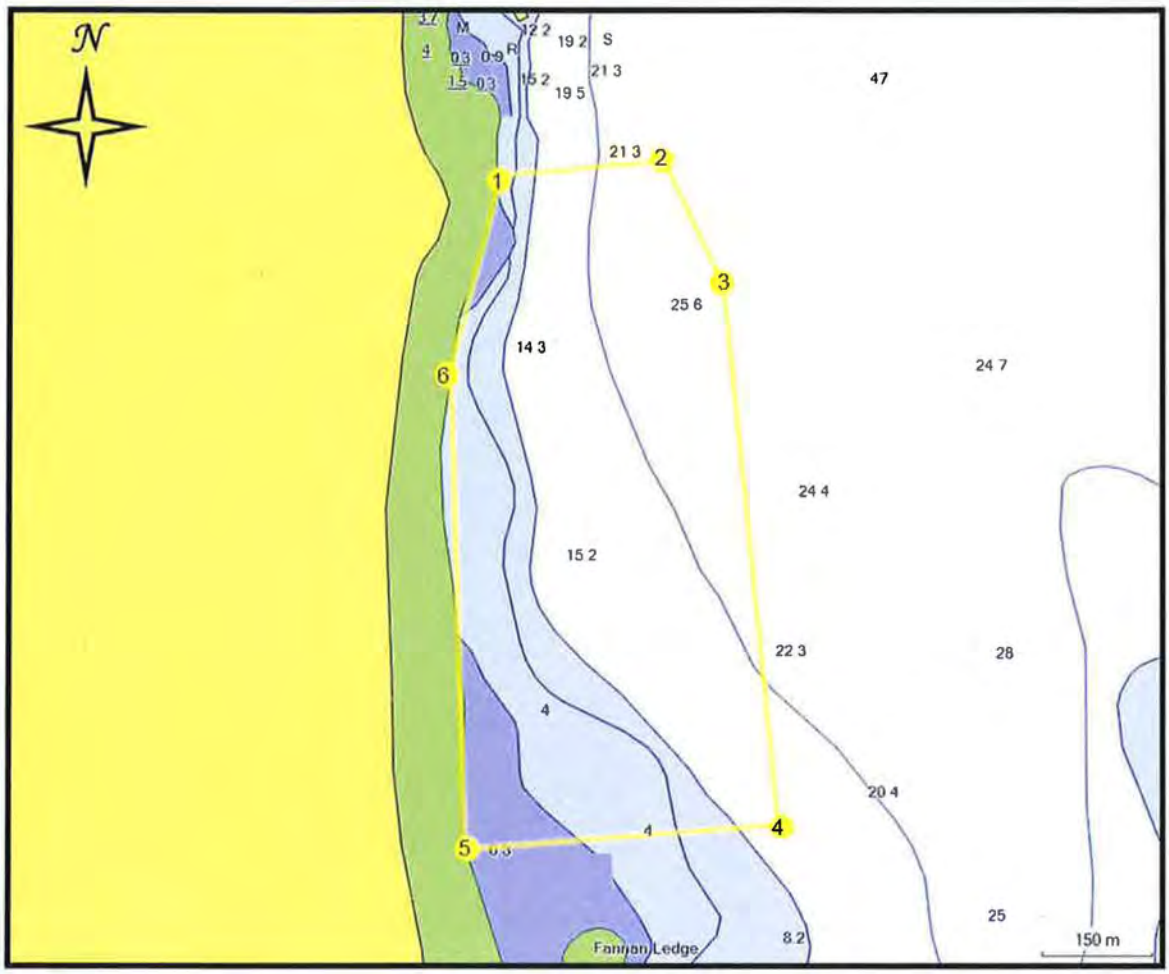
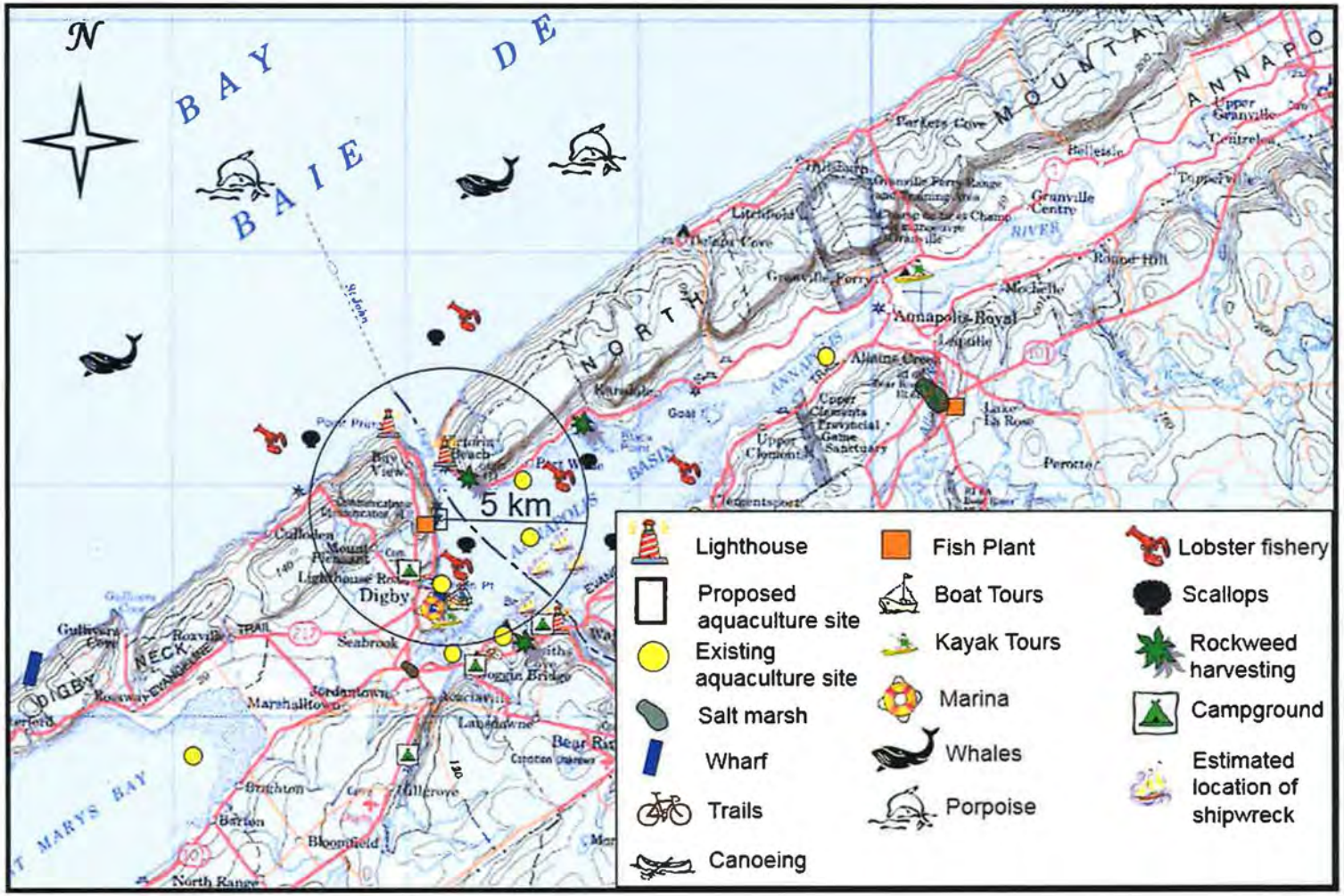


Figure 2. Resource Map of Annapolis Basin (Map: National Topographic System Map Sector 021A and Sector 020P)



b. Community and Provincial Economic Development

The following tables (Tables 2 - 4), obtained from the Statistics Canada website (Statistics Canada 2012, 2013), outline employment rates, industries, and occupations relative to Digby County and the province of Nova Scotia as a whole. The data is based on the 2011 census.

Table 2. Labour Force Indicators of Digby County and Nova Scotia

Labour Force Indicators	Digby County			Nova Scotia		
	Total	Male	Female	Total	Male	Female
Total population 15 years and over	15,290	7,385	7,905	768,060	368,640	399,425
In the labour force	8,685	4,600	4,080	484,585	247,725	236,860
Employed	7,415	3,995	3,420	435,895	220,810	215,085
Unemployed	1,265	605	665	48,690	26,910	21,775
Not in the labour force	6,600	2,780	3,820	283,475	120,910	162,560
Participation rate	56.8	62.3	51.6	63.1	67.2	59.3
Employment rate	48.5	54.1	43.3	56.8	59.9	53.8
Unemployment rate	14.6	13.2	16.3	10.0	10.9	9.2

Table 3. Industries of Digby County and Nova Scotia

Industry	Digby County			Nova Scotia		
	Total	Male	Female	Total	Male	Female
Total experienced labour force 15 years and over	8,685	4,605	4,080	484,590	247,725	236,860
Agriculture and other resource-based industries	1,430	1,135	295	18,340	14,740	3,595
Construction	560	530	25	32,245	28,835	3,405
Manufacturing	995	705	290	33,875	25,055	8,830
Wholesale trade	205	155	55	15,380	11,235	4,145
Retail trade	1,115	520	595	60,900	26,185	34,720
Finance and insurance	135	40	100	15,735	5,375	10,355
Health care and social services	875	80	795	59,670	10,090	49,575
Educational services	870	245	620	38,895	12,430	26,470
Other services	350	150	200	20,230	9,650	10,575

Table 4. Occupations of Persons in Digby County and Nova Scotia

Occupation	Digby County			Nova Scotia		
	Total	Male	Female	Total	Male	Female
Total experienced labour force 15 years and over	8,685	4,600	4,085	484,585	247,730	236,860
A Management occupations	690	415	270	48,000	28,825	19,175
B Business, finance and administration occupations	970	130	835	10,355	18,490	51,870
C Natural and applied sciences and related occupations	270	250	20	28,280	23,065	5,210
D Health occupations	545	80	465	33,580	6,080	27,500
E Occupations in social science, education, government service and religion	935	285	650	61,450	21,520	39,930
F Occupations in art, culture, recreation and sport	205	45	165	11,305	5,085	6,225
G Sales and service occupations	1,665	570	1,095	116,265	45,190	71,075
H Trades, transport and equipment operators and related occupations	1,310	1,235	75	69,025	65,975	3,050
I Occupations unique to primary industry	1,160	1,020	135	18,265	15,385	2,875
J Occupations unique to processing, manufacturing and utilities	785	495	290	18,130	13,130	4,980

The Nova Scotia government published aquaculture employment statistics from 2013 and 2014 (Table 5; NSDFA 2014). The number of job positions (full time and part time) in finfish aquaculture increased in 2014 from those in 2013. Overall, there was a decrease in job positions in aquaculture, but the decrease was due to a loss of positions in the shellfish industry. On a broader scale, the Atlantic Canada Fish Farmers Association reports that salmon farming employs over 3000 people and directly contributes over $350 million per year to the economy.

Table 5. Nova Scotia Aquaculture Employment Statistics

	Full time		Part time		Total	
	2013	2014	2013	2014	2013	2014
Finfish	159	163	64	72	223	235
Shellfish	112	64	233	237	345	301
Other	20	20	48	50	68	70
Total	**291**	**247**	**345**	**359**	**636**	**606**

According to Statistics Canada, in Nova Scotia, approximately 43% of the population lives in rural areas, which is twice the proportion for Canada as a whole (i.e. 20%) (Statistics Canada, 2015). In general, Nova Scotia has an increased reliance on natural-based industries, such as the finfish aquaculture industry. In addition to the jobs created directly by the aquaculture sites, there are also jobs created by associated activities such as manufacturing (e.g. cage building and repair, feed manufacturing), transport (e.g. shipping of product to processing plants and to market), processing (e.g. value added products), sales, administration, and sciences (e.g. veterinary services, environmental services). Marine aquaculture has the potential to be an economically sustainable, reliable, and environmentally sustainable industry in Atlantic Canada and to provide needed jobs to Atlantic Canadians. The United Nations Food and Agricultural Organization (FAO) reports that over 75% of the world's marine fish stocks are fully exploited, over exploited, or depleted (FAO 2003). Wild fisheries are therefore unlikely to satisfy the global appetites for seafood. Aquaculture, however, is poised to meet the demand for healthy sources of fish protein.

c. Fisheries Activities

Commercial Fisheries

There are over 500 species of fish found in Atlantic Canada and most of them are present off the coast of Nova Scotia. However, the number of commercially harvested finfish is much less than this and can be roughly grouped into two categories: 1) groundfish, which occur on or close to the seafloor, and 2) pelagic fish, which occur in the water column usually away from the bottom. Various shellfish and seaweeds also support commercial fisheries. In 2014, the top five groundfish and pelagic species landed included herring, haddock, hake, redfish spp. and pollock (Table 6; Fisheries and Oceans 2014a).

Table 6. Atlantic Coast Commercial Landings for 2014
Note: sourced from Fisheries and Oceans (2014a)

2014 ATLANTIC COAST COMMERCIAL LANDINGS, BY REGION (metric tonnes, live weight)				
	Nova Scotia			Atlantic
	Maritimes	Gulf	Total	Total
Groundfish				
Atlantic Cod	2,348	23	2,371	13,001
Haddock	15,732	0	15,732	16,037
Redfish spp.	6,805	0	6,805	8,948
Halibut (Atlantic)	2,166	34	2,200	3,617
Flatfishes	1,964	151	2,115	10,751
Greenland turbot	44	0	44	14,312
Pollock	2,875	0	2,875	3,204
Hake	8,034	7	8,040	8,451
Cusk	210	0	210	212
Catfish	0	0	0	0
Skate	105	0	105	314
Dogfish	54	0	54	54

Other	2,186	41	2,226	2,363
Total	**42,523**	**256**	**42,779**	**81,263**
Pelagic & other finfish				
Herring	40,013	4,878	44,891	114,610
Mackerel	703	67	770	6,540
Swordfish	1,609	0	1,609	1,609
Tuna	493	78	571	763
Alewife	524	173	697	1,562
Eel	8	23	31	311
Salmon (Atlantic)	0	0	0	0
Smelt	0	0	0	124
Silversides	0	154	154	449
Shark	64	0	64	64
Capelin	0	0	0	28,867
Other	34	0	34	63
Total	**43,448**	**5,374**	**48,822**	**154,964**
GRAND TOTAL (5)	**238,708**	**17,834**	**256,542**	**686,629**

Groundfish

There are a number of commercially harvested species of groundfish off the south shore of Nova Scotia. The most common traditional fisheries include cod, haddock, and pollock. Fisheries for cod, haddock, and pollock occur mainly on the large fishing banks and in the Bay of Fundy. The fishery is conducted using mobile gear (otter trawl) and fixed gear (longline, handline, and gillnet) with the most active time of year being July through September (Fisheries and Oceans Canada 2014b). Haddock in 4X is in a rebuilding phase with a positive outlook; recruitment trends look very positive with spawning stocks continuing to increase in biomass since the last decade (Fisheries and Oceans Canada 2015g). However, fish size is decreasing at age (Showell et al. 2013). Cod in 4X demonstrate poor juvenile recruitment and low biomass levels, although there is considerable uncertainty regarding stock status; this stock is accessed by a very large number of fishing vessels and sectors (Clark et al. 2015). O'Boyle (2012) listed Western Scotian Shelf cod as critical. The pollock fishery in the Western Scotian Shelf (WSS), which reached historic lows in 2000, has since increased due to improved recruitment; though, it is still considered to be in the cautious (i.e. considered neither healthy nor critical) state (O'Boyle 2012).

Flatfish are also important commercial groundfish but they are caught mostly on the fishing banks and deeper areas (Fisheries and Oceans Canada 2014b). In NAFO Divisions 4X5Y, these species are halibut, yellowtail flounder, American plaice, winter flounder, and witch flounder (Fisheries and Oceans Canada 2014b). Overall, most flatfish species in this area are in decline or at low levels. Winter flounder is better in overall status with some positive indicators present (O'Boyle 2012), but American plaice stock status was still in decline as of 2009 and COSEWIC considers the Maritime population to be threatened (COSEWIC 2009a). O'Boyle (2012) had considered silver-hake stock status to be critical; however, recent biomass estimates have shown a large increase in number in 2014 (DFO 2015a). Halibut

stocks, however, appear to be improving and the biological information for this species continues to develop (DFO 2015b).

The Rattling Beach site is present in the Maritimes Statistical Districts 38 & 39. For 2015, 177,099 kg of groundfish was landed in this district with a value of $420,741. Key species landed include: Atlantic cod, witch flounder, haddock, halibut, monkfish, Pollock, redfish, sculpin, skate, white hake, and winter flounder. Both sculpin and winter flounder were noted as species caught for bait (C. O'Neil, pers. com.).

Figures 3 – 6 show the approximate groundfish landings off the coast of Nova Scotia between 1999 and 2003 (Fisheries and Oceans Canada 2014b).

Species list

- Atlantic pollock (*Pollachius virens*)
- Haddock (*Melanogrammus aeglefinus*)
- Atlantic cod (*Gadus morhua*)
- American plaice (*Hippoglossoides platessoides*)
- Winter, yellowtail, and witch flounder (*Pseudopleuronectes americanus, Limanda ferruginea* and *Glyptocephalus cynoglossus*)
- Atlantic halibut (*Hippoglossus hippoglossus*)
- Monkfish (*Lophius americanus*)
- Skate (unknown species)
- Cusk (*Brosme brosme*), restricted to by-catch only
- Sculpin (unknown species)
- Redfish (*Sebastes* sp.)
- Silver hake (*Merluccius bilinearis*)
- White hake (*Urophycis tenuis*), restricted to by-catch only

Figure 3. Commercial Groundfish Landings (1999 – 2003)

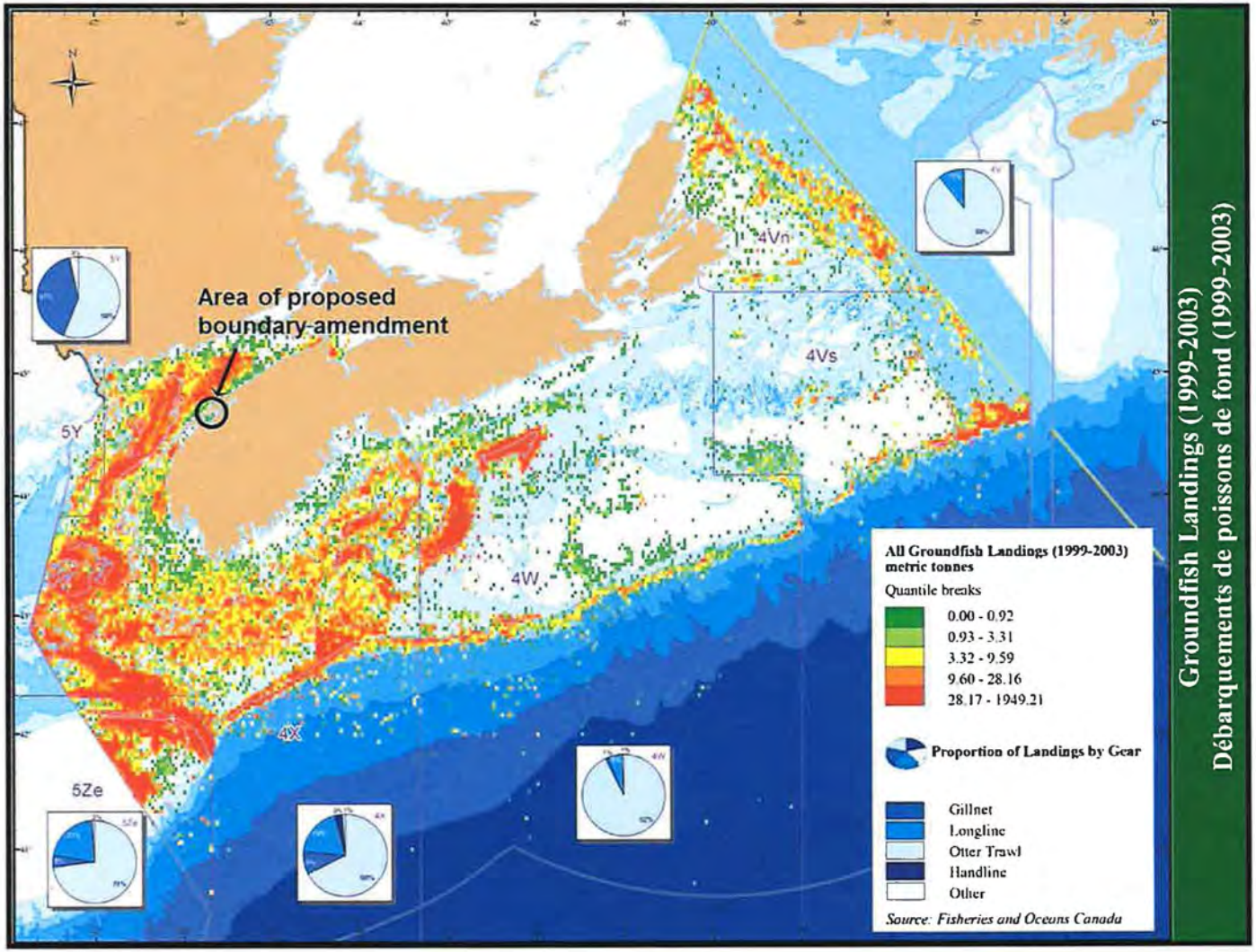


Figure 4. Commercial Cod, Haddock, and Pollock Landings (1999 – 2003)

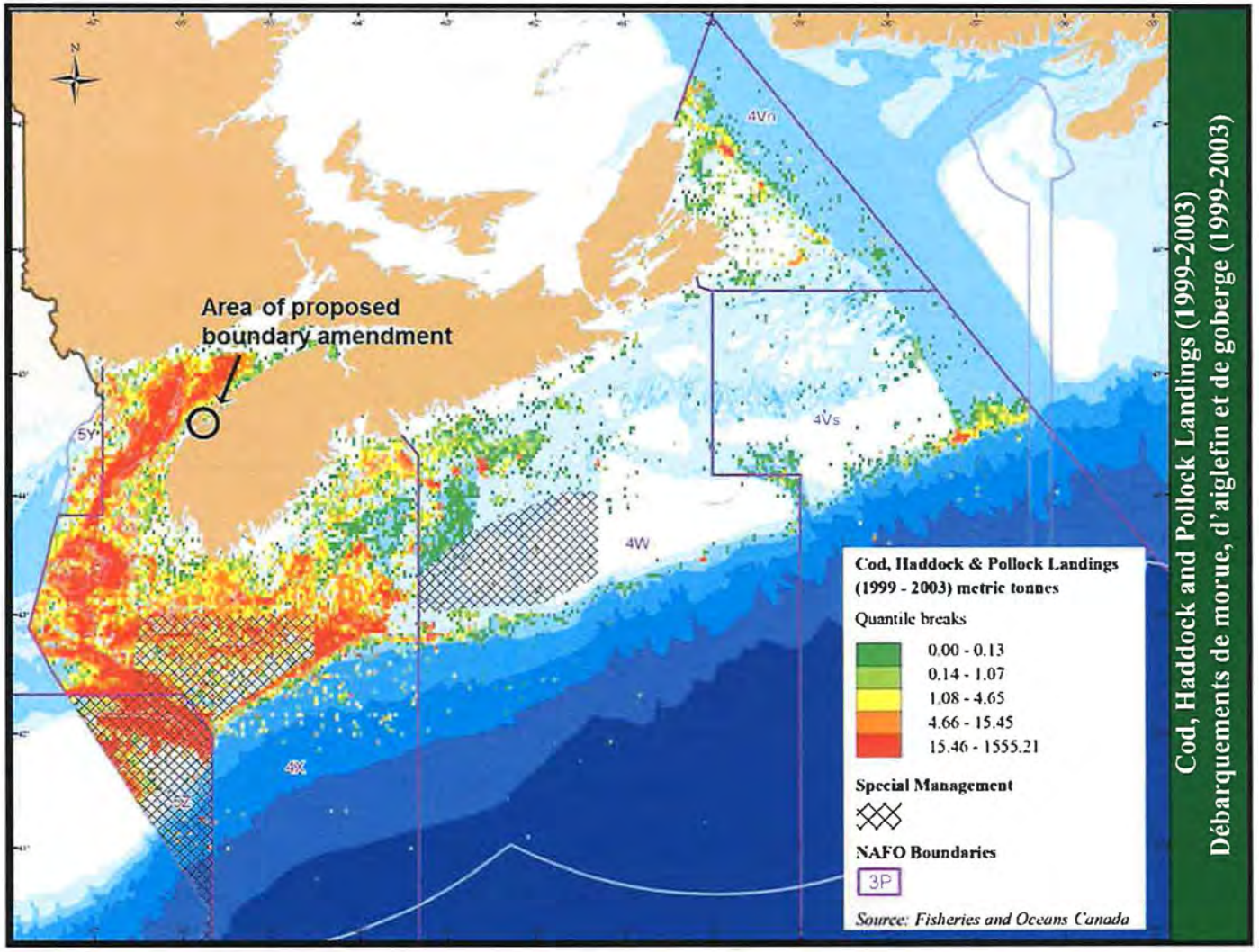


Figure 5. Commercial Flatfish Landings (1999 – 2003)

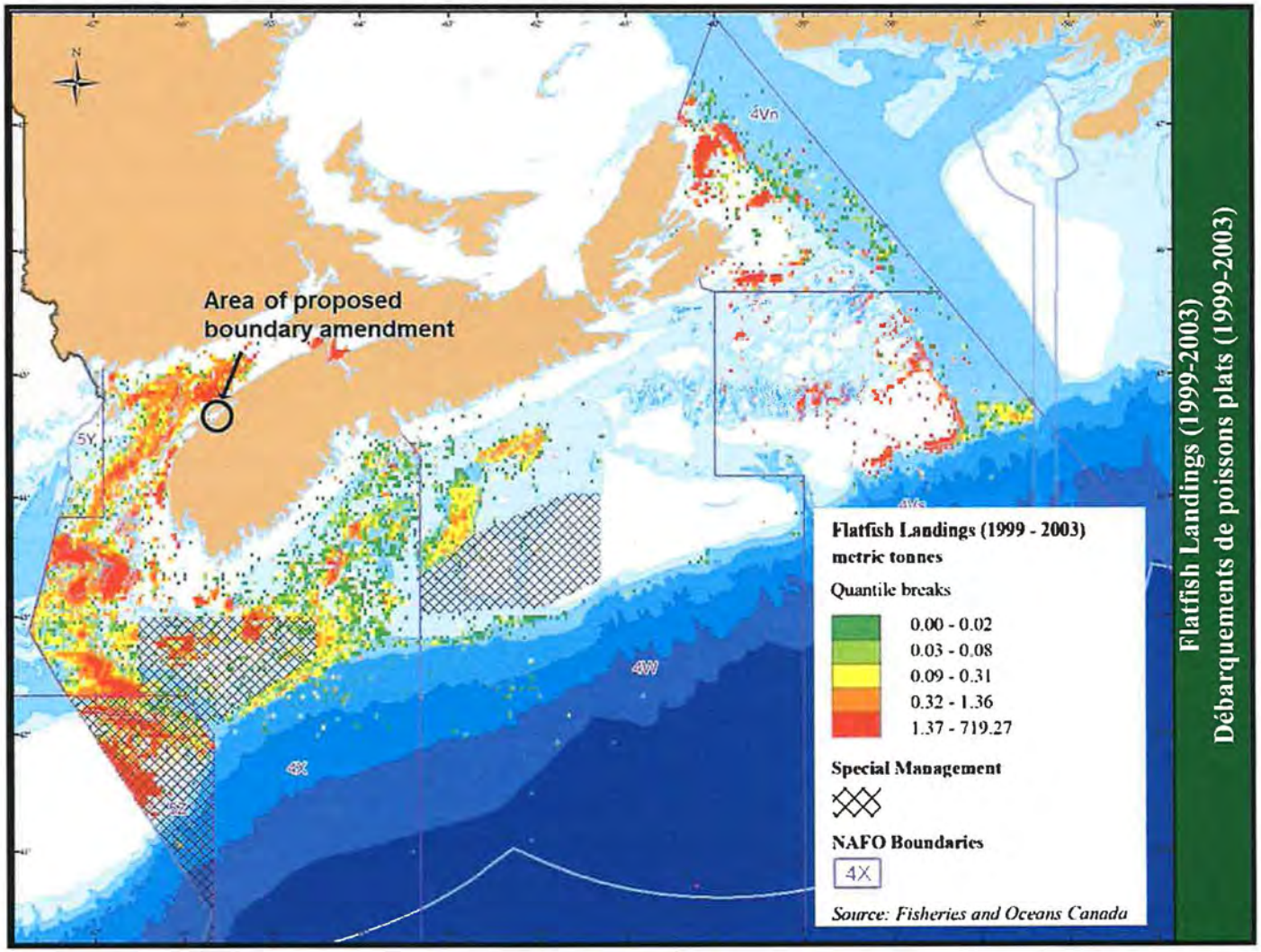
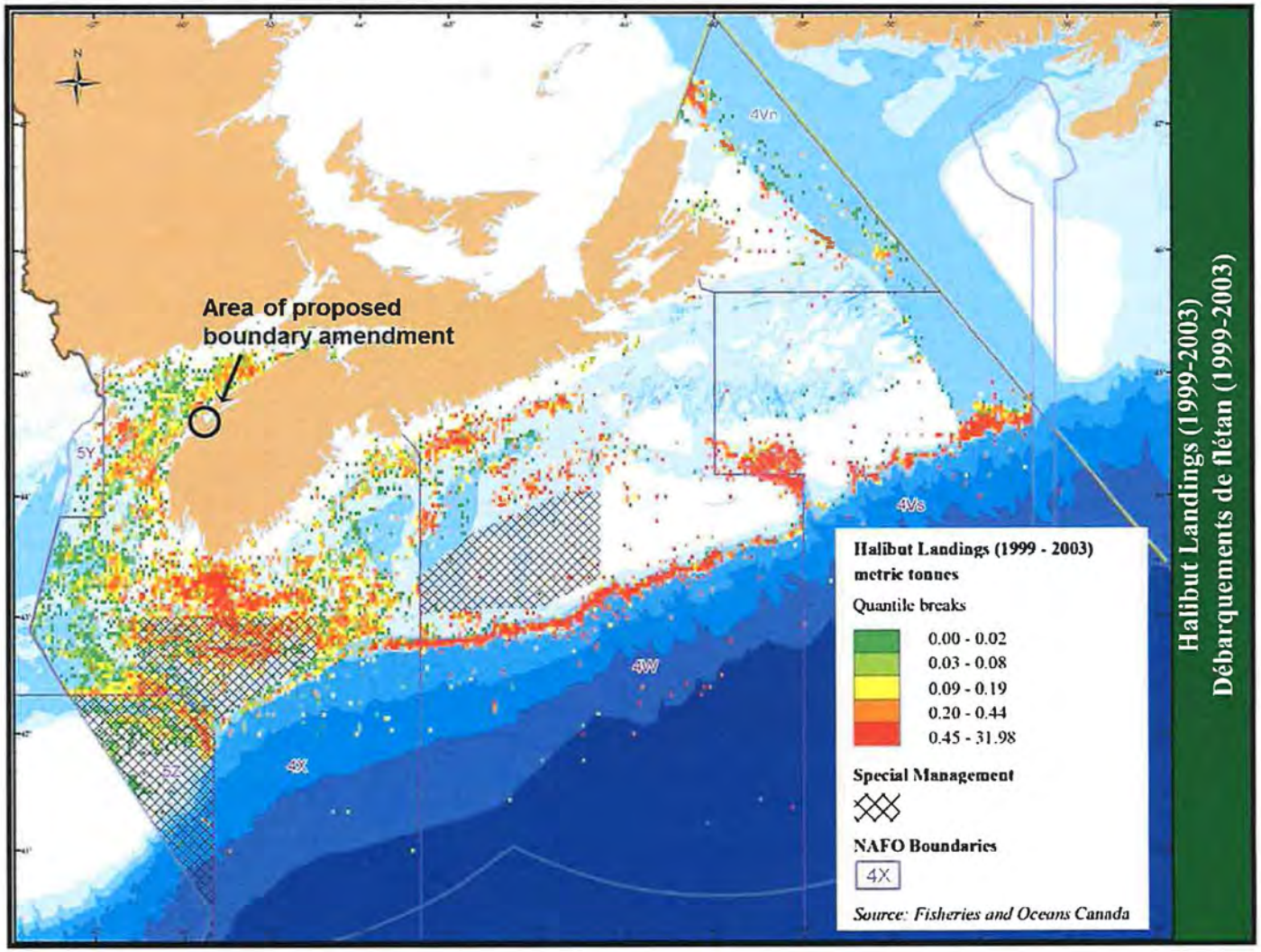


Figure 6. Commercial Halibut Landings (1999 – 2003)



Pelagics

The most common commercial species of pelagic fish off the shore of Nova Scotia include: herring (Fig. 7), mackerel (Fig. 8), tuna, swordfish, and alewife, with herring being the most valuable pelagic in 2014 (Table 6; Fisheries and Oceans 2014a). Herring (*Clupea harengus*) stocks in the Southwest Nova Scotia / Bay of Fundy herring spawning component have been of concern for a decade or more, and stock status reports have indicated the need for rebuilding (Clark et al. 2012). Clark et al. (2012) presented evidence of the decline in spawning grounds, targeting of juveniles in the fishery, and declines in catches. Recent biomass estimates have shown uncertainty; however, long-term trends show a general decrease in German Bank from 1999 and an increase in Scots Bay from 2005 (DFO 2015c). Approximated moving biomass averages for the Southwest Nova Scotia / Bay of Fundy area have indicated slight increases each year since 2012 (DFO 2015c). The herring fishery largely takes place on dense summer feeding, overwintering, and spawning locations and is dominated by purse seine, gillnet, and weir (DFO 2015c).

The Northwest Atlantic mackerel stock ranges from North Carolina to Labrador and has northern and southern spawning contingents (TRAC 2010). The Department of Fisheries and Oceans considered the status of the Atlantic mackerel stock to be in critical condition due to low abundances in egg and spawning biomass and appropriate reconstruction methods are being implemented (DFO 2014). The mackerel fishery is conducted with traps, gillnets, and handlines and is primarily an inshore fishery of the spring and summer months and extends into more offshore waters for the fall and winter (Fisheries and Oceans Canada 2014). Because of high fishing mortality, mackerel landings of recent years (2011 - 2013) have decreased within the Northwest Atlantic region when compared to numbers from years previous (DFO 2014). Figure 8 illustrates the general distribution of mackerel fishing activities in Atlantic waters.

The small pelagic fisheries are Scotia-Fundy wide, meaning that any gillnet licence holder may fish in the area.

The North Atlantic swordfish stock has been rebuilt after a 10-year recovery plan commencing in 1999. This fishery is now sustainable and well controlled with Canadian annual landings of 1,505 t in 2013 being exported to the United States at a value of $12.3 million (Fisheries and Oceans Canada 2015a). Swordfish (Fig. 9) are caught using longline and harpoon primarily along the edge of Georges Bank, the Scotian Shelf, and the Grand Banks in vessels often less than 65 feet; DFO lists principal ports in Nova Scotia as Shelburne, Cape Sable Island, Sambro, Wood's Harbour, and Clark's Harbour (Fisheries and Oceans Canada 2008). The bluefin tuna (Fig. 10) is the most common tuna found off the coast of Nova Scotia and is fished with tended line, rod and reel, harpoon, longline, and trap nets (Fisheries and Oceans Canada 2014b). The International Commission for the Conservation of Atlantic Tunas (ICCAT 2014) consider Atlantic bluefin and albacore tuna stocks overfished from 2010 and 2012 stock assessments, which indicated low recruitment. The bluefin and albacore tuna stocks are considered to be of a critical status whereas the bigeye and yellowfin tuna stocks are considered healthy (O'Boyle 2012).

In Maritimes Statistical Districts 38 & 39, pelagic landings and associated value was not separated in the provided "other species" category. For 2015, 11,262,144 kg was landed comprising of species other than groundfish and lobster with a value of $29,096,031. Key species landed include: elvers and herring (C. O'Neil, pers. com.).

Species list

- North Atlantic bluefin tuna (*Thunnus thynnus*)
- Swordfish (*Xiphias gladius*)
- Elver (*Anguilla rostrata*)
- Atlantic herring (*Clupea harengus*)
- Atlantic mackerel (*Scomber scombrus*)
- Alewife (*Alosa pseudoharengus*)

Figure 7. Commercial Herring Landings (1999 – 2003)

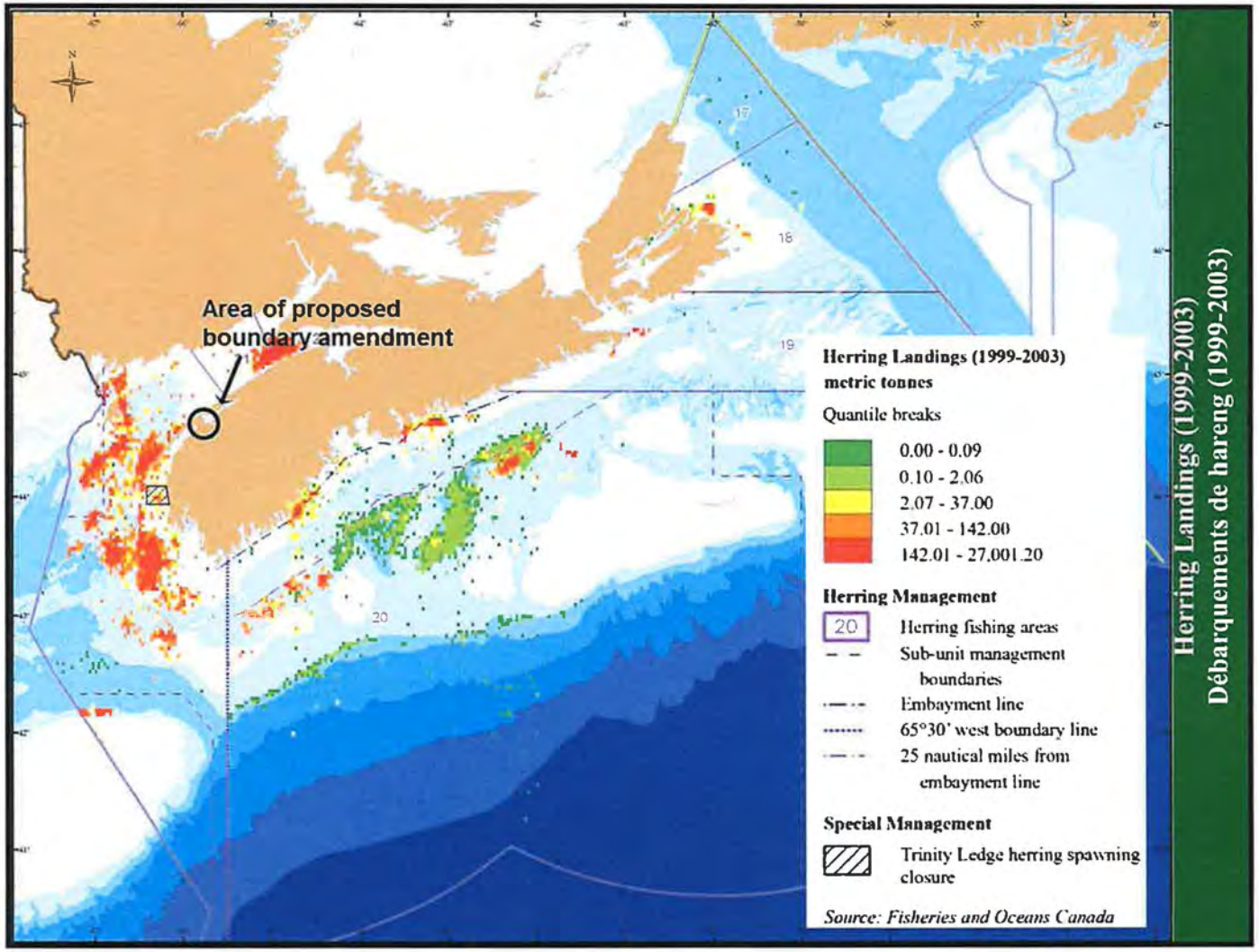


Figure 8. Commercial Mackerel Landings (1999 – 2003)

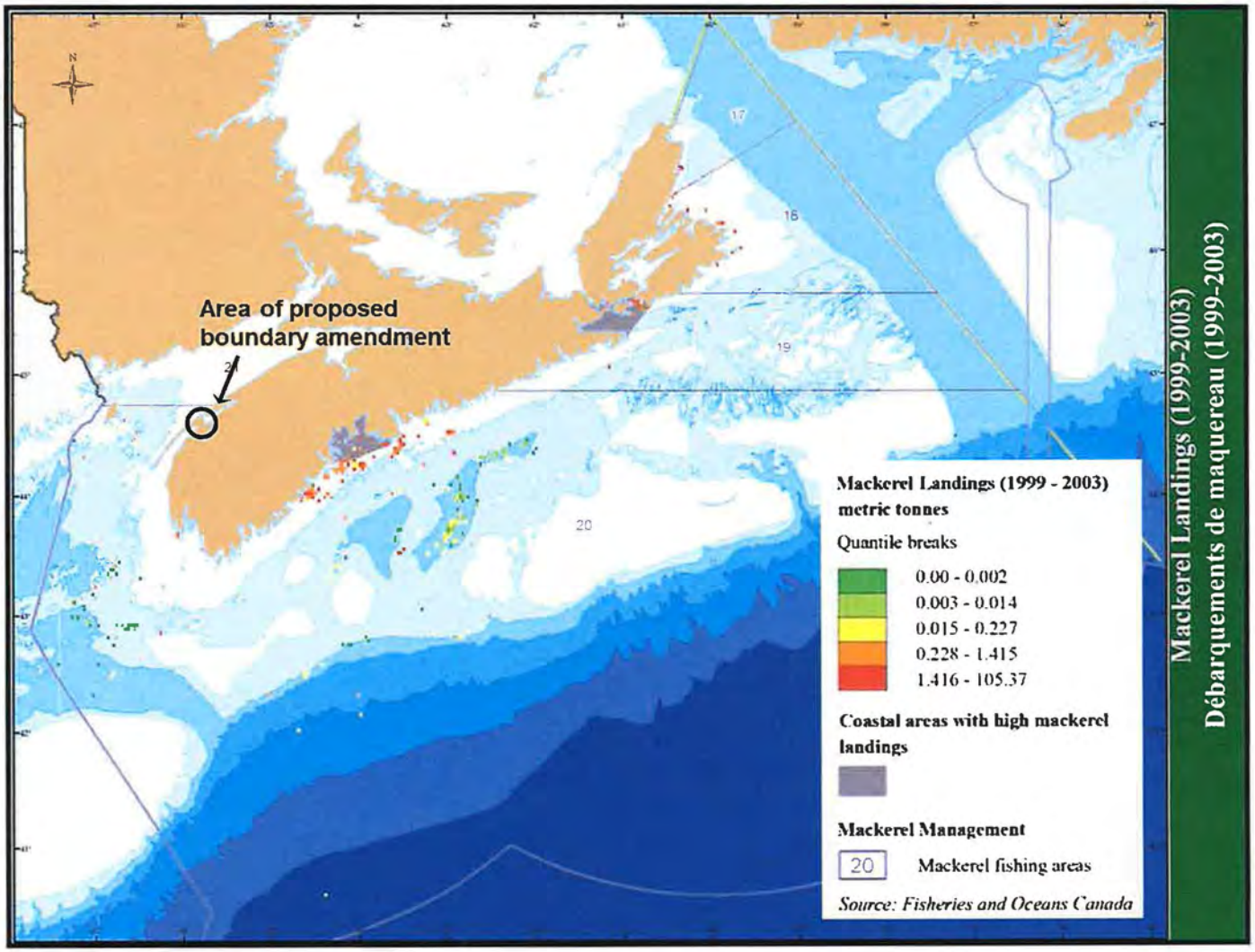


Figure 9. Commercial Large Pelagic Fish Landings, Excluding Bluefin Tuna (1999 – 2003)

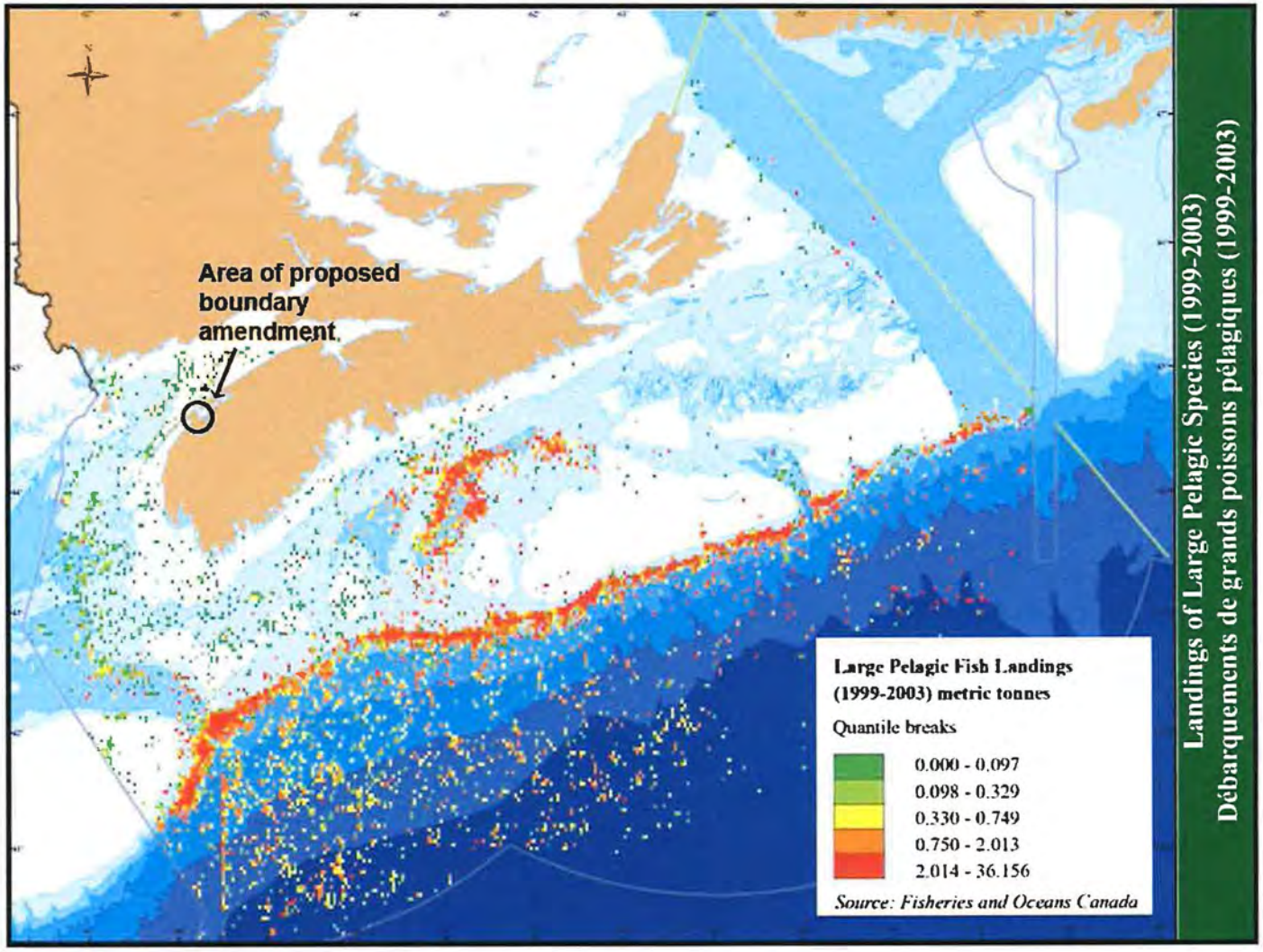
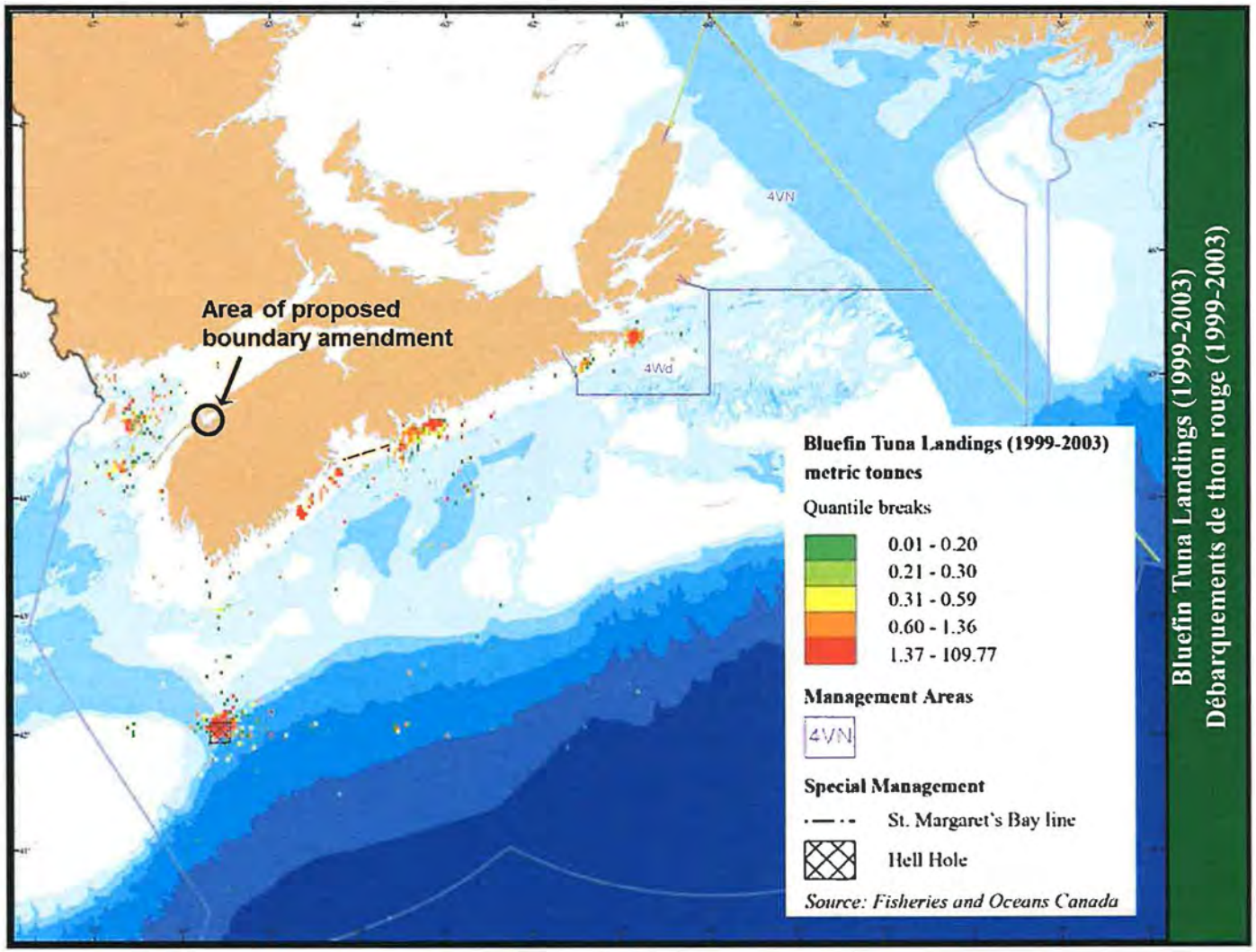


Figure 10. Commercial Bluefin Tuna Landings (1999 – 2003)



Shellfish and Other Invertebrates

There are a number of shellfish species that are harvested off Nova Scotia and included are such commercially important species as scallops, lobsters, shrimp, and crabs (Table 7; Fisheries and Oceans 2014a). Also harvested are sea cucumber, sea urchins, and soft-shell clams.

Table 7. Atlantic Coast Commercial Landings for 2014
Note: source from Fisheries and Oceans (2014a)

2014 ATLANTIC COAST COMMERCIAL LANDINGS, BY REGION
(metric tonnes, live weight)

Species	Nova Scotia			Atlantic
	Maritimes	Gulf	Total	Total
Shellfish				
Clams / quahaug	2,068	3	2,071	26,869
Oyster (1)	2	69	72	1,258
Scallop (2)	63,694	78	63,772	69,745
Squid	22	0	22	22
Mussel (3)	0	2	2	2
Lobster	47,235	4,300	51,534	92,779
Shrimp	24,748	124	24,872	129,658
Crab, Queen	12,142	7,045	19,187	96,103
Crab, Other	426	579	1,005	5,277
Whelks	111	0	111	3,491
Cockles	6	0	6	257
Sea cucumber	1,719	0	1,719	5,379
Sea urchin	270	0	270	2,377
Other	0	0	0	0
Total	**152,443**	**12,200**	**164,643**	**433,218**
Subtotal	**238,414**	**17,830**	**256,245**	**669,445**
Others				
Marine plants	214	4	218	14,360
Lumpfish roe	0	0	0	40
Miscellaneous (4)	80	0	80	2,784
Total	294	4	298	17,184
GRAND TOTAL (5)	**238,708**	**17,834**	**256,542**	**686,629**

(1) Oyster: BC data now reported under Aquaculture. Atlantic includes wild and farmed data.
(2) Scallop includes meat with roe.
(3) PEI mussels are now classified under "aquaculture" because they are a farmed product.
(4) Miscellaneous value includes seal value.
(5) Totals may not add up due to rounding.
Source: Fisheries and Oceans Canada (DFO), Economic Analysis and Statistics

Invertebrate fisheries constitute the largest piece of the Nova Scotia fishery (Fisheries and Oceans Canada 2014a), of which the lobster fishery is the primary component. In 2014, Nova Scotia landed over 51,000 t of lobster valued at $570 million (Fisheries and Oceans Canada 2014a, Fisheries and Oceans Canada 2014c). The inshore lobster fishery accounts for ~ 90% of the lobster landings (Coffen-Smout et al. 2013) (Fig. 11), in which the landings have more than doubled in the past 20 years (NSDFA 2014). The proposed farm falls within lobster fishing area (LFA) 33. Typical lobster grounds are characterised by a hard seafloor such as ledge, boulder, or cobble (Lawton 1993) whereas the proposed aquaculture farm is located over mostly gravel and sandy conditions (see section **d. Oceanographic and Biophysical Characteristics**). However, lobster fishermen are known to set their traps in waters ranging from a few feet deep to 25 fathoms and on various bottom types (C. MacDonald, pers. com.).

The Jonah-crab fishery occurs in both offshore and coastal areas of southwestern Nova Scotia; the rock crab is primarily found in shallow, nearshore areas (Fisheries and Oceans Canada 2014b) (Fig. 12). An exploratory snow-crab fishery in NAFO Division 4X (the western portion of CFA 24) was initiated in 1994; catches are relatively low from 4X (generally less than 350 t per year), the season extends from November to May and only one area is considered commercially important (Fisheries and Oceans Canada 2014b, DFO 2015d) (Fig. 13). Commercial snow (queen) crab landings for 2013 and 2014 are illustrated in Figure 14, which indicates that the proposed boundary amendment of Rattling Beach does not fall within a snow crab fishing area. Snow crab is the second most valuable Canadian fishery export product, and the Scotia-Fundy fishable biomass has increased in most areas (Fisheries and Oceans Canada 2015b).

Shrimp represents Canada's fourth most valuable seafood export, with the northern shrimp being the most abundant in Atlantic Canadian waters. The fishery uses demersal otter trawl fishing vessels both in the inshore and offshore fishery. In shrimp fishing area 16, a number of licenses are largely inactive due to low shrimp abundance in this area (Seafish 2015; Fig 15); however, Fisheries and Oceans maintain the stock biomass as being in the healthy zone (Fisheries and Oceans Canada 2015c).

The commercial fishery for scallops is typically offshore, although a smaller inshore fishery does occur along parts of the Atlantic coast (Fig. 16). Historically, the area off Digby, in the Bay of Fundy, has been the most important area for the inshore fishery (Fisheries and Oceans Canada 2014b). Scallop production areas (SPAs) 4 and 5 are located off of Digby and in Annapolis Basin, respectively. Scallops caught in SPA 4 were 124 t and in SPA 5 were 8.3 t for the 2014/2015 fishing season (Fisheries and Oceans Canada, 2016a; Fig. 17). The catch rate remained steady in SPA 4 but decreased in SPA 5 in 2015 relative to 2014; SPA 4 and 5 were joined under one Total Allowable Catch (TAC) limit for the 2013/2014 fishing season (Fisheries and Oceans Canada, 2016a). The commercial biomass in SPA 4 is considered to be in the healthy zone (Fisheries and Oceans Canada, 2016a). In 2014 and 2015, the number and weight per tow of commercial scallop in SPA 5 were above the medians of the 1996 to 2008 survey series, while recruit number and weight per tow were near the medians in 2014 and increased in 2015.

In Maritimes Statistical Districts 38 & 39, invertebrate landings and associated value was not separated in the provided "other species" category with the exception of lobster. For 2015, 11,262,144 kg was landed comprising of species other than groundfish and lobster with a value of $29,096,031. Key invertebrate species landed include: clams (Bar, quahaugs, soft shell and unspecified), rock crabs, sea scallops and sea urchins. Bait fisheries for rock crab were noted for these districts. In 2015, reported lobster landings weighed 2,898,078 kg with a value of $40,951,586 (C. O'Neil, pers. com.).

The area of the proposed fish farm falls within shellfish harvesting area NS-18-010-001 (Fig. 18). The majority of Annapolis Basin is classed as conditionally approved waters for harvesting shellfish; however, the Rattling Beach site is between waters to the north and the south which are prohibited for harvesting. Figure 18 was produced by Environment Canada (D. MacArthur, pers. comm.).

Species list

- Lobster (*Homarus americanus*)
- Shrimp (*Pandalus borealis*)
- Rock crab and Jonah crab (*Cancer irroratus* and *C. borealis*)
- Green crab (*Carcinus maenas)*
- Scallop (*Placopecten magellanicus*)
- Sea urchin (*Strongylocentrotus droebachiensis*)
- Soft-shell clam (*Mya arenaria*)
- Bar clam (*Spisula solidissima*)
- Quahaug (*Mercenaria mercenaria*)

Figure 11. Total Lobster Catch
Note: sourced from Coffen-Smout et al. (2013)

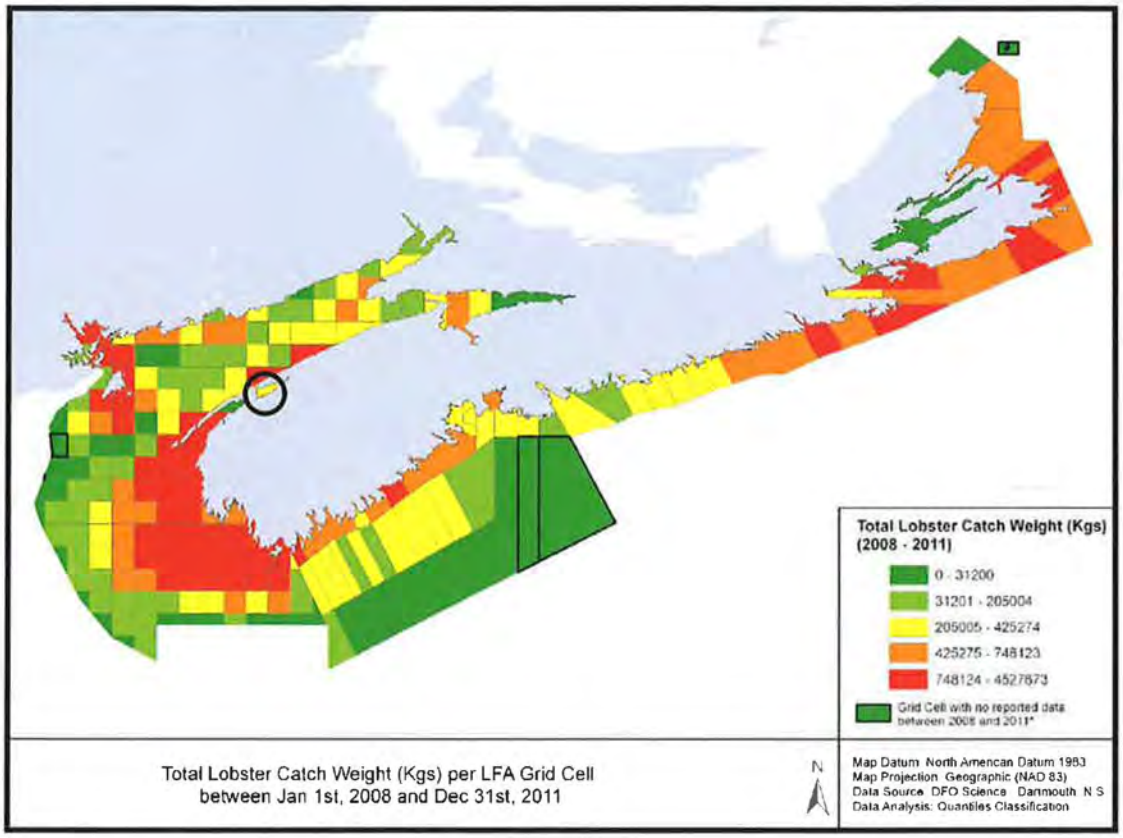


Figure 12. Commercial Crab Landings (1999 – 2003)

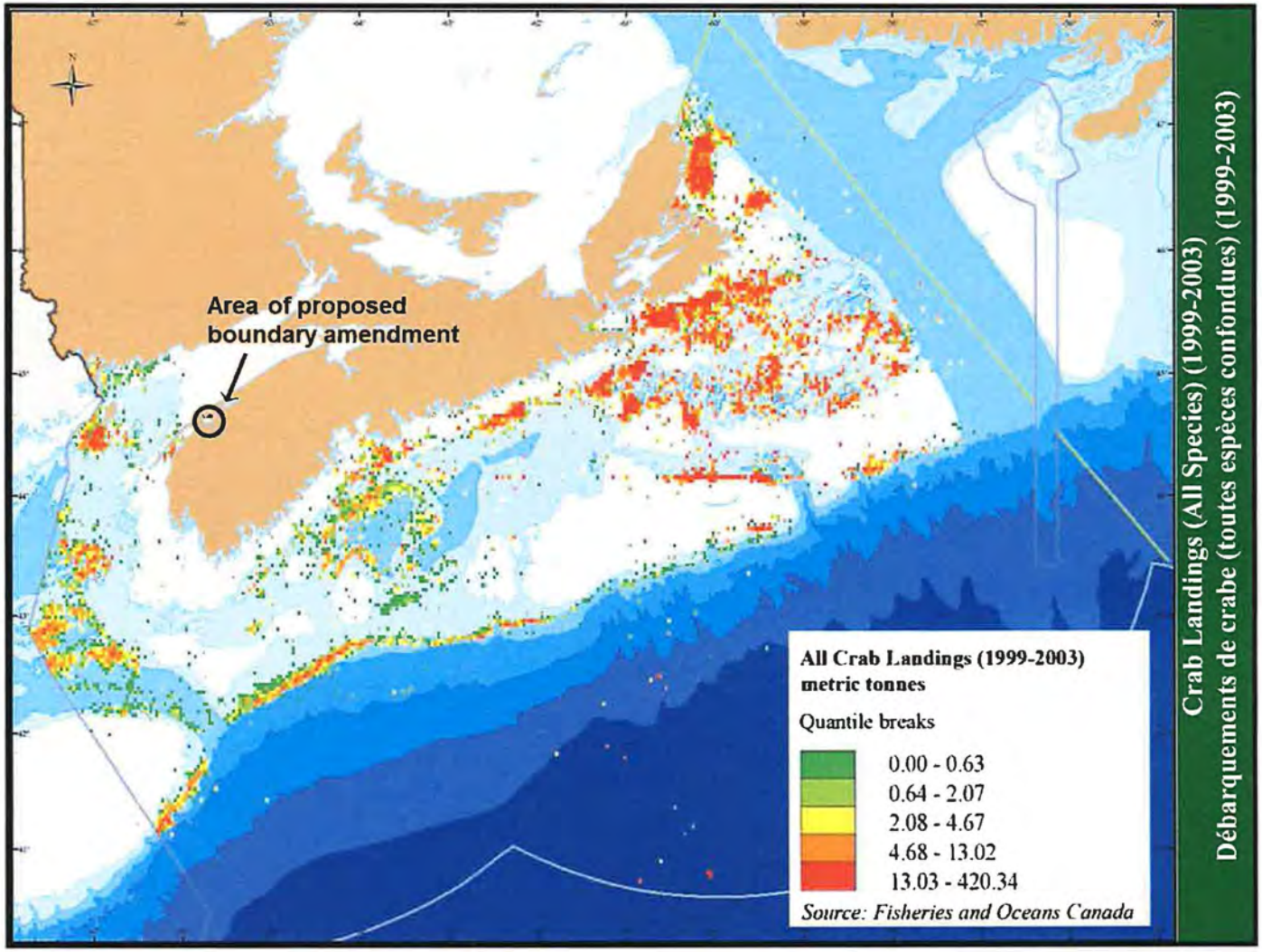


Figure 13. Commercial Snow Crab Landings (1999 – 2003)

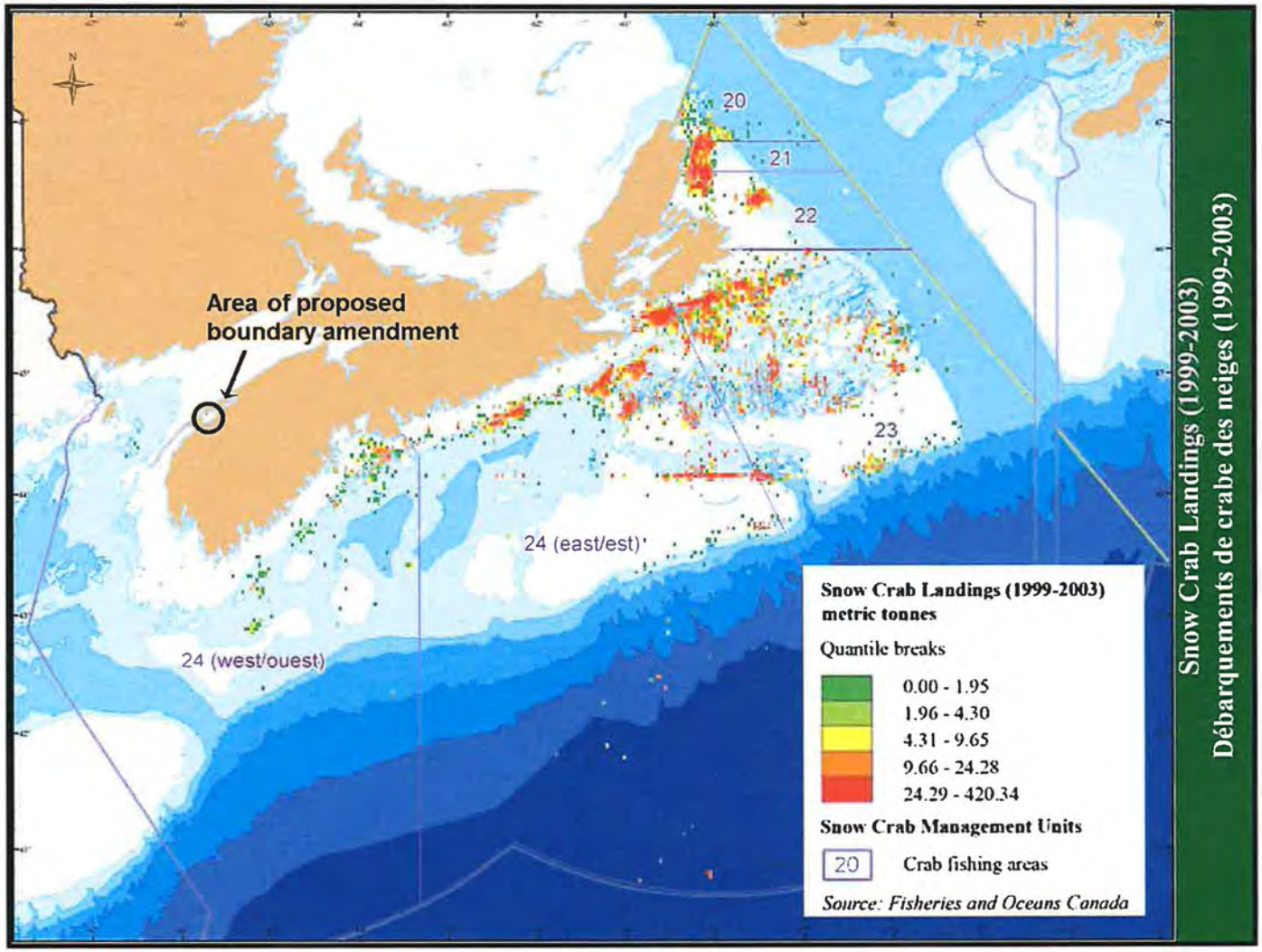


Figure 14. Commercial Snow Crab Landings (DFO 2015d)

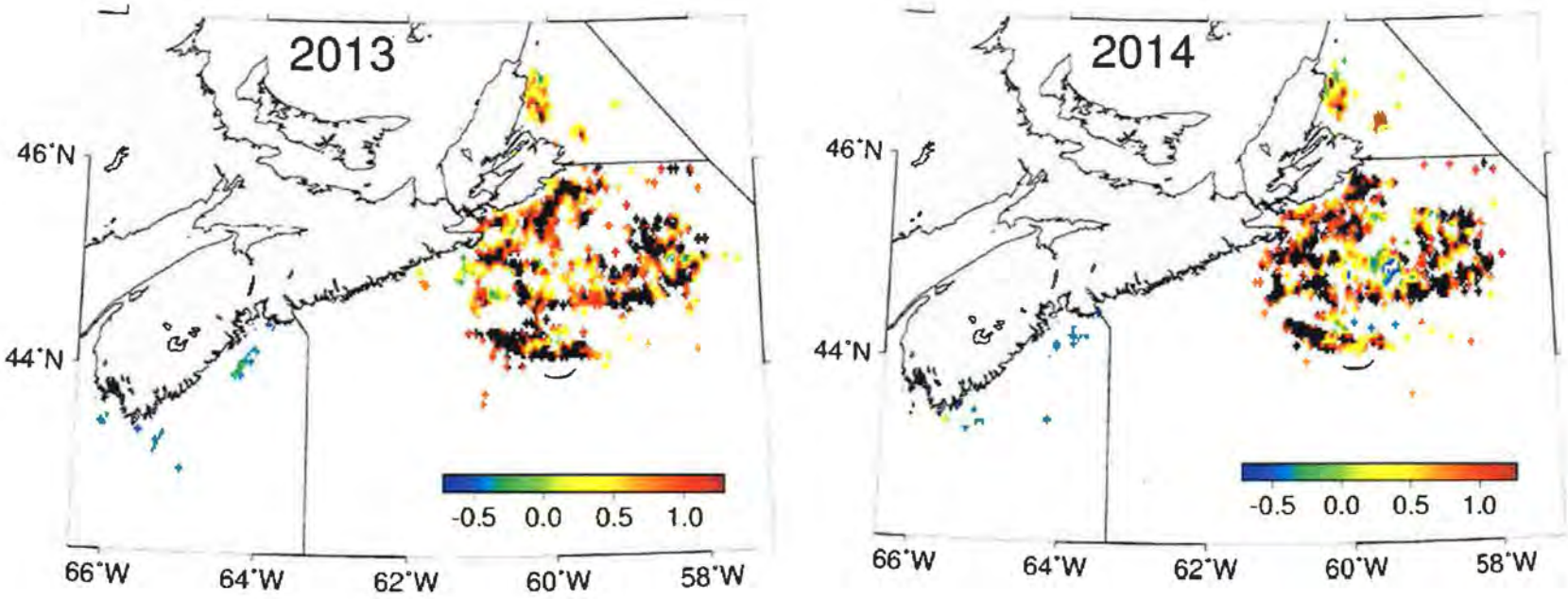


Figure 15. Shrimp Fishing Areas in Atlantic Canada
Note: Sourced from Fisheries and Oceans Canada (2015c)

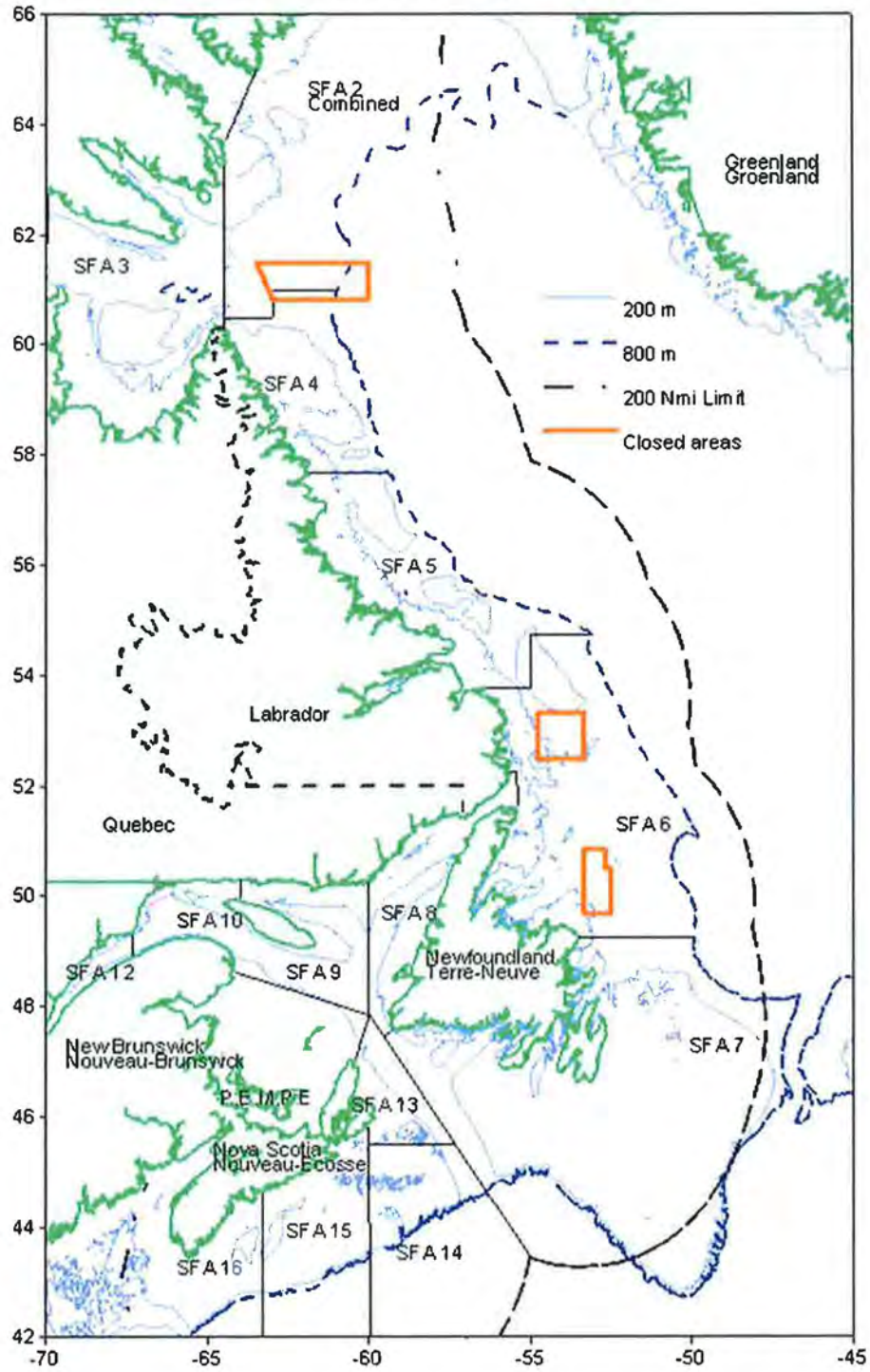


Figure 16. Commercial Scallop Landings (1999 – 2003)

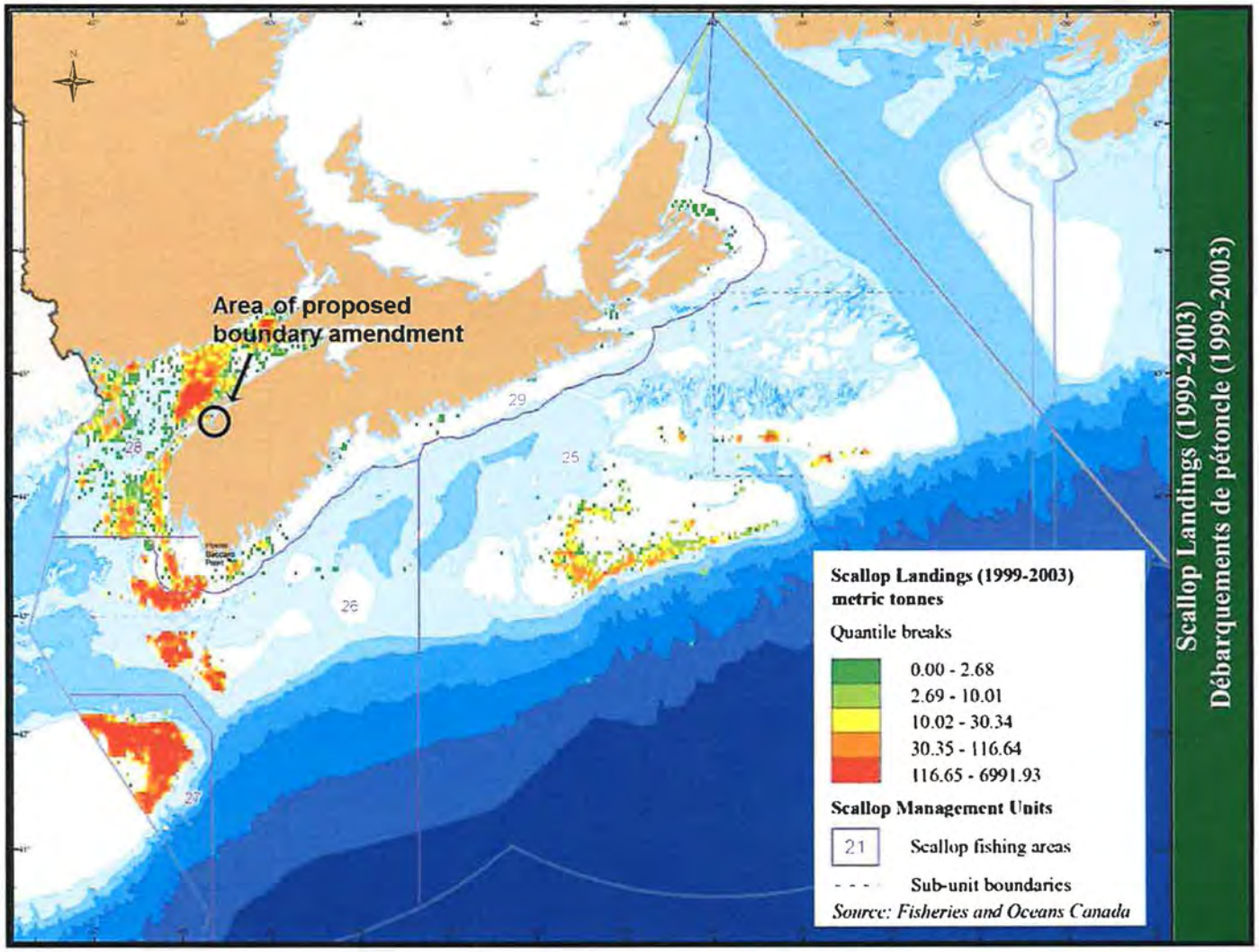


Figure 17. Scallop Production Areas
Note: sourced from Fisheries and Oceans (2016a)

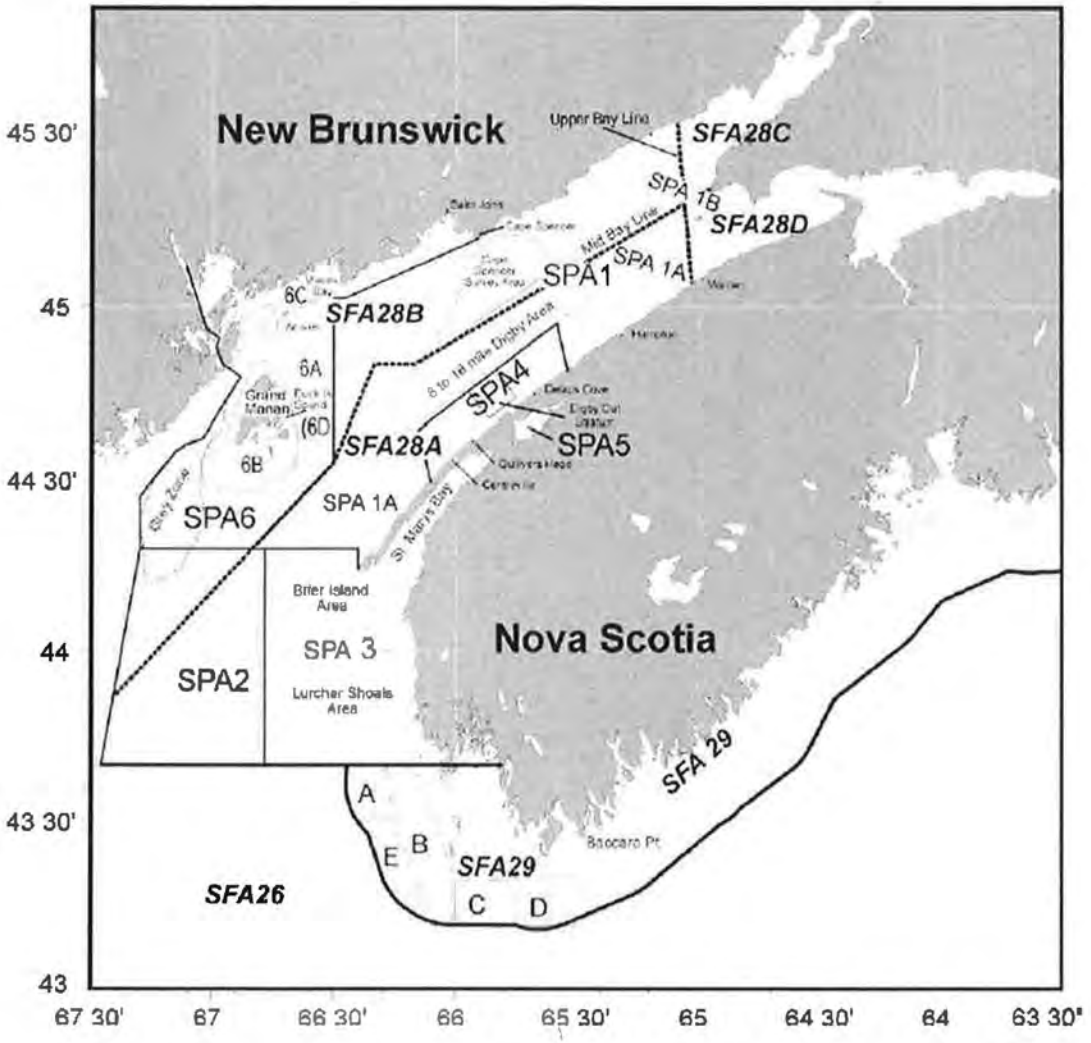
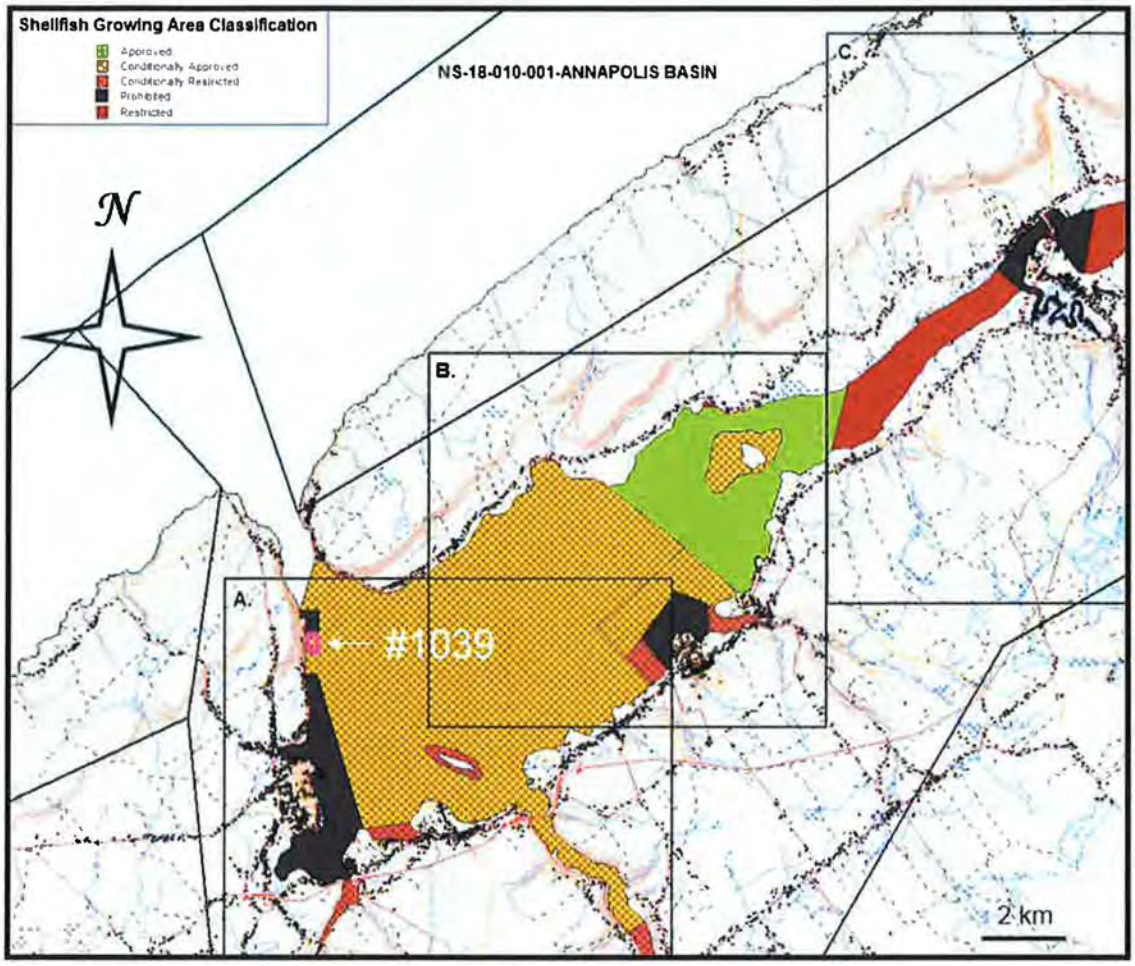


Figure 18. Shellfish Harvesting Classifications of the Annapolis Basin Area
Note: DFO is the central CSSP agency with respect to the real-time status of shellfish growing area classifications. DFO should be contacted directly for information on shellfish area closures.



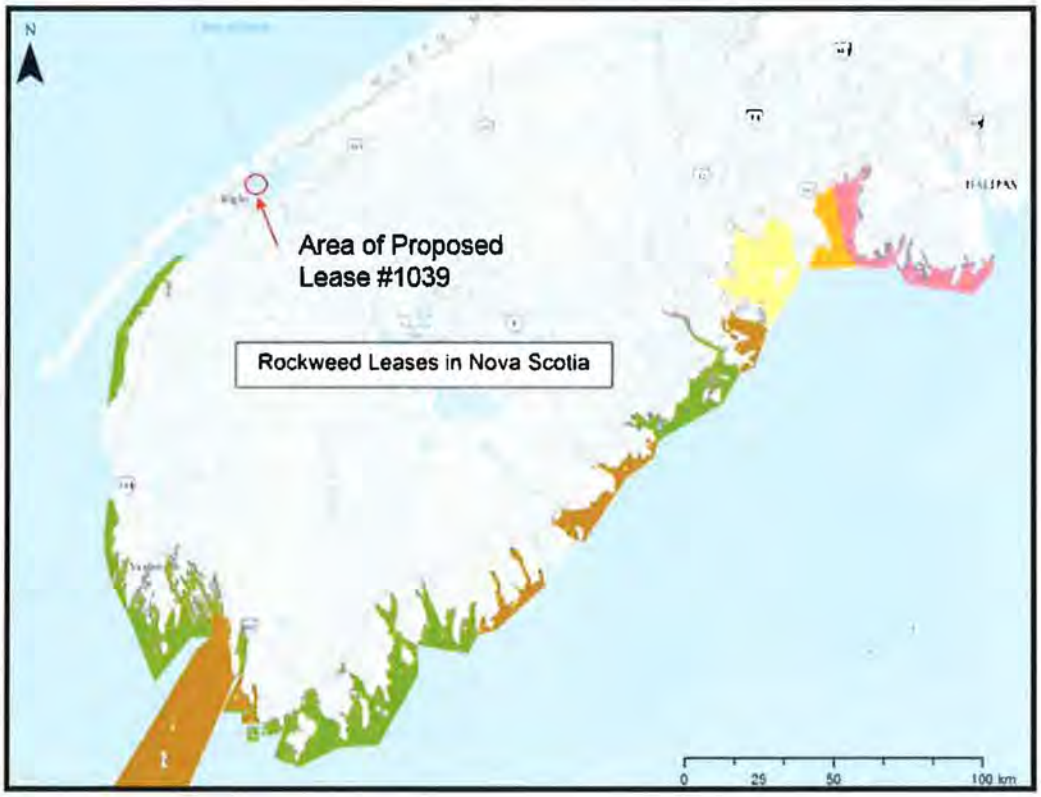
Seaweeds

Marine plants harvested commercially in Nova Scotia include rockweed (*Ascophyllum nodosum*), Irish moss (*Chrondus Chrispus*), dulse (*Palmaria palmata),* and kelp (*Saccharina latissima, S. groenlandica* and *Laminaria digitata*). In 2013, approximately 332 t of marine plants were landed in Nova Scotia at a value of nearly $107,560 (NSDFA 2013).

In Nova Scotia, *Ascophyllum* is harvested for animal fodder, fertiliser, and other specialty products. Irish moss is commonly harvested for carrageenan, which is used in the food industry for its thickening and stabilising properties. Though the species is not under any immediate threat, Nova Scotian Irish moss populations are beginning to experience signs of increase in site-specific harvesting pressure, and protection methods are beginning to be recognised (Fisheries and Oceans Canada 2013a). Harvest rates of rockweed in Annapolis Basin have remained high over the past 30 years; however, these rates indicate that the habitat value of these beds is significantly altered and takes years to recover. Reassessment of long-term impacts on habitat and the ecosystem are important in determining future harvest rates.

The province of Nova Scotia has jurisdiction over the issuing of rockweed licenses. A provincial representative from NSDFA explained that rockweed harvesting can coexist with aquaculture and no conflict is anticipated between the industries (J. Huston, pers. com.). This is due to the fact that rockweed harvesting takes place in shallow, intertidal water but aquaculture farms require deeper water. Irish moss also occurs low in the intertidal and into the shallow subtidal and is harvested with a hand rake (Fisheries and Oceans Canada 2013a). Harvesting *Ascophyllum* is considered a high risk activity as these plants and other biota can be damaged due to harvest. Annapolis Basin has a history of overharvest impacts; one full closure of the basin resulted when harvest rates were greater than 50%. Therefore, mitigation actions such as seasonal closures during peak growth or reproductive effort may be necessary to ensure population status (Fisheries and Oceans Canada 2013a). There are currently no rockweed leases in place for Annapolis Basin; however, two (2) applications have been received for this area and are currently being processed by the Province of Nova Scotia (W. Vissers, pers. com.; Fig.19).

Figure 19. Rockweed Licences in Nova Scotia
Note: sourced from Nova Scotia Department of Fisheries and Aquaculture



Recreational Fisheries

Department of Fisheries and Oceans Canada was contacted for recreational fishing landings, however this data is not available through their database (C. O'Neil, pers. com.).

Aboriginal Fisheries

Aboriginal landings were reported in Maritimes Statistical Districts 38 & 39 however the landing data, species fished, value and fishing effort was not provided by the Department of Fisheries and Oceans Canada (C. O'Neil, pers. com.).

d. Oceanographic and Biophysical Characteristics

Baseline Survey

A baseline survey of the proposed lease area was conducted on July 20, 2016. The baseline survey report, a document separate from this information package, is entitled Baseline Assessment Site #1039 Rattling Beach and dated October 20, 2016 (Appendix A).

Physical Oceanography

Wind

The proposed boundary amendment of NS aquaculture site #1039 is located near the channel at the entrance to Annapolis Basin, on the Fundy shore of Nova Scotia. The site is sheltered from the south around to the northwest due to its proximity to the mainland of Nova Scotia. The most significant wind directions for this site are from the east-northeast around to the south-southeast, to which the site is exposed to the greatest fetches.

The following wind speed data, including Figures 20 and 21, were collected from the *Wind and Wave Climate Atlas – Volume I: The East Coast of Canada*, for the Nova Scotian Shore, prepared by MacLaren Plansearch Ltd. (1991). Winds speed of less than 25 knots occur 90.9% of the time on the south shore of Nova Scotia. Storm force winds (i.e. > 45 knots) occur only 0.2% of the time. The most common wind directions are southwest (~20% occurrence) and west (~17.5% occurrence) while the least common wind directions are from the northeast (~7.5% occurrence), east (~6% occurrence), and southeast (~5.5% occurrence). Historically, the months with the highest mean wind speeds in the area have been January and December. During these months, the most frequent wind directions are from the northwest, north, and west, respectively. Annual wind statistics for the Fundy shore of Nova Scotia are presented in Figure 20 and summary graphs of average monthly wind speeds are presented in Figure 21.

Wind speed and direction data were also collected from the Brier Island weather station (Environment Canada 2016) at Digby Neck, located at N44° 17' 09.000" W66° 20' 48.000". Data collected between April 1, 2011 and May 24, 2016 were used to produce the wind-rose plot of Figure 22. Based on this data, the most common and strongest winds in the Annapolis Basin area occur between 150 and 175° (coming from approximately the south-southeast through the southwest). Most commonly, wind speeds are between 4 and 10 km/h (Fig. 23).

Figure 20. Annual Wind Statistics for the Bay of Fundy Shore
Note: sourced from MacLaren Plansearch Ltd. (1991)

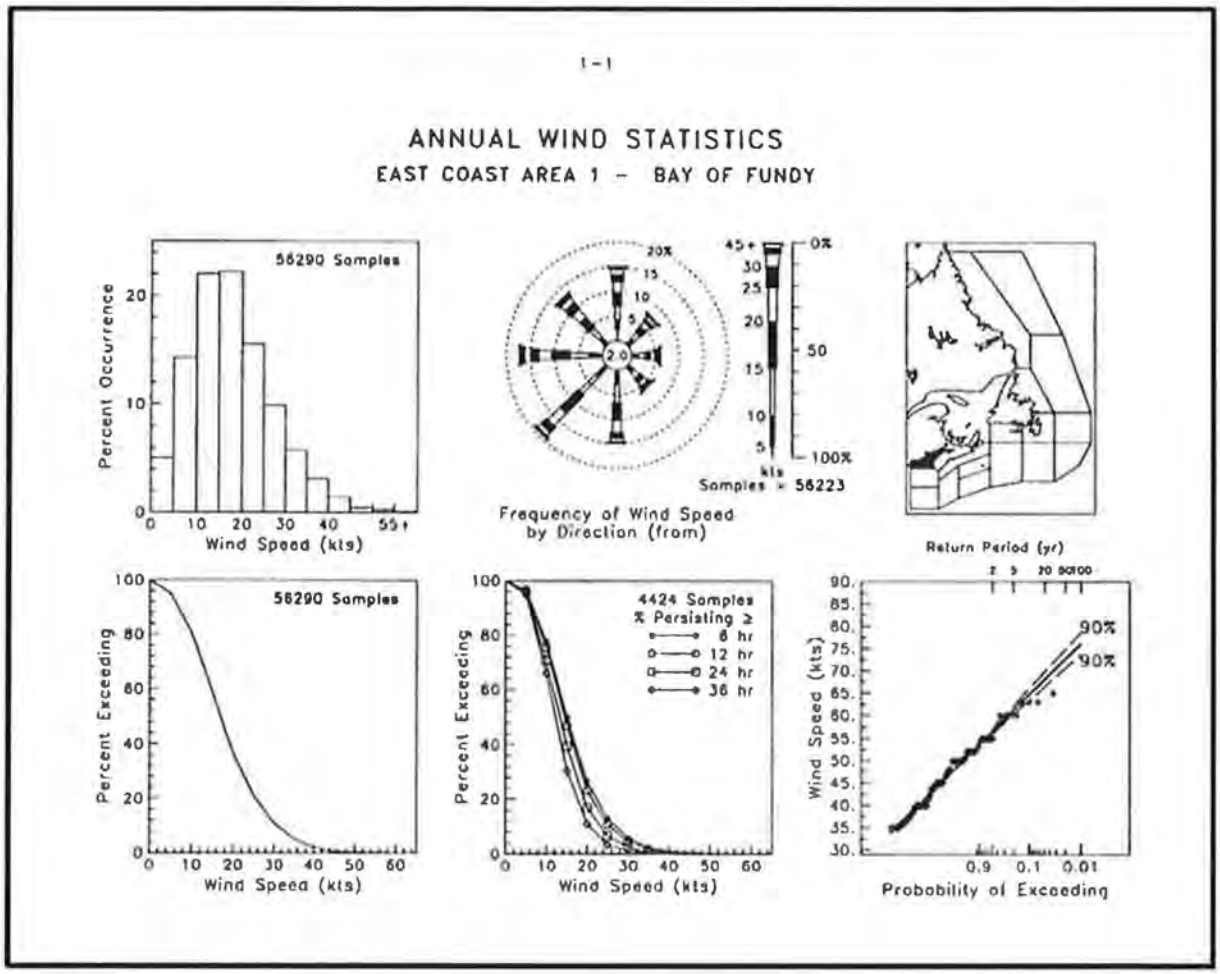


Figure 21. Average Monthly Wind Statistics for the Bay of Fundy Shore
Note: sourced from MacLaren Plansearch Ltd. (1991)

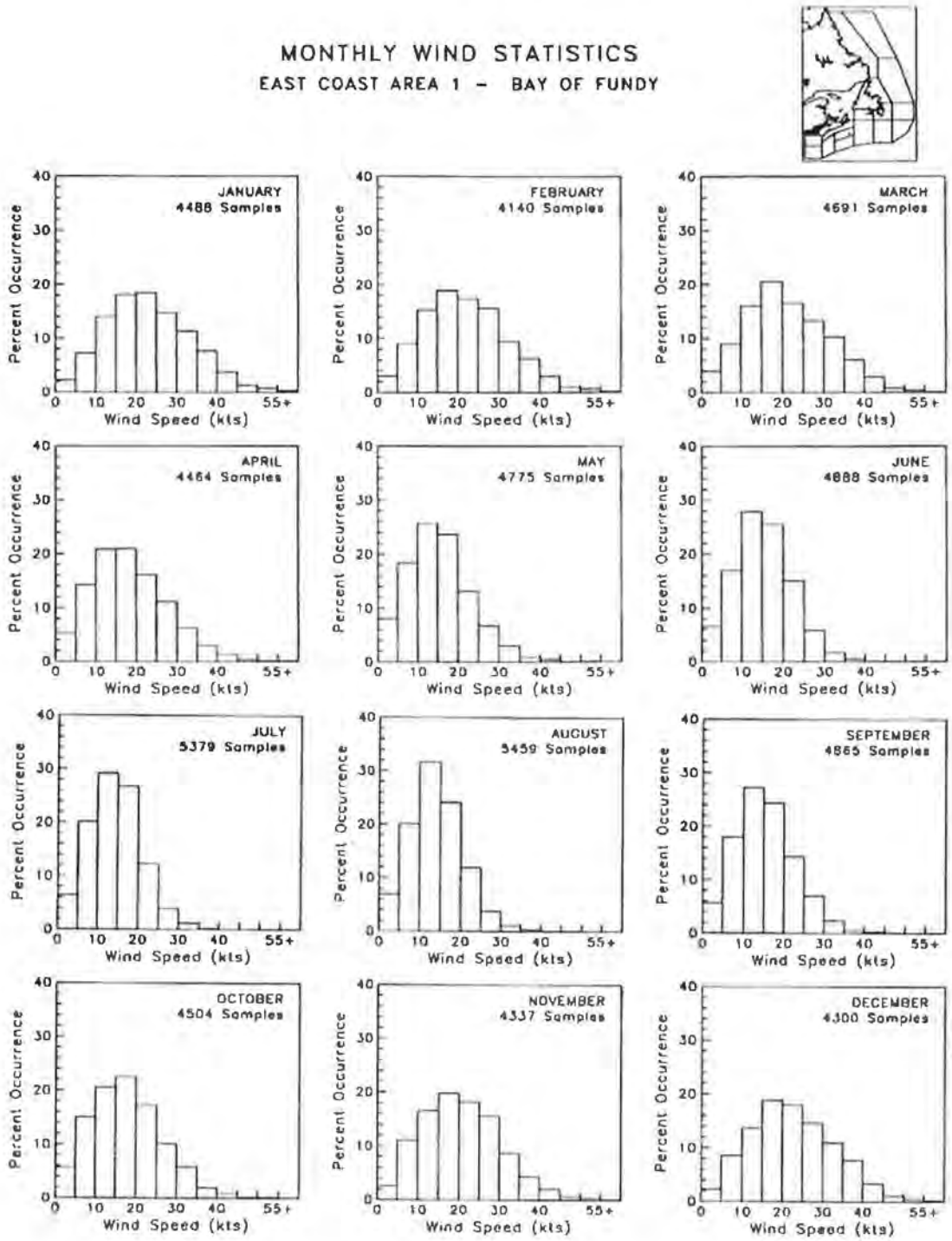
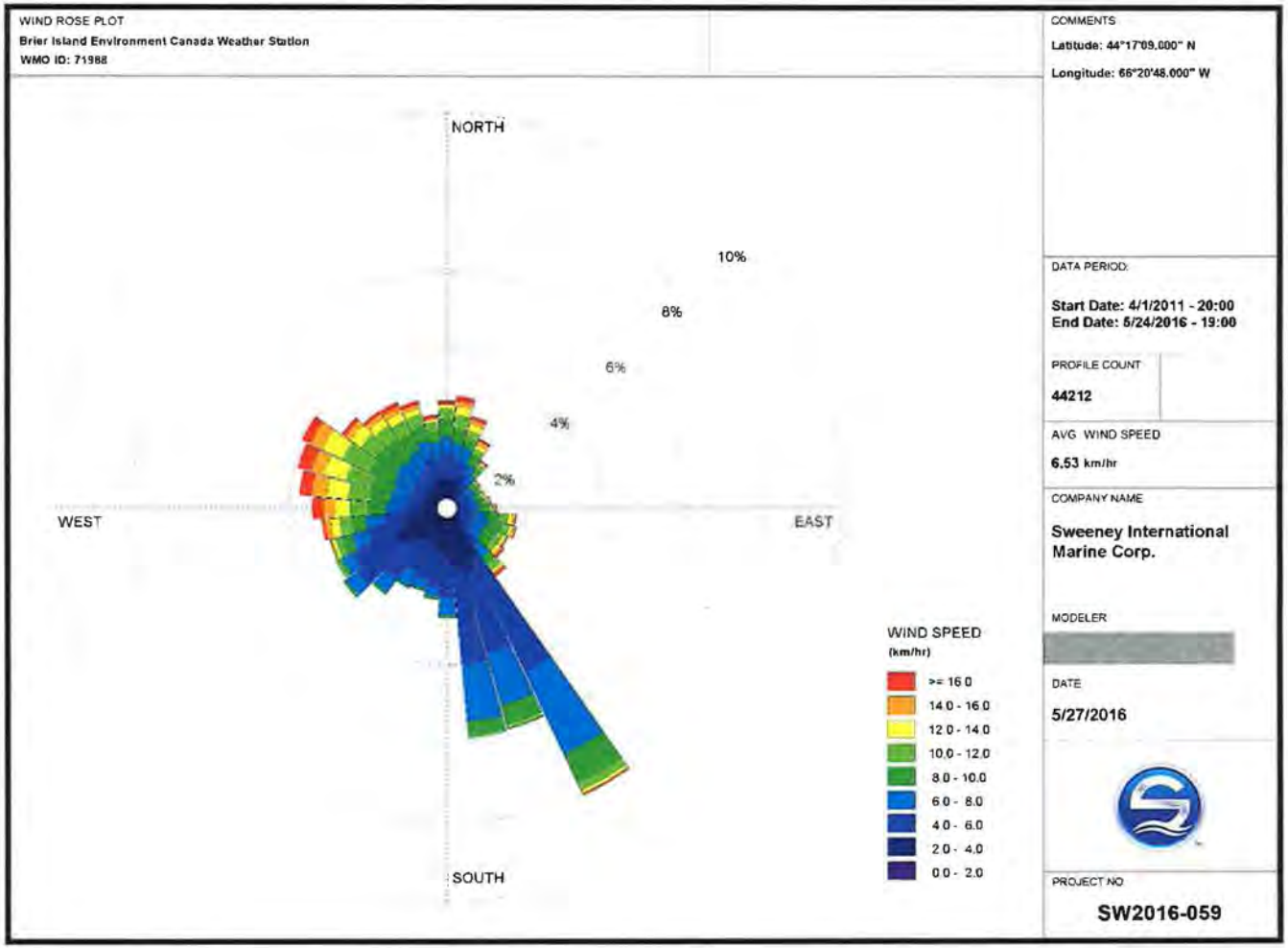
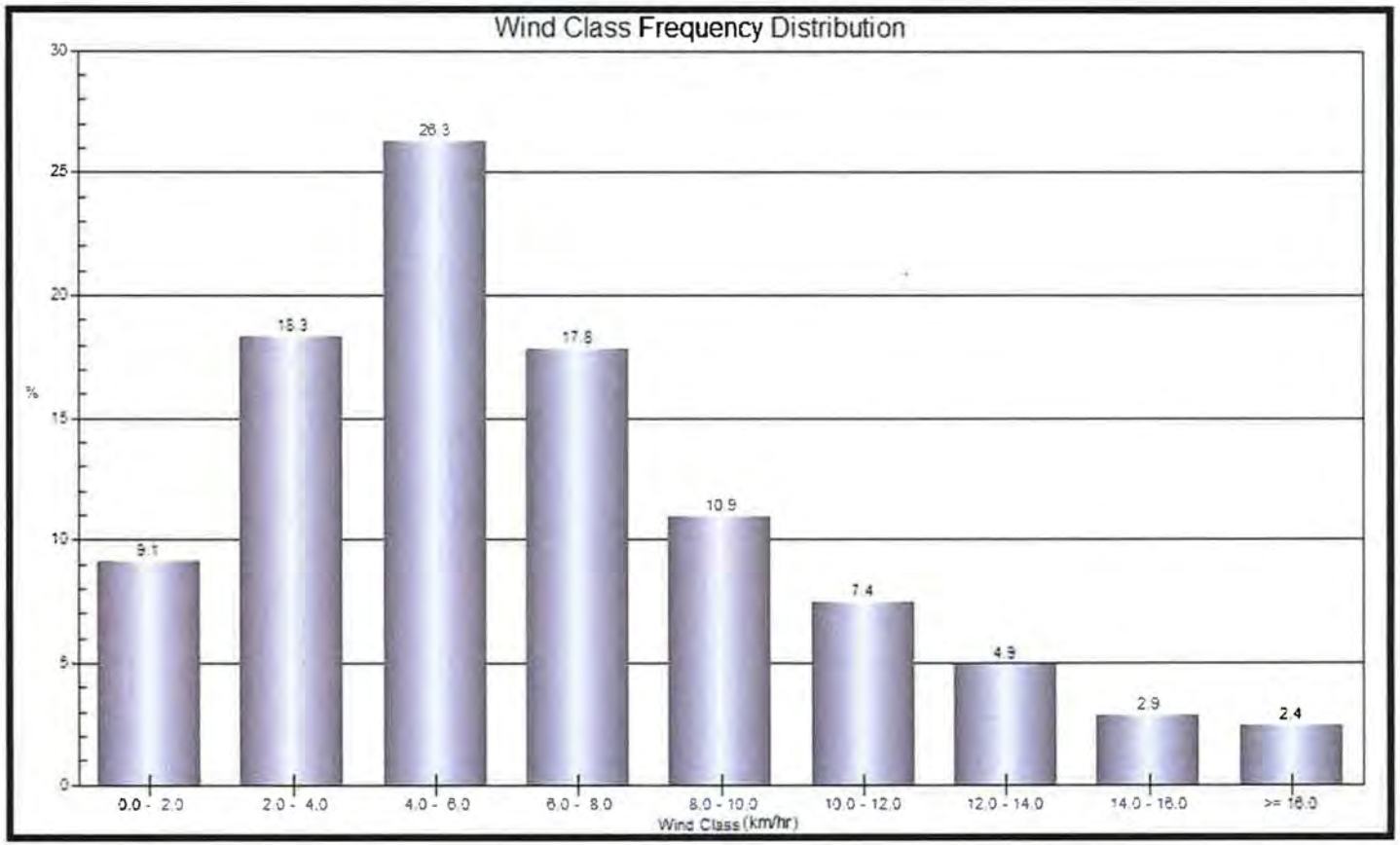


Figure 22. Wind-rose Plot of Brier Island Weather Station Data Collected Between April 1, 2011 and May 24, 2016
Note: the bars on the plot indicate the direction the wind was coming from
Data sourced from Environment Canada (2016)



20(1)

Figure 23. Frequency of Wind Speed Observed at the Brier Island Weather Station between April 1, 2011 and May 24, 2016
Data sourced from Environment Canada (2016)



Waves

The following wave height data, including Figures 24 and 25, were collected from the *Wind and Wave Climate Atlas – Volume I: The East Coast of Canada*, prepared by MacLaren Plansearch Ltd. (1991).

Wave heights of 6 m and greater are generally associated with winds speeds of 30 knots or more. Waves of less than 3 m in height were recorded 89.9% of the time while waves greater than 5 m were recorded only 1.0% of the time. Waves reaching the Fundy shore of Nova Scotia most commonly come from the southwest (24.7%) and west (18.9%). The aquaculture site at Rattling Beach is sheltered by land for these directions. The largest wave heights (i.e. > 5 m) generally come from the east. Waves coming from west, southwest, northwest, northeast, and southeast very rarely exceed 3.5 m in height. The greatest monthly average wave height for the Nova Scotian shore is 1.1 m, which occurs in the months of January, and December. Annual wave height statistics for the Nova Scotia shore are presented in Figure 24 and summary graphs of the average monthly wave heights are presented in Figure 25.

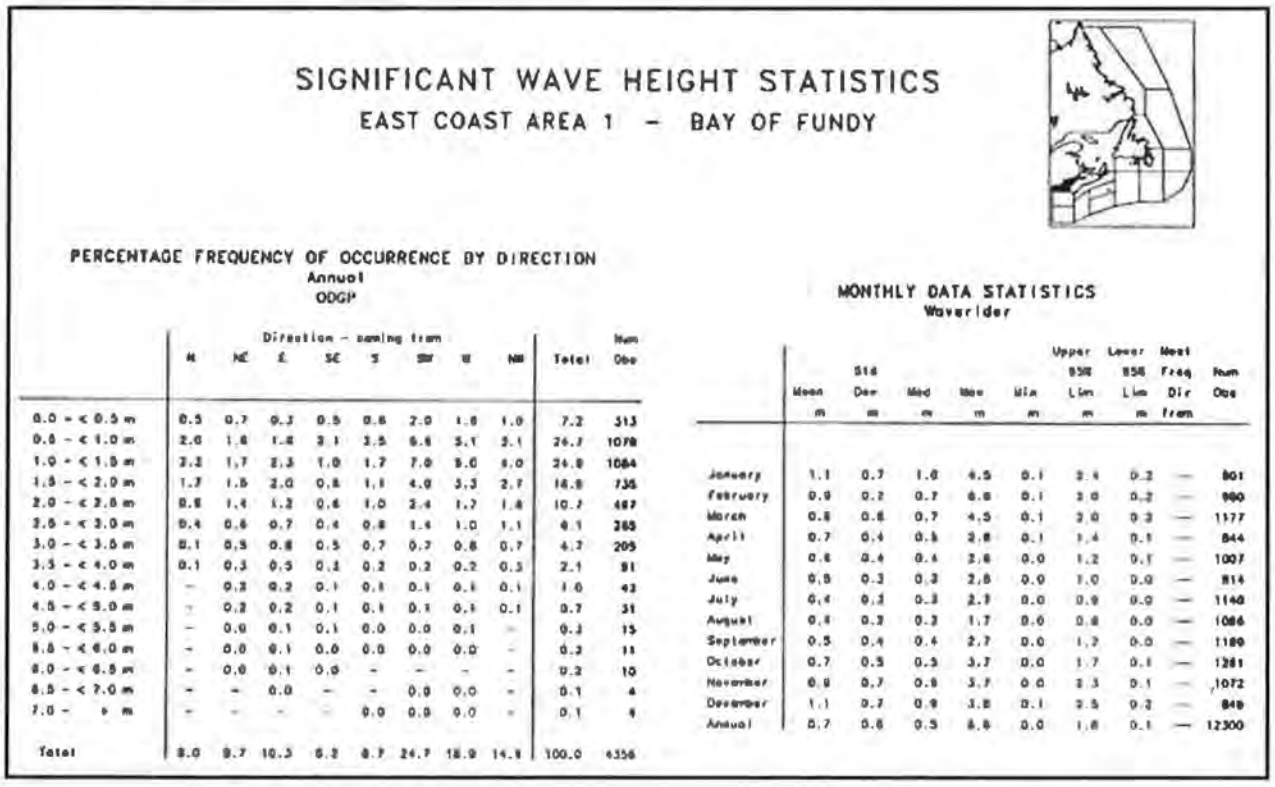
Wave height data was also obtained from the National Data Buoy Center (NOAA 2016a) to determine maximum waves. Data presented in Table 8 were collected by the Jonesport, Maine station 44027 buoy, which is located 20 nautical miles southeast of Jonesport (N44° 17' 13" W67° 18' 27").

Table 8. Wave Height Data from Buoy 44027 near Jonesport Maine

Date of Maximum Wave of the Year	Wave Height (m)	Wave Period (s)	Sustained Wind Speed (knots)	Gusts (knots)	Wind Direction
April 8, 2016	5.78	10.0	27.2	31.9	S
January 27, 2015	8.43	9.09	38.9	48.2	N
February 15, 2014	6.12	12.12	33.2	42.6	WNW
November 27, 2013	6.55	10.0	15.6	45.1	SSE
January 14, 2012	7.18	11.43	35.0	42.0	WSW
November 23, 2011	4.8	8.33	15.0	43.3	NNE
January 26, 2010	6.07	9.09	33.6	41.8	SSE
December 10, 2009	6.29	10.0	N/A	N/A	N/A
January 8, 2009	5.66	11.43	30.5	38.9	WSW
October 29, 2008	8.08	11.43	33.0	39.7	SSW

February 15, 2007	6.88	10.81	34.8	42.6	SE
October 29, 2006	7.81	11.43	36.0	43.9	SW
November 23, 2005	6.82	12.12	23.9	30.3	SSW

Figure 24. Significant Wave Height Statistics for the Fundy Shore
Note: sourced from MacLaren Plansearch Ltd. (1991)



SIGNIFICANT WAVE HEIGHT STATISTICS

EAST COAST AREA 1 - BAY OF FUNDY

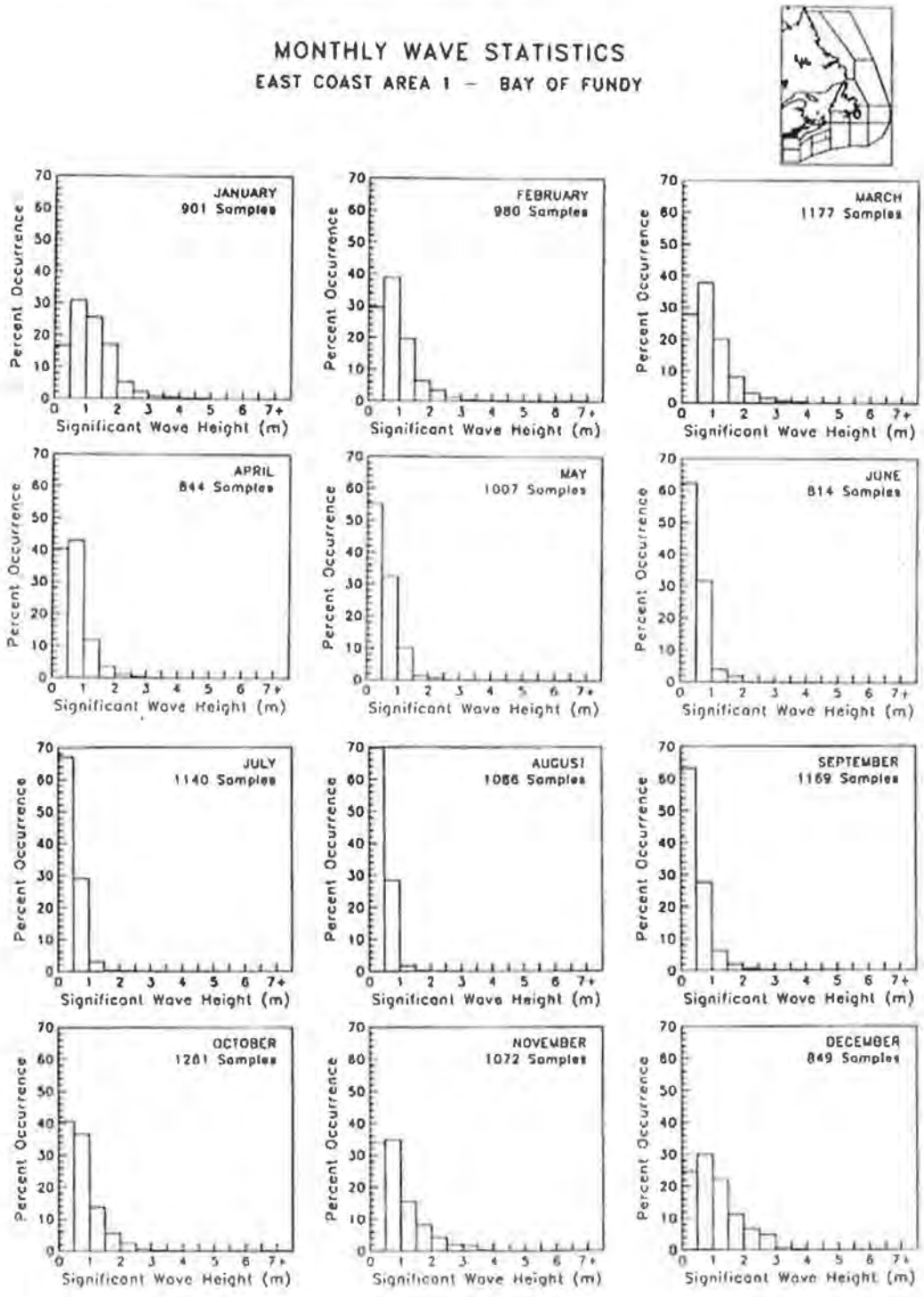
PERCENTAGE FREQUENCY OF OCCURRENCE BY DIRECTION
Annual
ODGP

	Direction - coming from									
	N	NE	E	SE	S	SW	W	NW	Total	Num Obs
0.0 - < 0.5 m	0.5	0.7	0.3	0.5	0.8	2.0	1.8	1.0	7.2	313
0.5 - < 1.0 m	2.0	1.8	1.8	3.1	3.5	6.6	5.1	3.1	26.2	1078
1.0 - < 1.5 m	2.2	1.7	2.3	1.0	1.7	7.0	5.0	6.0	26.8	1084
1.5 - < 2.0 m	1.7	1.5	2.0	0.8	1.1	4.0	3.3	2.7	16.8	735
2.0 - < 2.5 m	0.8	1.4	1.2	0.6	1.0	2.4	1.2	1.8	10.2	487
2.5 - < 3.0 m	0.4	0.6	0.7	0.4	0.8	1.4	1.0	1.1	6.1	265
3.0 - < 3.5 m	0.1	0.5	0.8	0.5	0.7	0.7	0.8	0.7	4.7	205
3.5 - < 4.0 m	0.1	0.3	0.5	0.1	0.2	0.2	0.2	0.5	2.1	91
4.0 - < 4.5 m	-	0.2	0.2	0.1	0.1	0.1	0.1	0.1	1.0	43
4.5 - < 5.0 m	-	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.7	31
5.0 - < 5.5 m	-	0.0	0.1	0.1	0.0	0.0	0.1	-	0.3	15
5.5 - < 6.0 m	-	0.0	0.1	0.0	0.0	0.0	0.0	-	0.2	11
6.0 - < 6.5 m	-	0.0	0.1	0.0	-	-	-	-	0.2	10
6.5 - < 7.0 m	-	-	0.0	-	-	0.0	0.0	-	0.1	4
7.0 - + m	-	-	-	-	0.0	0.0	0.0	-	0.1	4
Total	8.0	9.7	10.3	6.2	8.7	24.7	18.9	14.9	100.0	4356

MONTHLY DATA STATISTICS
Waverider

	Mean m	Std Dev m	Med m	Max m	Min m	Upper 95% Lim m	Lower 95% Lim m	Most Freq Dir from	Num Obs
January	1.1	0.7	1.0	4.5	0.1	2.4	0.2	—	801
February	0.9	0.2	0.7	6.8	0.1	2.0	0.2	—	980
March	0.8	0.6	0.7	4.5	0.1	2.0	0.2	—	1177
April	0.7	0.4	0.5	2.8	0.1	1.4	0.1	—	844
May	0.6	0.4	0.4	3.8	0.0	1.2	0.1	—	1007
June	0.5	0.3	0.3	2.8	0.0	1.0	0.0	—	814
July	0.4	0.3	0.3	2.9	0.0	0.9	0.0	—	1140
August	0.4	0.2	0.3	1.7	0.0	0.8	0.0	—	1086
September	0.5	0.4	0.4	2.7	0.0	1.2	0.0	—	1189
October	0.7	0.5	0.5	3.7	0.0	1.7	0.1	—	1281
November	0.9	0.7	0.8	5.7	0.0	2.3	0.1	—	1072
December	1.1	0.7	0.9	3.8	0.1	2.5	0.2	—	849
Annual	0.7	0.6	0.5	6.8	0.0	1.8	0.1	—	12300

Figure 25. Average Monthly Wave Height Statistics for the Bay of Fundy Shore
Note: sourced from MacLaren Plansearch Ltd. (1991)



Extreme Storm Events and Storm Surge

Nova Scotia is sometimes subject to extreme weather conditions. Wind and wave damage caused by storms, and ice damage during extremely low temperatures, are environmental hazards that could cause unwanted changes to the project. However, employing proper gear and using the most recent technologies for cage design and construction, as well as routine inspection and maintenance, will help prevent any unfavourable effects to the project caused by weather and climate extremes. KCS has a number of high energy sites in New Brunswick, Nova Scotia, and Newfoundland, which are exposed to strong winds and large waves. The grid and anchoring systems used at Rattling Beach have been proven successful at these high energy sites. The plastic, circular cages and grid components employed by KCS have been tested and shown to withstand wave heights of 8 m. During extreme weather conditions, personnel will not be working on the cage site. Once the extreme weather has passed, crews will be dispatched to examine the cage system and fish stock for damage. In the event damage is sustained, repairs will be carried out as necessary. Any significant damage will be reported to NSDFA.

Temperature

Temperatures at the Rattling Beach aquaculture site were recorded and collected by KCS staff during site operations. The minimum water temperature was recorded in February 2015 and was approximately 0°C. The maximum water temperature was recorded in September 2015 and was approximately 14.7°C. Figure 26 displays the historical water temperature trends from the Rattling Beach site.

Long-term temperature data for the Fundy shore area (Prince 5) were sourced from the DFO OSD Atlantic Zone Monitoring Program and are presented in Fig. 27 (Fisheries and Oceans Canada 2016). Monthly, average, temperature data provided in Fig. 28 were derived from climatology data of the DFO Maritime Oceans and Ecosystem Science (OES) project, Hydrographic Database, Subarea 55 (Fisheries and Oceans Canada 2007). Figures 27 and 28 display average and monthly water temperature data for the Fundy shore of Nova Scotia. Mean water temperatures from this data range between 1.8 and 12.7^0 C. The lowest temperatures of the year are normally experienced in February to March and the highest temperatures in August. The existing, successful, aquaculture site at Rattling Beach would indicate that the temperatures in the area are tolerable for Atlantic salmon.

Figure 26. Daily Water Temperature Data from the Rattling Beach Aquaculture Site #1039

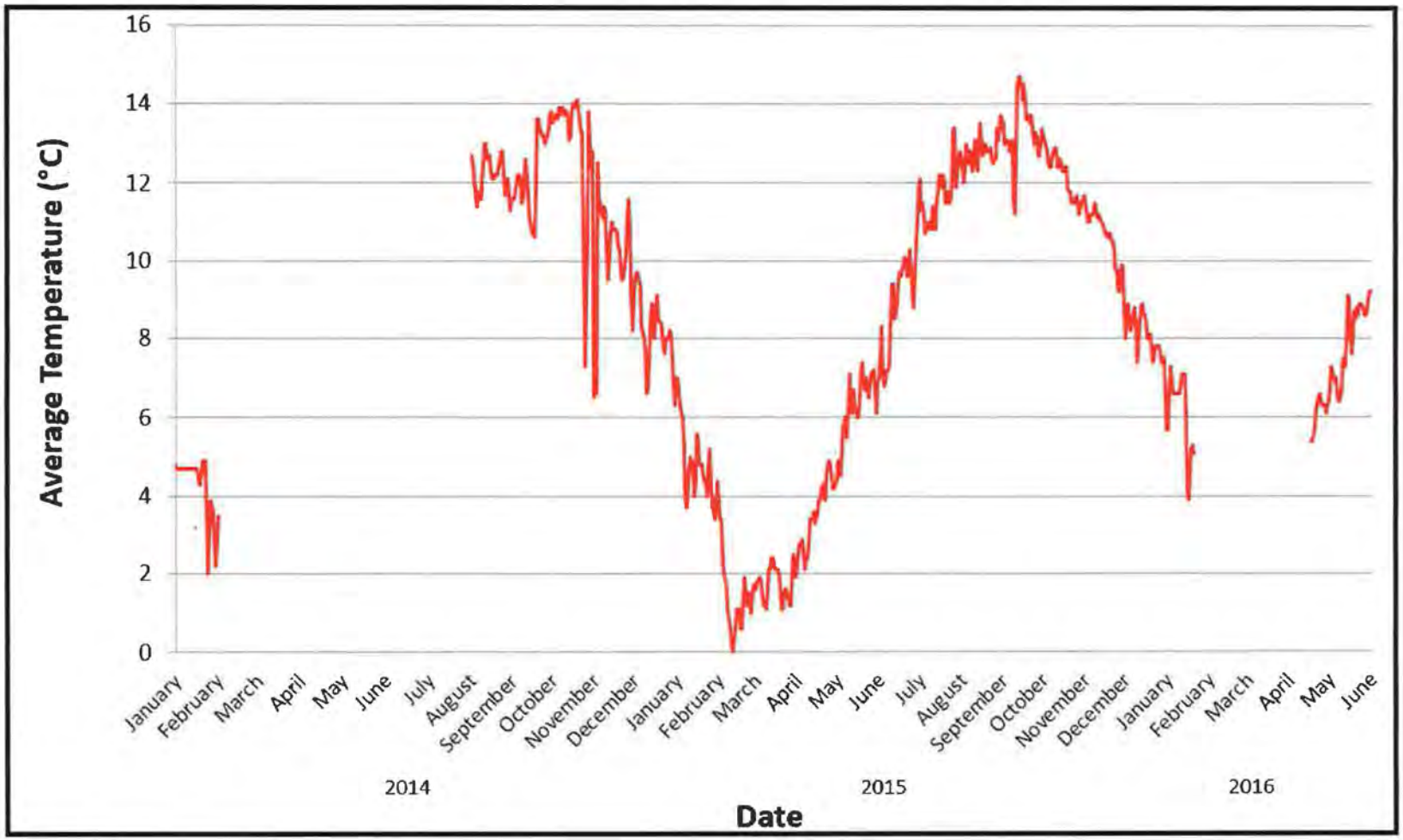


Figure 27. Average Monthly Temperature Data of OES Subarea 55 (Bay of Fundy) at 0 to 30 m Deep
Note: Data was obtained from the Oceans and Ecosystem Science website (Fisheries and Oceans 2007).

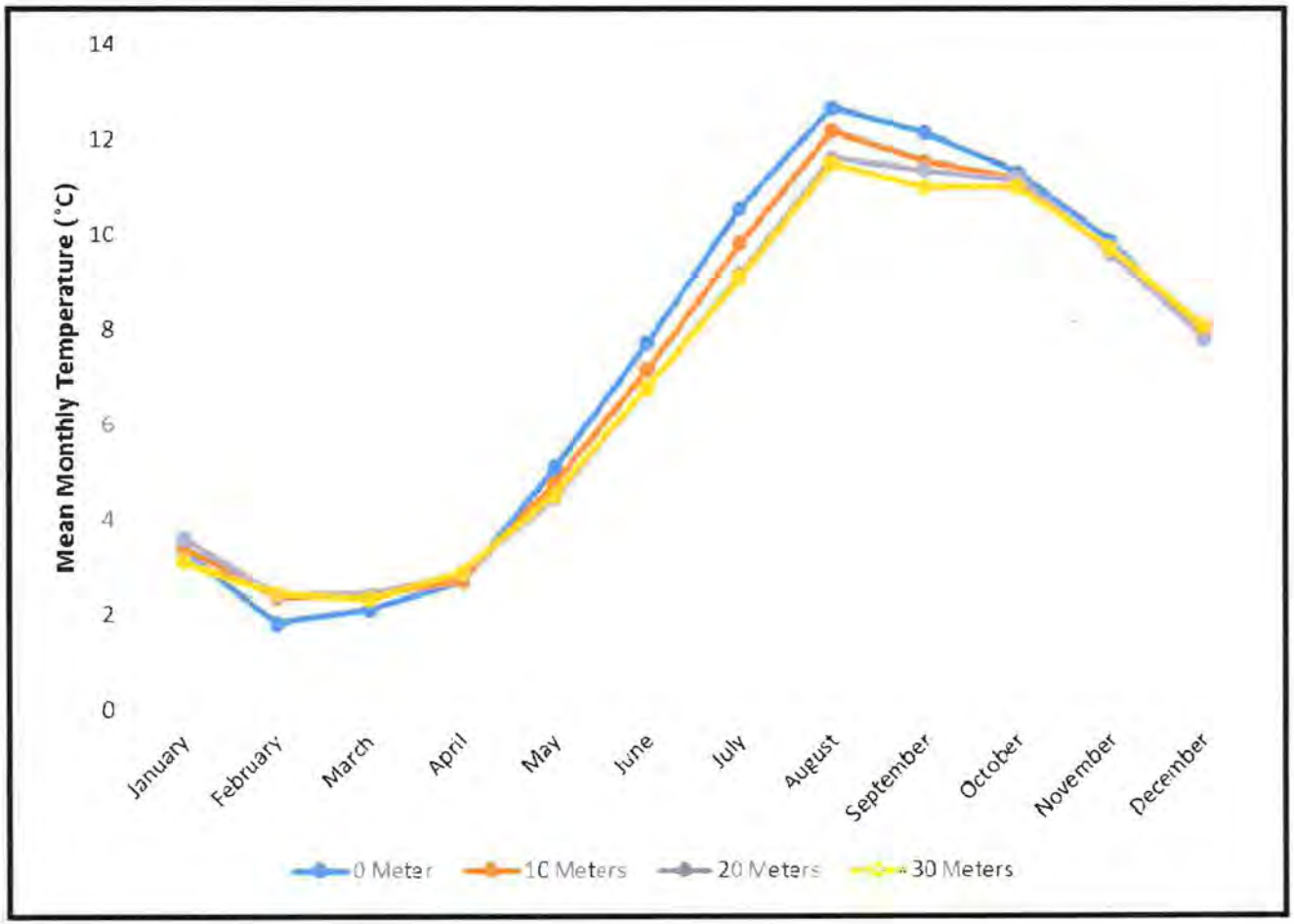
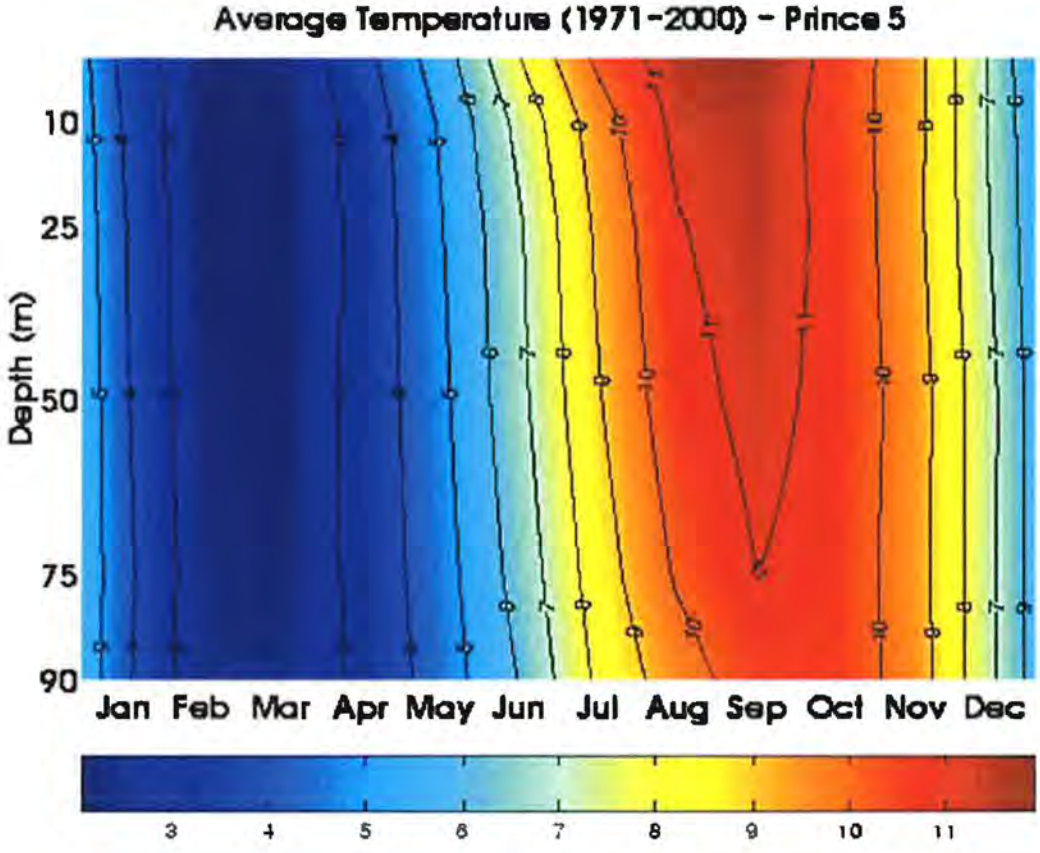


Figure 28. Contour Plot of Average Monthly Temperatures from Prince 5 Station of DFO's Atlantic Zone Monitoring Program
Note: Graph was obtained from Fisheries and Oceans Canada (2016b).



Superchill

The effects of superchill can be detrimental to fish health and may result in high mortalities. Superchill is a phenomenon caused by the cooling of seawater below the lethal temperature for Atlantic salmon (i.e. -0.75°C). Although cold temperatures cannot be entirely avoided in a northern climate, the effects of superchill may be diminished by fitting the cages with deep nets and locating cage systems in deep enough water that the fish may avoid the surface water layer which, in winter, tends to be colder than deeper water. Other mitigation strategies include avoiding stress in the fish by ceasing feeding and other activities at the cage site. These activities excite the fish and bring them up to the surface where the water is colder. KCS does not approach their cage sites or feed stock during time periods when superchill is a potential threat.

Sea Ice

Sea ice is typically not a problem in Annapolis Basin. The thirty-year frequency of presence of sea ice (Fig. 29) and predominant ice type (Fig. 30) for the Bay of Fundy and Annapolis Basin are unknown. Both Figure 29 and 30 illustrate the thirty-year averages for the week of January 29, the week that appears to have the most sea ice coverage in Nova Scotia. KCS has no intentions of deploying equipment such as ice booms near the site. KCS does, however, continuously monitor for sea ice during winter months and will take necessary precautions, if needed. Freezing spray may occasionally build up on cage structures during extreme winter conditions. When ice build-up is a concern, it can be removed by site crews.

Figure 29. Frequency of presence of sea ice in Atlantic Canada
Note: Figure sourced from Environment Canada, Canadian Ice Service (2010)

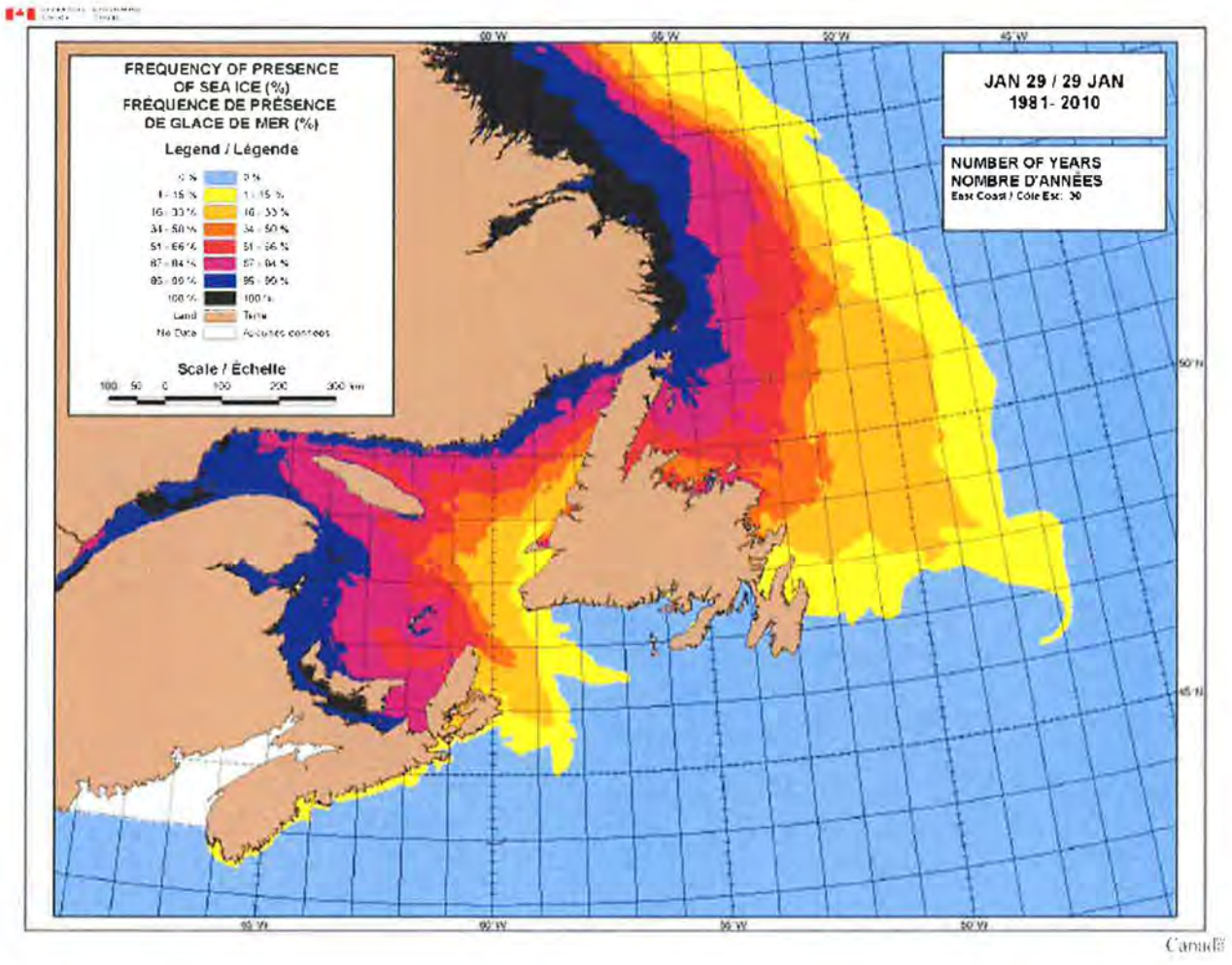
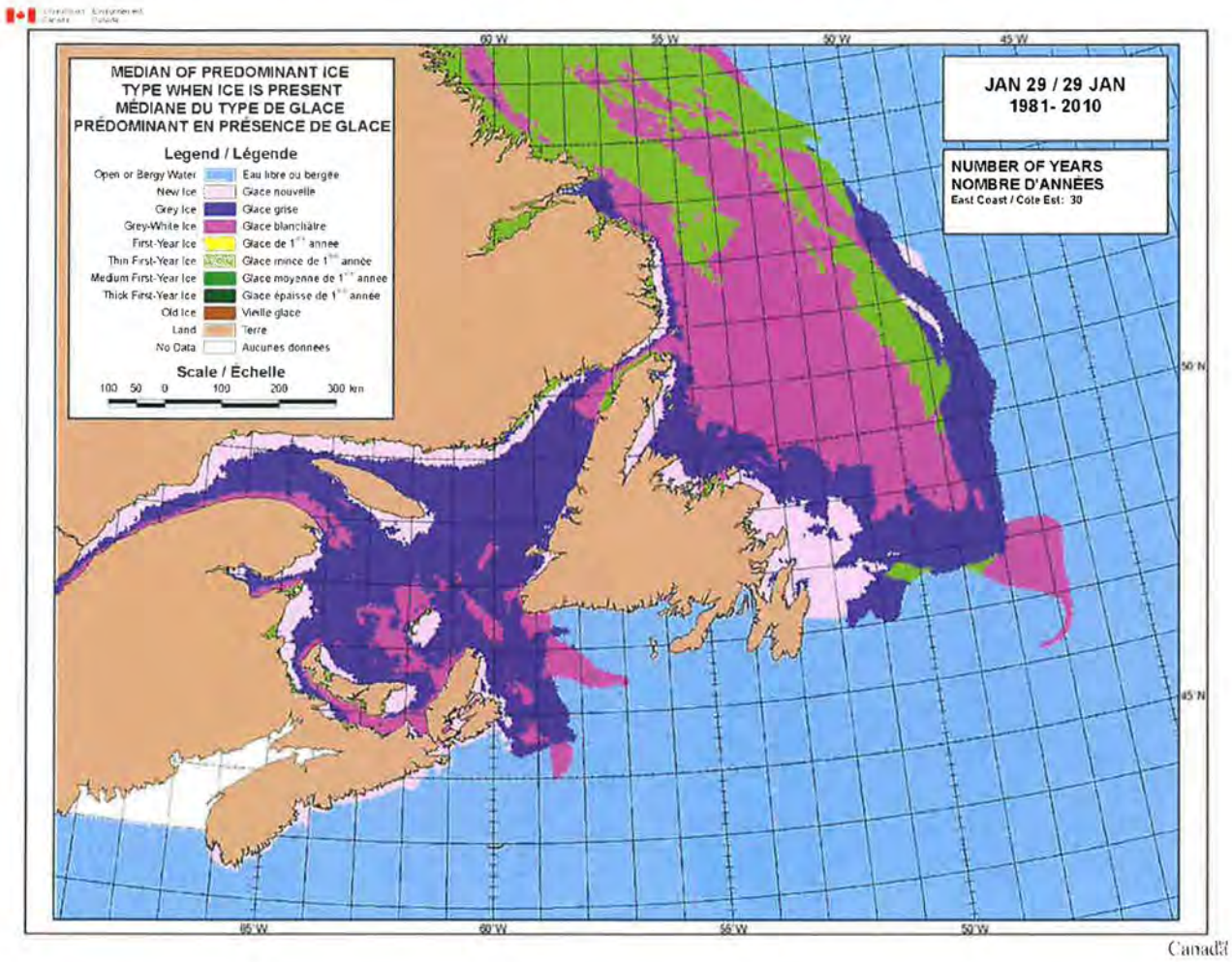


Figure 30. Median of Predominant Ice Type in Atlantic Canada
Note: Figure sourced from Environment Canada, Canadian Ice Service (2010)



Salinity

KCS reported salinities for Rattling Beach site between 30 and 32‰. According to the monthly, average, salinity data gathered from the DFO OSD Atlantic Zone Monitoring Program, (Fisheries and Oceans Canada 2016b; Fig 31) for Prince 5, Bay of Fundy, salinity ranges between 30.9 and 32.9‰. In general, salinity is lowest in April to June and highest between the months of August to December. The existing, successful, aquaculture site at Rattling Beach would indicate that the salinities in the area are tolerable for Atlantic salmon. Monthly, average, salinity data from Subarea 55 are presented in Figure 32 (Fisheries and Oceans Canada 2007).

Figure 31. Contour Plot of Average Monthly Salinity of Prince 5 Station of DFO's Atlantic Zone Monitoring Program
Note: Graph was obtained from the Fisheries and Oceans Canada (2016b), Marine Environmental Data Services website

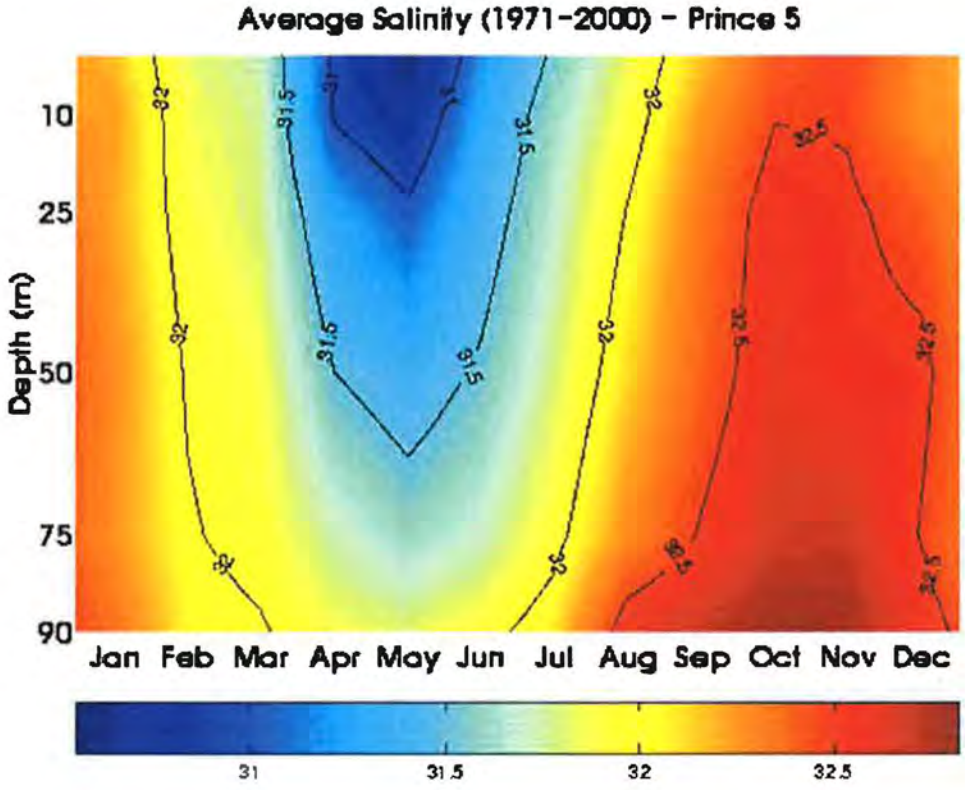
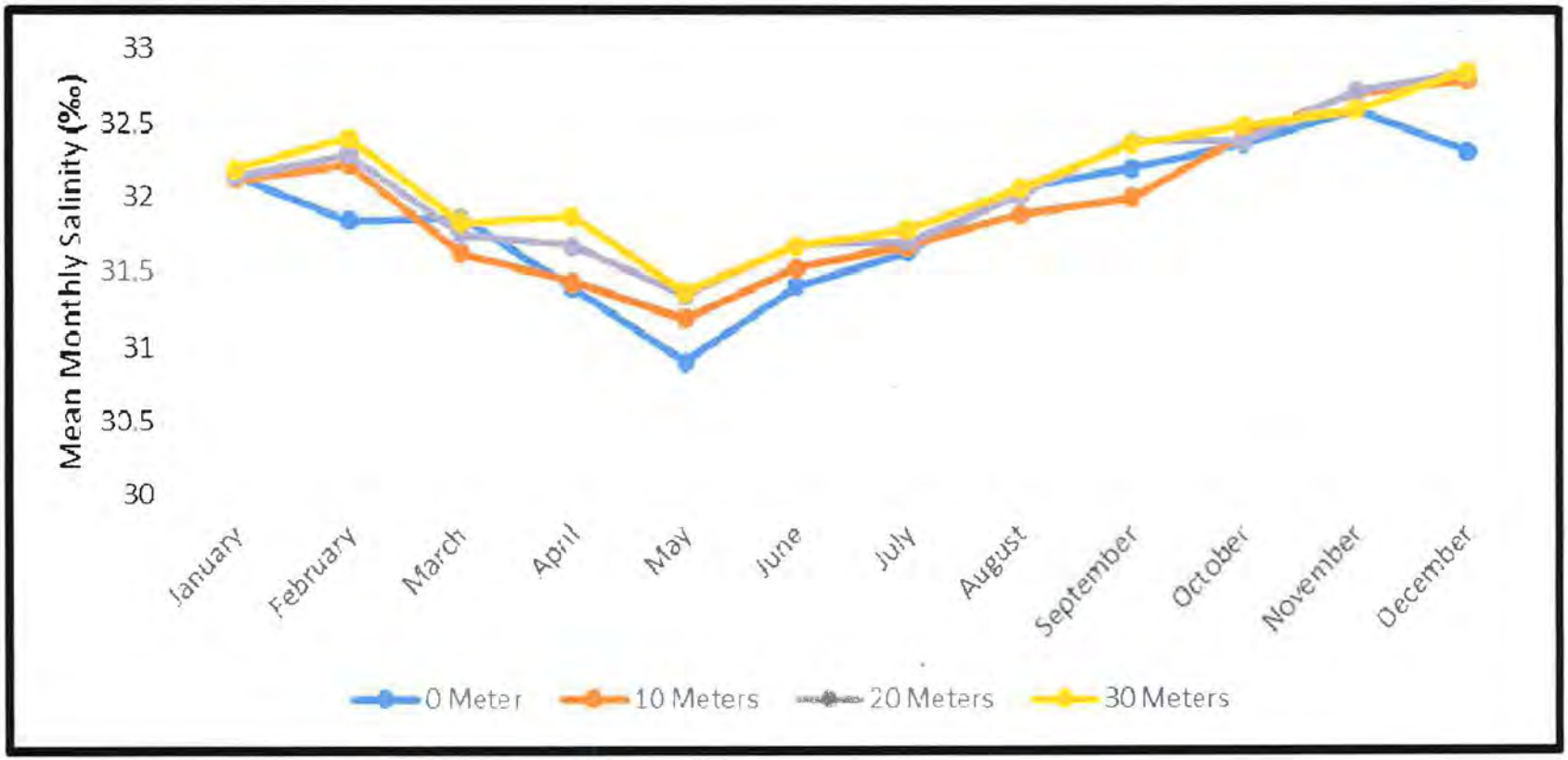


Figure 32. Average Monthly Salinity of OES Subarea 55 (Bay of Fundy) at Various Depths
Note: Data was obtained from the Oceans and Ecosystem Science website (Department of Fisheries 2007).



Tides

Based on Canadian Hydrographic Service Tide Tables (Fisheries and Oceans Canada 2016c) for Digby (Station #325), the predicted highest high tide for 2016 is 9.4 m and the lowest low tide is -0.4 m, giving a maximum tidal range of 9.8 m. Typically, the tidal range is between 6 and 9 m. In 2015, the highest high tide was 9.4 m and the lowest low tide was -0.3 m, giving a tidal range of 9.6 m. However, storm surges, should they co-occur with the highest high water, could result in higher water levels.

Currents

Collection of local current speed and direction data throughout the water column was carried out between June 29 and August 4, 2016 using a 600-kHz Acoustic Doppler Current Profiler (ADCP) deployed by NSDFA. The current meter could not be deployed at the center of the proposed lease due to the presence of gear and fish. The current meter was located ~ 100 m to the southeast of the original lease boundaries (N44° 39' 03.3" W65° 45' 14.8").

At depths 3 – 10 m above the seafloor, the majority of water flowed towards the NNE, with approximately 39% of all recorded currents travelling between 5 and 25 degrees. The depth-averaged current speed of all recorded profiles at this site was 22.65 cm/s. In depth profiles 3 – 10 m above the seafloor, the maximum recorded speed was 81.0 cm/s occurring 10 m from the bottom. The most frequently observed speeds were between 18 and 24 cm/s near the seafloor (25.3% at 3 m) and 24 and 36 cm/s within the mid water column (18.3% at 10 m). Data obtained from the upper water column did not yield reliable data with less than 75% of the data present; therefore, it was omitted from the analysis. Average current speeds significantly varied with depth, with the cell nearest to the surface having the highest occurrence of currents greater than 80 cm/s.

The maximum current speed observed was 81.0 cm/s while the minimum was 0.2 cm/s (Table 9). The overall mean current speed was 23.9 cm/s but currents in the uppermost cell presented (i.e. 10 m above the seafloor) were considerably faster at 32.8 cm/s. This may have been due to the influence of the wind. Overall, current speeds < 5 cm/s occurred 1.94% of the time. Graphs illustrating the current directions and current speed frequency distributions are located in Appendix A.

Table 9. Current Data Summary Statistics for Rattling Beach

Rattling Beach Depth from Seafloor (m)	Current Speed Statistics Mean (mm/s)	Min (mm/s)	Max (mm/s)	Mode (mm/s)	< 2 cm/s (%)	< 5 cm/s (%)	Directional Modes (Cardinal or Intercardinal)
3	198.1	24	516	183	0	0.83	NNE
4	213	4	559	191	0	1.04	NNE
5	225	4	601	203	0	1.71	NNE
6	232	4	644	117	0	2.14	NNE
7	240	2	675	171	0	2.3	NNE
8	263.3	3	715	295	0	2.01	NNE
9	292.4	9	751	407	0	3.56	NNE
10	327.9	7	810	331	0	1.94	NNE
Overall	**238.7**	**7**	**659**	**237**	**0**	**1.94**	**NNE**

Chemical Oceanography

Oxygen

Long-term, monthly, average, dissolved-oxygen data presented in Figure 33 are from the Fundy Prince 5 Station located at 44.93°N 66.85°W (Fisheries and Oceans 2016b). This was the closest monitoring station to the proposed location and was therefore chosen over alternate monitoring stations as a source of oceanographic data. From this averaged data, the lowest dissolved oxygen appeared in September - November, while the highest concentrations of dissolved oxygen were present in March - May.

Dissolved oxygen concentrations at the Rattling Beach aquaculture site were collected and reported by KCS staff during the site operations. The minimum DO value recorded was approximately 0 mg/L; however, an equipment malfunction is suspected for this date making the lowest, reliable concentration 7.41 mg/L. The maximum concentration recorded was approximately 13.4 mg/L. For adult salmon, the lower limit of DO for optimal growth is generally accepted as 6 mg/L. The Rattling site typically displays DO values well above this threshold. Figure 34 illustrates the historical, DO trends from the Rattling Beach site.

Figure 33. Dissolved Oxygen Concentrations as Measured at the Prince 5 Station
Note: Graph was obtained from the Fisheries and Oceans Canada (2016b), Marine Environmental Data Services Website

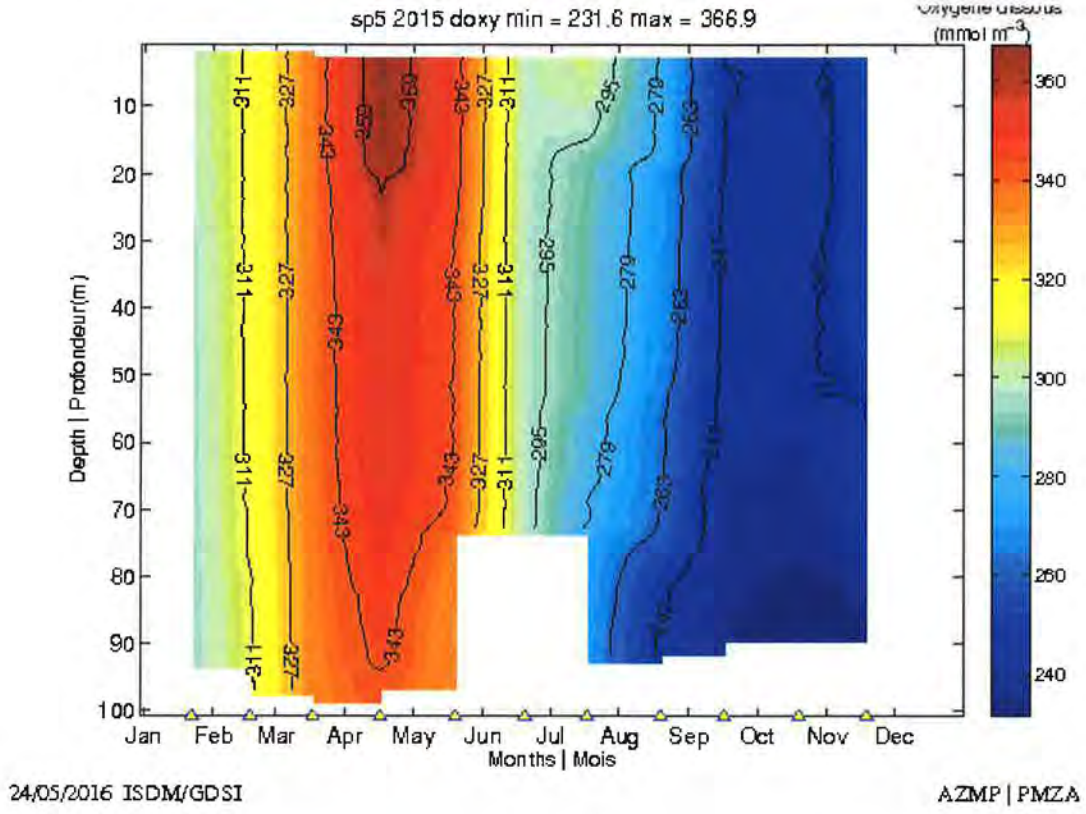
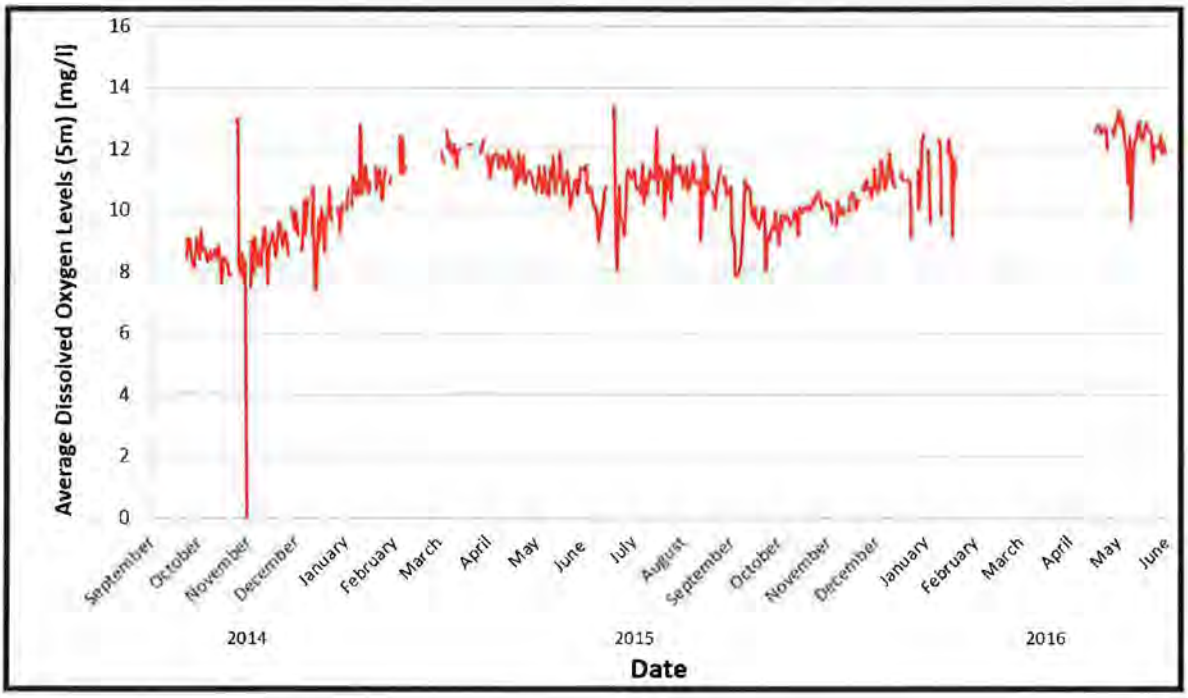


Figure 34. Dissolved Oxygen Levels as Measured at the Rattling Beach Aquaculture Site #1039



Biological Oceanography

Harmful Algal Blooms

The occurrence of a harmful algal bloom (HAB) is sometimes unpredictable, but the effects on fish farms may be successfully avoided or managed by a variety of means. The Harmful Algae Monitoring Program (HAMP) was established in 1999 in order to cope with the effects of harmful algae throughout the aquaculture industry (Fisheries and Oceans Canada 2013b). Microscopic surveillance of water samples from finfish farms has produced a series of data, aiding in the prediction of algal blooms in the vicinity of the aquaculture cages (Fisheries and Oceans Canada 2013b). Research continues to be conducted on algal blooms in order to better understand and predict HABs (Fisheries and Oceans Canada 2013b). This research serves to identify the species of algae, cultivate it within a lab environment, and document the trends of the blooms (Fisheries and Oceans Canada 2013b).

There are five general strategies that function to intervene with HABs; mechanical, biological, chemical, genetic, and environmental control (NCBI 2009). Mechanical control involves the removal of HAB species by dispersing clay over the water surface (NCBI 2009). The clay and algae aggregate and settle to the seafloor (NCBI 2009). Biological control consists of using various pathogens or species of fauna to destroy or filter the harmful algae out of the surrounding water (NCBI 2009). Although biological control is considered, there are many logistical issues with the release of another species into a foreign area, and it is rarely used (NCBI 2009). Chemical control involves the use of chemicals or minerals toxic to the HAB

(NCBI 2009). Although copper sulphate has been used in the past, chemical interventions are generally dismissed as they would require extensive research to identify a chemical or mineral that would actively keep algae out of the finfish cages while not causing a widespread effect on the environment and all other organisms in the area (NCBI 2009). Genetic control involves the genetic engineering of exotic or newly introduced species in order to adjust the environmental tolerances, reproduction rates, or other aspects of a pest within the area of the aquaculture sites (NCBI 2009). Issues with this form of control are similar to those of the biological control in that the negative impacts of the integrated species may worsen the condition of the aquaculture site (NCBI 2009). For these reasons, the use of genetic control is not likely to gain approval (NCBI 2009). The environmental manipulation of the area in which a HAB occurs involves the modification of either the physical or chemical aspects of the environment (NCBI 2009). This may include the alteration of nutrient levels in the water with the use of pollution control or the alteration of the physical properties in the area such as water circulation (NCBI 2009).

It may be possible to detect the beginning of a HAB event by monitoring fish behaviour. In some cases, fish will reduce or stop feeding, be less energetic, orient themselves peculiarly in the water column (such as swimming near the cage bottom), or exhibit odd swimming behaviour and lack of equilibrium (Rensel and Whyte 2003). Cage site staff will report any odd behaviour of the salmon to KCS management.

Due to the relatively shallow water, mechanical and physical measures of bloom intervention are not feasible at the marine site. KCS will instead monitor water samples on a regular basis during the months harmful algae may be present (typically mid-April until November). Should concentrations of harmful algal cells become a cause for concern, feeding activities would cease in order to allow the fish to rest and retreat to the depths of the cages away from surface-oriented blooms.

e. Other Users of the Public Waters

Geology

In the area of Annapolis Basin, the bedrock geology consists of alluvial and lacustrine clastic sedimentary rocks and local basalt, granite, syenite, gabbro, and minor felsic volcanic rocks of the Newark Supergroup (Hibbard et al. 2006). Closest to the Rattling Beach marine site are the North Mountain (basalt) and Blomidon (lacustrine playa, sandflat, and deltaic clastic rocks, minor aeolian sandstone and conglomaerate) formations (Keppie 2000).

Archaeology

In the past, impacts to paleontological resources were assessed by the Nova Scotia Museum. An internal provincial review of new and existing aquaculture sites will be examined by Nova Scotia Communities, Culture, and Heritage (CCH) (S. Weseloh-McKeane, pers. com.). In general, most cage-based aquaculture sites, like Rattling Beach, cause minimal damage to submerged archaeological resources as the anchors are the only portion of the site in contact with the seafloor.

Shipwrecks

Several shipwrecks may be in the area of the proposed site (Maritime Museum of the Atlantic 2016); however, detailed locations or coordinates are not available. Estimates of some of the wreck locations are shown on Figure 2. A number of shipwrecks reported in the Annapolis and Digby areas took place within Annapolis Basin. These include, but are not limited to, the *Clarence A Shafner*, the *James Muir*, the *Lizzie Wharton*, the *Lorne B. Snow*, the *Marie Delphin*, the *Martha D. Mclain*, the *Meldon G.*, the *Ora*, the *Ronald Eugene*, the *Robert Leonard*, the *Singer*, and the *Wanda Elaine*.

The *Clarence A. Shafner* was stranded in Annapolis basin due to broken moorings in 1902 while on a voyage to Cuba. The schooner was considered a partial loss. In 1874, a barque, known as the *James Muir*, was stranded in Pond Cove of Bear Island in Annapolis Basin due to stress of weather; the ship was declared a partial loss, with approximately $4500 of cargo lost. The schooner, *Lizzie Warton*, was in Annapolis Basin when it caught fire in 1901. The disaster resulted in the total loss of the ship along with $800 worth of cargo. While out on a fishing voyage in 1914, the *Lorne B. Snow* was stranded in Annapolis Basin by unknown causes. The event led to the partial loss of the schooner. Similarly, the *Marie Delphin* was stranded at Hardy's Point in Annapolis Basin in 1894 for unknown reasons. The event led to the total loss of the schooner. The wreck of the *Martha D Mclain* at Sulis Point of Annapolis Basin was induced by stress of weather in 1899; the schooner was on a fishing voyage when it suffered a total loss. In 1968, the *Meldon G.* foundered in Annapolis Basin resulting in the total loss of the ship. The brigantine, *Ora*, was wrecked in 1902 in Annapolis Basin due to stress of weather; the result was a partial loss. The *Ronald Eugene* was stranded at Man O' War Rock in Annapolis Basin in 1948 due to unknown causes resulting in the total loss of the ship. Also due to unknown causes, the *Robert Leonard* was stranded in Annapolis Basin in 1879; the event was deemed a partial loss. The fishing vessel, *Singer*, was lost due to heavy seas and stress of weather when it smashed ashore in Annapolis Basin in 1972. Also in 1972, the engine room of the *Wanda Elaine* caught fire while the ship was in Annapolis Basin, resulting in the wreckage and total loss of the fishing vessel.

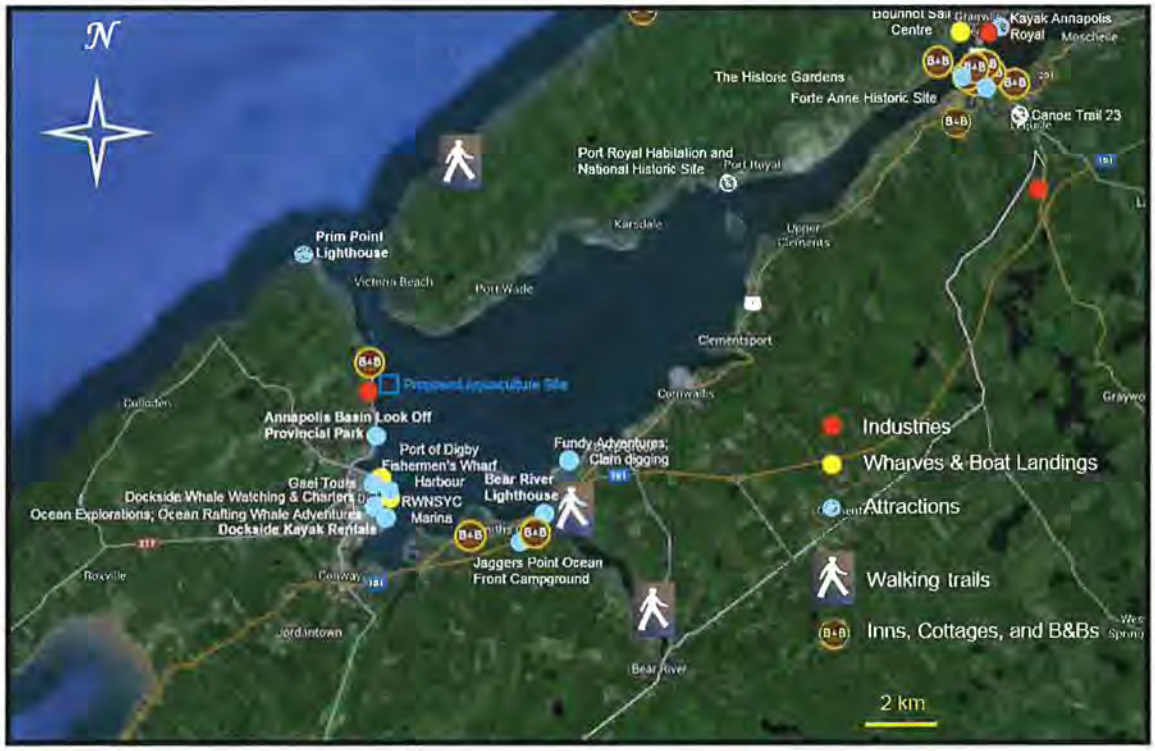
Recreation and Tourism

The Annapolis Basin area offers an extensive list of recreational and tourism activities. Perhaps the most well-known tourist attraction in the area of Annapolis Basin is whale watching tours. Opportunities are offered by Brier Island Whale Watching and Seabird Cruises, Ocean Explorations, Mariner Cruises Whale Watching and Seabird Tour, Gael Tours, Dockside Whale Watching & Charters, and Fundy Adventures. The area of Annapolis Basin is also known to have tourism activities such as yachting out of the Royal Western Nova Scotia Yacht Club & Marina, located in Digby (~2.7 km from proposed site). Many different provincial and historic parks are around Annapolis Basin. Provincial Parks in the area include the Central Grove Provincial Park located on Digby neck and the Annapolis Basin Look Off in Digby (~1.2 km from proposed site). Historic sites include the Port Royal Habitation and National Historic Site, the Forte Anne Historic Site, and the Annapolis Royal Historic Gardens. Kayaking and canoeing rentals and routes for the Annapolis River, Bear River, and other rivers in the area are offered by Canoe Annapolis County. Private kayak tours are also offered throughout Annapolis Basin by Kayak Annapolis Royal and Dockside Kayak Rentals. There are a number

of lighthouses in the areas of Annapolis and Digby county, including the Prim Point Lighthouse in Victoria Park (~ 4.5 km from proposed site), the Bear River Lighthouse in Smiths Cove (~ 6.2 km from proposed site), and the lighthouse located in Gilberts Cove. Camping areas within Annapolis and Digby Counties are provided by Digby Campground and Fun Park, Fundy Trail Campground and Cottages in Delaps Cove, and Jaggers Point Ocean Front Campground in Smiths Cove (~ 6.2 km from proposed site). Public beaches in the general vicinity of the Annapolis Basin include Sandy Cove Beach, a well-known tourist destination, and Smiths Cove, where clam digging is offered by the team of Fundy Adventures (~ 6.5 km from proposed site). Walking trails can be found in the Historical Association of Annapolis Royal's Historic Walking Trails. Hiking opportunities are also available on a large trail extending from the tail of Bear River in Smiths Cove to Harbourview (~ 6.6 km from proposed site). Many tourists come to enjoy freshly caught local seafood, which is offered at a number of restaurants around Annapolis Basin. Some of the more famous restaurants include Restaurant Composé, in Annapolis Royal, and Shore Road Seafood, in Hillsburn.

Annapolis Royal offers many different places to stay the night, including the Croft House Bed and Breakfast, The Garrison House, the Hillside House Inn, the Annapolis Royal Inn, At the Turret Bed & Breakfast, The Bailey House, and The Queen Anne Inn. Other Bed and Breakfasts in the area of Annapolis Basin include the Seafaring Maiden near Granville Ferry, the Harbour View Inn in Smiths Cove, Headley House by the Sea in Smiths Cove, and Ocean Hillside Bed and Breakfast in Digby. Figure 35 illustrates a number of tourist and recreational attractions in the area of the Rattling Beach aquaculture site.

Figure 35. Tourism and Recreation



Marine Protected Areas

As defined by DFO, marine protected areas (MPAs) are geographic areas dedicated to and managed for the long-term conservation of nature. Fisheries and Oceans Canada establishes and manages MPAs under the *Oceans Act* in order to conserve numerous aspects of the areas. The aspects include, but are not limited to, commercial and non-commercial fishery resources, endangered or threatened marine species, unique habitats and other marine resources, or habitats necessary to fulfill the Minister's mandate of scientific research (Fisheries and Oceans Canada 2016d).

The nearest MPAs to the proposed aquaculture site include the Gully, located 200 km off of Nova Scotia and east of Sable Island, and the Musquash Estuary, located just 20 km southwest of Saint John, New Brunswick.

The Sable Gully is a submarine canyon formed by glacial ice erosion over thousands of years. Surrounding the Sable Gully is an important and highly functional area, in which a number of commercial fisheries are supported, and it is of great importance to the oil and gas industry. The MPA is a crucial habitat to a number of endangered or threatened species inhabiting the Scotian Shelf. Some of these species live in the Sable Gully year round, including the Northern Bottlenose whale. Many endangered or threatened species such as various species of sharks, tuna, marlin, and seabirds are drawn to the area due to it copious amounts of plankton. The slopes and floor of the Sable Gully are known to have various crab species, sea pens, anemones, brittle stars, and a large variety of cold-water coral. Conservational efforts are in place as the area is used for continuous research and monitoring. The conservation efforts of DFO include the collection and analysis of data, regulatory monitoring of the shipping, fishing, research, tourism, and oil-and-gas activities in the surrounding area, development of regulation and industry codes, provision of educational activities at the Bedford Institute of Oceanography, and the evaluation and reporting required to produce a MPA management plan.

The Musquash Estuary is conserved by DFO, with the help of the management and owners of the surrounding area including Ducks Unlimited Canada, the Eastern Habitat Joint Venture, the Nature Conservancy of Canada, the Province of New Brunswick, and the Government of Canada. Conservational efforts for the area include the production of a management plan to maintain the productivity and biodiversity and reduce any human-caused modification to the habitat.

Significance of Proposed Area to SARA

There are a number of species found in Nova Scotia and the Atlantic Ocean that are listed by COSEWIC, the Government of Canada *Species at Risk Act*, or the *Nova Scotia Endangered Species Act* as either endangered, threatened, or of special concern/vulnerable. Tables 10 - 13 list those species, their status, and their occurrence in the study area.

Table 10. Endangered Species in Nova Scotia and the Atlantic Ocean
Note: Unless otherwise specified, the information in the following table was derived from the Species at Risk Public Registry (Nova Scotia Canada 2016)

COMMON NAME	SCIENTIFIC NAME	COMMENTS
Endangered Species		
Atlantic whitefish	*Coregonus huntsmani*	-Last COSEWIC designation (Nov 2010): endangered -Historically found only in the Tusket and Petite Rivière watersheds, and their adjacent estuaries and bays, but was extirpated from the Tusket River system sometime after 1982 (Fisheries and Oceans Canada 2006) -Poor damming practices and insufficient fish ladders have led to declines (Fisheries and Oceans Canada 2010) -Protected under the *Species at Risk Act* (Schedule 1)
Blue whale	*Balaenoptera musculus*	-Last COSEWIC designation (May 2012): endangered -Blue whales range widely, inhabiting both coastal waters and the open ocean. Individuals belonging to the Atlantic population are frequently observed in estuaries and shallow coastal zones where the mixing of waters ensures high productivity of krill -Protected under the federal *Species at Risk Act* (Schedule 1) and the Marine Mammals Regulations, which fall under the *Fisheries Act*
Eskimo curlew	*Numenius borealis*	-Last COSEWIC status (Nov 2009): endangered -May be extinct -Occasionally staged in the Maritimes; diet included coastal shrimp-like invertebrates -Protected under the *Species at Risk Act* (Schedule 1) and the *Migratory Birds Convention Act*
Leatherback sea turtle (Atlantic population)	*Dermochelys coriacea*	-Last COSEWIC designation (May 2012): endangered -Is the most common sea turtle recorded in Nova Scotian coastal waters (NS Museum 2016) -Atlantic Canada supports one of the largest seasonal foraging populations of leatherbacks in the Atlantic (NOAA 2016b) -The most common sea turtle recorded in Nova Scotian coastal waters (NS Museum)

Little brown myotis	*Myotis lucifugus*	-Last COSEWIC designation (Nov 2013): endangered -Protected under the federal *Species at Risk Act* (Schedule 1) -Largest threat to the bat is white-nose syndrome, a fungal infection
North Atlantic right whale	*Eubalaena glacialis*	-Last COSEWIC designation (Nov 2013): endangered -Summer and fall occurrences in the offshore area called Grand Manan Basin -Protected under the federal *Species at Risk Act* (Schedule 1) and under the Marine Mammal Regulations under the *Fisheries Act* -Not known to frequent the study area
Northern myotis	*Myotis septentrionalis*	-Last COSEWIC designation: (Nov 2013): endangered -Protected under the federal *Species at Risk Act* (Schedule 1) -Largest threat to the bat is white-nose syndrome, a fungal infection
Pink Coreopsis	*Coreopsis rosea*	-Last COSEWIC designation (Nov 2012): Endangered -Occurs along the eastern seaboard of United States and southwestern Nova Scotia sites; Salmon Lake, Willson Lake, and Bennetts Lake and Tusket River Valley -Protected under the federal *Species at Risk Act* (Schedule 1) -Protected provincially as an endangered species by the *NS Endangered Species Act*
Piping plover	*Charadrius melodus*	-Last COSEWIC designation (Nov 2013): endangered -Nests above high water mark on exposed gravel or sandy beaches -On the Atlantic coast they often nest in association with small cobble and other small beach debris on ocean beaches, sand spits or barrier beaches; they also forage for food on these beaches -Protected under the federal *Species at Risk Act* (Schedule 1), the federal *Migratory Birds Convention Act* and the *Nova Scotia Endangered Species Act* -No known beaches in the vicinity of the site (BSC 2014)

Plymouth Gentian	*Sabatia kennedyana*	-Last COSEWIC designation (Nov 2012); Endangered -Occurs in Massachusetts, North Carolina, South Caroline, Rhode Island, and the shorelines of eight lakes with Nova Scotia's Tusket River Valley and the Annis River system -Largest population survives within the Tusket River Nature Preserve -Protected under the federal *Species at Risk Act* (Schedule 1) -Protected provincially as an endangered species by the *NS Endangered Species Act*
Red knot rufa	*Calidris canutus rufa*	-Last COSEWIC designation (Apr 2007): endangered -Migratory stopovers are vast coastal zones swept by tides twice a day, usually sandflats but sometimes mudflats. In these areas, the birds feed on molluscs, crustaceans, and other invertebrates. The species also frequents peat-rich banks, salt marshes, brackish lagoons, mangrove areas, and mussel beds -Protected under the federal *Species at Risk Act* (Schedule 1) and the *Nova Scotia Endangered Species Act* -Proximity to the study area is unknown
Roseate tern	*Sterna dougallii*	-Last COSEWIC designation (Apr 2009): endangered -2 largest colonies are at The Brothers and Country Islands -Protected under the federal *Species at Risk Act* (Schedule 1), the federal *Migratory Birds Convention Act*, and the *Nova Scotia Endangered Species Act* -Not known to occur near the study area (BSC 2014)
Tri-coloured bat	*Perimyotis subflavus*	-Last COSEWIC designation (Nov 2013): endangered -One of the smallest bats in North America -Declines of more than 75% in Eastern Canada; expected to continue to decline due to fungal infections (COSEWIC 2013a) -Largest threat to the bat is white-nose syndrome, a fungal infection -Protected under the federal *Species a Risk Act*

Vole ears lichen	*Erioderma mollissimum*	-Last COSEWIC designation (Nov 2009): endangered -It inhabits cool, humid, and coastal conifer forests dominated by balsam fir (COSEWIC 2009b) -Protected under the federal *Species at Risk Act* (Schedule 1) -Not known to be in the project area
White shark	*Carcharodon carcharias*	-Last COSEWIC designation (Apr 2006): endangered -Occurs in both inshore and offshore waters; ranges in depth from just below the surface to just above the bottom, down to a depth of at least 1,280 m -It occurs in the breakers off sandy beaches, off rocky shores, and readily enters enclosed bays, lagoons, harbours, and estuaries, but does not penetrate brackish or fresh waters to any extent -No federal or provincial laws explicitly protect white sharks in Canadian waters; however, it is given SARA Schedule 1 status

Table 11. Threatened Species in Nova Scotia and the Atlantic Ocean
Note: Unless otherwise specified, the information in the following table was derived from the Species at Risk Public Registry (Nova Scotia Canada 2016)

COMMON NAME	SCIENTIFIC NAME	COMMENTS
Threatened Species		
Canada warbler	*Wilsonia canadensis*	-Last COSEWIC designation (Apr 2008): threatened -Found in a variety of forest types, but it is most abundant in wet, mixed deciduous-coniferous forest with a well-developed shrub layer -Protected under the *Species at Risk Act* (Schedule 1) and the *Migratory Birds Convention Act, 1994* -Protected under *Canada National Parks* Act -Confirmed sightings throughout the Annapolis Basin area (BSC 2014)

Chimney swift	*Chaetura pelagica*	-Last COSEWIC status (Apr 2007): threatened -The species breeds in Nova Scotia -Roosts in chimneys, crevices, caves, and hollow trees -Protected under the *Species at Risk Act* (Schedule 1), the *Migratory Birds Convention Act, 1994* and the *Nova Scotia Endangered Species Act* -Confirmed sightings throughout the Annapolis Basin area (BSC 2014)
Common nighthawk	*Chordeiles minor*	-Last COSEWIC designation (Apr 2007): threatened -Nests in a wide range of open, vegetation-free habitats including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks; also inhabits mixed and coniferous forests -Protected under the *Species at Risk Act* (Schedule 1), the *Migratory Birds Convention Act, 1994* and the *Nova Scotia Endangered Species Act* -Confirmed sightings ~ 4 km south of the site (BSC 2014)
Eastern whip-poor-will	*Caprimulgus vociferus*	-Last COSEWIC designation (Apr 2009): Threatened -Prefers to nest in semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances -Protected under the federal *Species at Risk Act* (Schedule 1) and the *Migratory Birds Convention Act, 1994* -No known sightings in the vicinity of the proposed project (BSC 2014)
Least bittern	*Ixobrychus exilis*	-Last COSEWIC designation (Apr 2009): threatened -Prefers large marshes with relatively stable water levels throughout the nesting period -Wintering habitat includes emergent marshes, like those used for breeding, and also brackish and saline swamps -Protected by the *Canada National Parks* Act -Protected under the federal *Species at Risk Act* and the *Migratory Birds Convention Act, 1994* -No known sightings in the vicinity of the proposed project (BSC 2014)

Olive-sided flycatcher	*Contopus cooperi*	-Last COSEWIC designation (Nov 2007): Threatened -Breeds in scattered locations throughout most of forested Canada -Most often associated with open areas containing tall, live trees or snags for perching -Protected under the federal *Species at Risk Act* (Schedule 1) and the *Migratory Birds Convention Act, 1994* -Confirmed sightings ~ 4 km south of the site (BSC 2014)
Sweet Pepperbush	*Clethra alnifolia*	-Last COSEWIC designation (May 2014): Threatened -Ranges from Texas and Florida to northern Maine, along with southwestern Nova Scotia in Belliveau Lake of Digby County, Louis Lake and the Canoe Lakes of Yarmouth County, and Mill Lake, Mudflat Lake, and Mary Lake of Annapolis County -Occurs on exposed, gravel ridges created by ice movement on lake margins -Protected by federal *Species at Risk Act* (Schedule 1) -Protected as a vulnerable species by the *Nova Scotia Endangered Species Act*
Wood turtle	*Glyptemys insculpta*	-Last COSWIC designation (Nov 2007): Threatened -Associated with rivers and streams with sandy or gravely-sandy bottoms and prefers clear, meandering watercourses with a moderate current -Habitats used less frequently include bogs, marshy pastures, beaver ponds, shrubby cover, meadows, coniferous forests, mixed forests, hay and agricultural fields, and pastures -Protected under the federal *Species at Risk Act* (Schedule 1) and the *Nova Scotia Endangered Species Act* -Protected by the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (Appendix II) -Proximity to the proposed project is unknown

Table 12. Species of Special Concern in Nova Scotia and the Atlantic Ocean
Note: Unless otherwise specified, the information in the following table was derived from the Species at Risk Public Registry (Nova Scotia Canada 2016)

COMMON NAME	SCIENTIFIC NAME	COMMENTS
Species of Special Concern		
Atlantic wolffish	*Anarhichas lupus*	-Last COSEWIC designation (Nov 2012): special concern -Primarily inhabits the cold, deep waters of the continental shelf; prefers rocky or hard clay bottoms and uses areas with sandy or muddy bottoms only occasionally -Protected under the federal *Species at Risk Act* (Schedule 1) -May be present in the study area
Barrow's goldeneye	*Bucephala islandica*	-Last COSEWIC designation (May 2011): special concern -Protected under the *Species at Risk Act* (Schedule 1) and *Migratory Birds Convention Act* -While the Species at Risk Public Registry shows the entire coast of Nova Scotia as Barrow's goldeneye habitat, there have been no known sightings in the vicinity of the site (BSC 2014)
Eastern lilaeopsis	*Lilaeopsis chinensis*	-Last COSEWIC designation (May 2004): special concern -Grows in long, narrow estuaries at the mouths of large rivers that are separated from the open ocean; is a plant of the intertidal zone and grows on gently sloping mudflats, often between large shoreline boulders -Protected under the *Species at Risk Act* (Schedule 1) and the *Nova Scotia Endangered Species Act* -Not known to be present in the study area
Fin whale	*Balaenoptera physalus*	-Last COSEWIC designation (May 2005): special concern -Associated with low surface temperatures and oceanic fronts during summer months; found from close inshore to well beyond the shelf break -Protected under the federal *Species at Risk Act* (Schedule 1)

Golden crest	*Lophiola aurea*	-Last COSEWIC designation (May 2012): Special concern -Ranges from Mississippi to New Jersey in the United States, and Nova Scotia in Canada -Only occurs around Fancy Lake, Shingle Lake, Hog Lake, Dunravan Bog, and Digby Neck; population on Brier Island has been extirpated -Inhabits cobble lakeshores, bays, bogs, and fens where there is often little competition due to physical stress -Protected by the federal *Species at Risk Act* (Schedule 1) -Protected as a vulnerable species by the *Nova Scotia Endangered Species Act*
Harbour porpoise	*Phocoena phocoena*	-Last COSEWIC designation (Apr 2006): Special concern -Sometimes frequents bays and harbours, particularly during summer -Protected from certain activities under the Marine Mammal Regulations of the *Fisheries Act* -Protected by *Species at Risk Act* Schedule 2
Harlequin duck	*Histrionicus histrionicus*	-Last COSEWIC designation (May 2013): special concern -Inhabits rocky coastal marine areas the majority of the year, moving once a year into fast turbulent rivers -Protected under the federal *Species at Risk Act* (Schedule 1), the federal *Migratory Birds Convention Act* and the *Nova Scotia Endangered Species Act* -No known sightings in the vicinity of the site
Humpback whale	*Megaptera novaeangliae*	-Last COSEWIC designation (May 2003): not at risk -Humpback whales form distinct populations and live close to coastlines -SARA schedule 3
Long's Bulrush	*Scirpus longii*	-Last COSEWIC designation (Apr 1994): Special concern -Prefers peat wetlands where competition from shrubs is minimal. Favoured wetlands include peaty shores of high watershed lakes, small bogs associated with lakes or rivers, still-water meadows, and inland fens -Protected under the *Nova Scotia Endangered Species Act* (Schedule 3)

Monarch butterfly	*Danaus plexippus*	-Last COSEWIC status (Apr 2010): special concern -Exist primarily wherever milkweed (*Asclepias*) and wildflowers (such as goldenrod, asters, and purple loosestrife) exist -Protected under the federal *Species at Risk Act* (Schedule 1) -Protected by the *Canada National Parks* Act
Redroot	*Lachnanthes caroliniana*	-Last COSEWIC designation (Nov 2009): Special concern -Occurs along the Atlantic coast from Nova Scotia to Mississippi -Fewer than 5000 individuals in Canada -Inhabits cobble beaches with peat or gravel; distribution depends on water level variations -Two populations in Nova Scotia: Ponhook and Molega Lake -Protected by the federal *Species at Risk Act* (Schedule 1) -Species not present within the vicinity of the aquaculture site
Rusty blackbird	*Euphagus carolinus*	-Last COSEWIC status (Apr 2006): Special concern -The breeding range of the rusty blackbird includes a vast portion of Canada; a very small number of rusty blackbirds winter, albeit sporadically, in the southern part of most Canadian provinces -Protected under the federal Species at Risk Act (Schedule 1) -Confirmed sightings near the aquaculture site (BSC 2014)
Short-eared owl	*Asio flammeus*	-Last COSEWIC designation (Apr 2008): Special concern -Breeds sporadically in arctic areas, coastal marshes, and interior grasslands where voles and other small rodents proliferate -Occasionally seen in coastal areas of Atlantic Canada -Confirmed sightings ~ 4 km south of the proposed site
Snapping turtle	*Chelydra serpentine*	-Last COSEWIC designation (Nov 2008): Special concern -The species is widespread from Nova Scotia to southeastern Saskatchewan -Observed in shallow water in almost every kind of freshwater habitat; preferred habitat of the species is characterised by slow-moving water with a soft

		mud bottom and dense aquatic vegetation -Protected under the *Species at Risk Act* (Schedule 1) -Protected under the *Canada National Parks* Act
Sowerby's beaked whale	*Mesoplodon bidens*	-Unlikely to be affected by the proposed project -Last COSEWIC designation (Nov 2006): special concern -This species is most often sighted in deep water, along the continental shelf edge and slope; only rarely seen in coastal waters -Protected under the Marine Mammal Regulations of the *Fisheries Act*
Tubercled Spikerush	*Eleocharis tuberculosa*	-Last COSEWIC designation (Apr 2010): Special concern -Inhabits coastal plains along the Atlantic, ranging from Nova Scotia down to Florida and westward along the coast of the Gulf of Mexico -Populations within Nova Scotia occur in an estimated 3000 to 4000 clumps, with 60-70% of them occurring around a single lake -Typically occur in hot dry areas within sandy or stone terrain or on gravel or peat layers floating or pushed up onto the shore by ice -Protected federally by the *Species at Risk Act* (Schedule 1)
Water pennywort	*Hydrocotyle umbellate*	-Last COSEWIC designation (May 2014): Special concern -Only occur on small areas of two lakes located in southwestern Nova Scotia (Kejimkujik National Park) -Protected by the federal *Species at Risk Act* (Schedule 1)

Table 13. Species with no SARA Status but with COSEWIC Designation in Nova Scotia and the Atlantic Ocean
Note: Unless otherwise specified, the information in the following table was derived from the Species at Risk Public Registry (Nova Scotia Canada 2016)

COMMON NAME	SCIENTIFIC NAME	COMMENTS
Species with no SARA status		
American eel	*Anguilla rostrate*	-Last COSEWIC designation (May 2012): threatened -Canadian range includes all fresh, estuarine, and coastal marine waters that are accessible to the Atlantic Ocean -Blockage of migratory streams is a major threat to the species
American plaice	*Hippoglossoides platessoides*	-Last COSEWIC designation (Apr 2009b): threatened
Atlantic bluefin tuna	*Thunnus thynnus*	-Last COSEWIC designation (May 2011): endangered -Occurs in the western Atlantic from Newfoundland to the Caribbean Sea; actively fished in Canadian waters from July through December over the Scotian Shelf (COSEWIC 2011a)
Atlantic cod (Southern Population)	*Gadus morhua*	-Last COSEWIC designation (Apr 2010): endangered -Atlantic cod inhabit all waters overlying the continental shelves of the Northwest and the Northeast Atlantic Ocean -Commercial fishing is ongoing and contributes to decline; there is evidence of an unexplained increase in natural mortality in the 4X portion of the designatable unit
Atlantic salmon (Nova Scotia Southern Upland population)	*Salmo salar*	-Last COSEWIC designation (Nov 2010): endangered -Acidification of freshwater habitats by acid rain is a major threat as is poor marine survival related to incompletely understood changes to the marine ecosystem (ASF 2016a) -The Annapolis, Round Hill, Moose, Bear, and Acacia Brook Rivers are listed as present salmon rivers and the Lequille as extirpated (ASF 2016b)
Atlantic sturgeon (Maritime Populations)	*Acipenser oxyrinchus*	-Last COSEWIC designation (May 2011): threatened -Occurs in rivers, estuaries, near-shore marine environments, and shelf regions to at least 50 m depth along the Atlantic coast of North America (COSEWIC 2011b)

Bank swallow	*Riparia riparia*	-Last COSEWIC designation (May 2013): threatened -In the Maritimes, it is most common and widespread on Prince Edward Island and the Northumberland Coast of New Brunswick and Nova Scotia -Bird Studies Canada records indicate bank swallows have been observed around Annapolis Basin (BSC 2014)
Barn swallow	*Hirundo rustica*	-Last COSEWIC designation (May 2011): threatened -Protected under the *Migratory Birds Convention Act, 1994* -Bird Studies Canada records indicate confirmed occurrences of barn swallows on the shore nearest the aquaculture site (BSC 2014)
Basking Shark (Atlantic population)	*Cetorhinus maximus*	-Last COSEWIC designation (Nov 2009): special concern -Uses coastal, temperate waters (COSEWIC 2009c) -Mortality caused by fishing by-catch and boat strikes are cited as the major threats to the species (COSEWIC 2009d)
Blue felt lichen	*Degelia plumbea*	-Last COSEWIC designation (Nov 2010): special concern -Occurs in coastal sub-oceanic areas (COSEWIC 2010a) -Threatened by activities changing relative humidity of forest, airborne pollutants, and poor forestry practices in which precautions have not been made (Nova Scotia Canada 2016)
Blue shark	*Prionace glauca*	-Last COSEWIC designation (Apr 2006): special concern -In Atlantic Canada, they are regularly found in almost all waters but are most often encountered offshore; fishing by-catch is the largest threat (COSEWIC 2006)
Eastern wood peewee	*Contopus virens*	-Last COSEWIC designation (Nov 2012): special concern - Bird Studies Canada (2014) considers occurrences of the bird in the area to be possible
Killer whale (Northwest Atlantic population)	*Orcinus orca*	-Last COSEWIC designation (Nov 2008): special concern -Northwest Atlantic distribution includes Nova Scotian waters (COSEWIC 2008)

Loggerhead sea turtle	*Caretta caretta*	-Last COSEWIC designation (Apr 2010): endangered -Routinely found in Atlantic Canadian waters; usually associated with the warmer offshore waters of the Gulf Stream (COSEWIC 2010b)
Macropis cuckoo bee	*Epeoloides pilosulus*	-Last COSEWIC designation (May 2011): endangered -Found in habitats supporting both macropis bees (Melittidae) and their food plant, yellow loosestrife (*Lysimachia*), which grows in swampy or moist habitats; two males found in Nova Scotia in 2002 (COSEWIC 2011c) -Greatest threats include habitat loss, and use of insecticides (Nova Scotia Canada 2016) -Thought to be extinct until a small population was found in Annapolis Valley, lack of relocation suggests near extinction (Nova Scotia Canada 2016)
Moose (NS mainland population)	*Alces alces americana*	-Last COSEWIC designation: none -This species is protected under the *Nova Scotia Endangered Species Act* (Nova Scotia Canada 2016)
Peregrine Falcon *anatum* subspecies	*Falco peregrinus anatum*	-Last COSEWIC designation (Apr 2007): non-active -Prefer open habitats, such as sea coasts, for hunting -Protected under the *Nova Scotia Endangered Species Act* -Protected by the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (Appendix I)
Porbeagle shark	*Lamna nasus*	-Last COSEWIC designation (May 2014): endangered -Can be found from the coast to the open sea migrating annually to further inshore; seasonally ranging from the Scotian shelf and Bay of Fundy to Newfoundland on the continental shelf occasionally close to shore -Is protected by the *Oceans Act* and by the *Fisheries Act* under the terms of the *Atlantic Fishery Regulations, 1985* -Target fishing and by-catch of longline fisheries has resulted in the population decline, and still continues -Currently no fisheries management measures for this species

Shortfin mako (Atlantic population)	*Isurus oxyrinchus*	-Last COSEWIC designation (Apr 2006): threatened -Found in both inshore and offshore waters -COSEWIC identified fishing, pelagic long-lining in particular, as being the most significant threat to the species; no directed fishery for shortfin mako in Atlantic Canada, but it is caught as by-catch in other pelagic fisheries and is sought after for sport fishing -Managed under the Canadian Atlantic Pelagic Shark Integrated Fisheries Management Plan which allows for an unrestricted by-catch along with 100% dockside monitoring
Smooth skate (Lauranian-Scotian population)	*Malacoraja senta*	-Last COSEWIC designation (May 2012): special concern -One of the smallest species of skate endemic to the western North Atlantic (Natanson et al. 2007) -By-catch mortality contributes to population decline (Natanson et al. 2007) -No direct fisheries for this species, however captured as by-catch in fisheries directed towards groundfish (Fisheries and Oceans Canada 2015d) -Population of the Laurentian-Scotian has accounted for 90% of the smooth skates in Canada, while covering 70% of the Canadian smooth skate range (Fisheries and Oceans Canada 2015d) -Area of abundance along the Scotian Shelf has drastically declined since 1970 (Fisheries and Oceans Canada 2015d)
Spiny dogfish	*Squalus acanthias*	-Last COSEWIC designation (Apr 2010): special concern -Inhabits Canadian waters ranging from Newfoundland to the Scotian Shelf, approximately 10 to 20% of those on the Scotian Shelf migrate south in the fall, returning in the spring (BIO 2015a) -Widely distributed in temperate regions of the world's oceans and appears to be a habitat generalist; subject to both targeted and by-catch fishing mortality (COSEWIC 2010c) -Target of direct fisheries in Atlantic Canada (Fisheries and Oceans Canada 2015)
Thorny skate	*Amblyraja radiata*	-Last COSEWIC designation (May 2012): special concern -One of the most common skates in the Northwest Atlantic (BIO 2015b) -Both a target of directed fisheries and caught as by-catch, although directed fisheries along the Scotian Shelf stopped in 2005 (BIO 2015b) -Regarded as over fished and landing of this species is prohibited throughout the Gulf of Maine (BIO 2015b)

White hake	*Urophycis tenuis*	-Last COSEWIC designation (Nov 2013): threatened -Adjust their depth distribution to find temperatures in the range of 4 - 8°C (COSEWIC 2013b)
Winter skate (Georges Bank-Western Scotian Shelf-Bay of Fundy populations	*Leucoraja ocellata*	-Last COSEWIC designation (May 2015): special concern -Estimated to have declined by 90% since 1970, now at a historic low (IUCN 2009) -Caught as by-catch in groundfish targeting fisheries (IUCN 2009) -Bottom-dwelling species usually found on sand and gravel and at depths less than 111 m (COSEWIC 2005) -Landings under quota control on the Scotian Shelf (IUCN 2009)
Wood thrush	*Hylocichla mustelina*	-Last COSEWIC designation (Nov 2012): threatened -Not known to occur within 5 km of the project area (BSC 2014)
Wrinkled shingle lichen	*Pannaria lurida*	-Last COSEWIC designation (Apr 2016): threatened -Proximity to proposed project unknown
Yellow-banded bumble bee	*Bombus terricola*	-Last COSEWIC designation (May 2015): special concern -Has been collected over most of NS (COSEWIC 2015)

Critical Habitat and Mitigation Plans

Atlantic Whitefish

Critical habitat was not identified in the *Recovery Strategy for the Atlantic Whitefish (Coregonus huntsmani) in Canada* (Fisheries and Oceans Canada 2016e). Atlantic whitefish were known to historically occur in the Tusket and Petite Rivers, but they no longer appear to exist outside the Petite Rivière watershed (Fisheries and Oceans Canada 2016e). The Hebb, Milipsigate, and Minamkeak lakes are the only known areas where full, life-cycle closure is achieved. Species survival, and also recovery, is therefore completely dependent on the continued viability of this population whose only area of occupancy is a semi-natural lake habitat.

Critical habitat is described in the 2016 Department of Fisheries and Oceans Amended Recovery Strategy for the Atlantic Whitefish *(Coregonus huntsmani)* in Canada, in which the critical habitat is defined as the substrate within the three Petite Lakes along with any connections between them and the ocean. The total combined area consists of approximately 16 km^2, including the three dams and their structures of Hebb, Milipsigate, and Minamkeak Lakes (Fisheries and Oceans Canada 2016e). The Schedule of Studies provided within the *Species at Risk Act* Action Plan for the Atlantic Whitefish *(*Coregonus *huntsmani)* in Canada (Fisheries and Oceans Canada 2016e) states that research activities are required to better

identify the critical habitats, including a better understanding of currents throughout the three lakes. Should more information be gained, the section regarding the alteration of critical habitat will be replaced within the Recovery Strategy (Fisheries and Oceans Canada 2016e). Under SARA, critical habitat must be legally protected within 180 days after it is identified in a recovery strategy or action plan.

Mitigation Plan for KCS: Atlantic whitefish are protected under the federal *Species at Risk Act* (Schedule 1). The Nova Scotia Fishery Regulations under the *Fisheries Act* prohibit the taking of Atlantic whitefish from all provincial waters by any method at any time of the year. This species is also protected under the Nova Scotia *Endangered Species Act*. Under this Act, it is prohibited to kill, harm, or collect this species. Neither KCS nor any of its employees will attempt to harm or capture Atlantic whitefish.

Leatherback Sea Turtle

While the state of knowledge on habitat requirements of leatherback turtles in Canadian waters is increasing, it is currently not possible to identify critical habitat for this species (Atlantic Leatherback Turtle Recovery Team 2006).

Mitigation Plan for KCS: The leatherback sea turtle is protected under the *Species at Risk Act*, which makes it an offense to kill, harm, harass, capture, or take any individuals of a listed species. KCS will comply by these rules. If a leatherback sea turtle is spotted by any of the crew working on the aquaculture site, the Marine Animal Response Society (MARS) will be contacted at 1.866.567.6277 and given details of the sighting.

In 2006, the Atlantic Leatherback Turtle Recovery Team published a recovery strategy for the turtles in Atlantic Canadian waters. The recovery strategy document listed entanglement in commercial fishing gear, vessel collision from recreational boating and other ship traffic, marine pollution, and oil and gas exploration and development as potential threats contributing to mortality. A summary of the gear types thought to be the highest risk for entanglement included longline, gillnet, traps, and pots. Aquaculture gear was not mentioned in the document but it stands to reason that aquaculture equipment, including all lines, should be kept in good working order without loose, free-floating ends in order to prevent entanglements of marine animals.

North Atlantic Right Whales

North Atlantic right whales have occurred throughout history along the coastal waters of the Atlantic, ranging from lower latitudes throughout the fall and winter for breeding, and higher latitudes for feeding during the spring and summer months (NOAA 2016b). Throughout these migrations, areas of high use include Coastal Florida and Georgia, the Great South Channel, Massachusetts Bay, Cape Cod Bay, the Bay of Fundy, and the Scotian Shelf (NOAA 2016b). Much of these areas were listed as critical habitats for the North Atlantic right whale in 1994 before the critical habitats were updated and expanded in January 2016 (NOAA 2016b).

Grand Manan Basin, in the Bay of Fundy, has been identified as critical habitat for right whales (Fisheries and Oceans Canada 2014d). Right whales eat copepods and this area supports the highest concentrations of copepods in the Bay of Fundy (Michaud and Taggart 2011). Roseway Basin, on the southwestern Scotian Shelf, is another important area of right-whale aggregation wherein right whales have been observed feeding and socialising. This area has also been designated as a conservation area for right whales (Fig. 36). Neither of these areas identified as either critical habitat or conservation area for right whales is within 5 km of the proposed aquaculture site. The closest area, Roseway Basin, is greater than 100 km from the proposed aquaculture site.

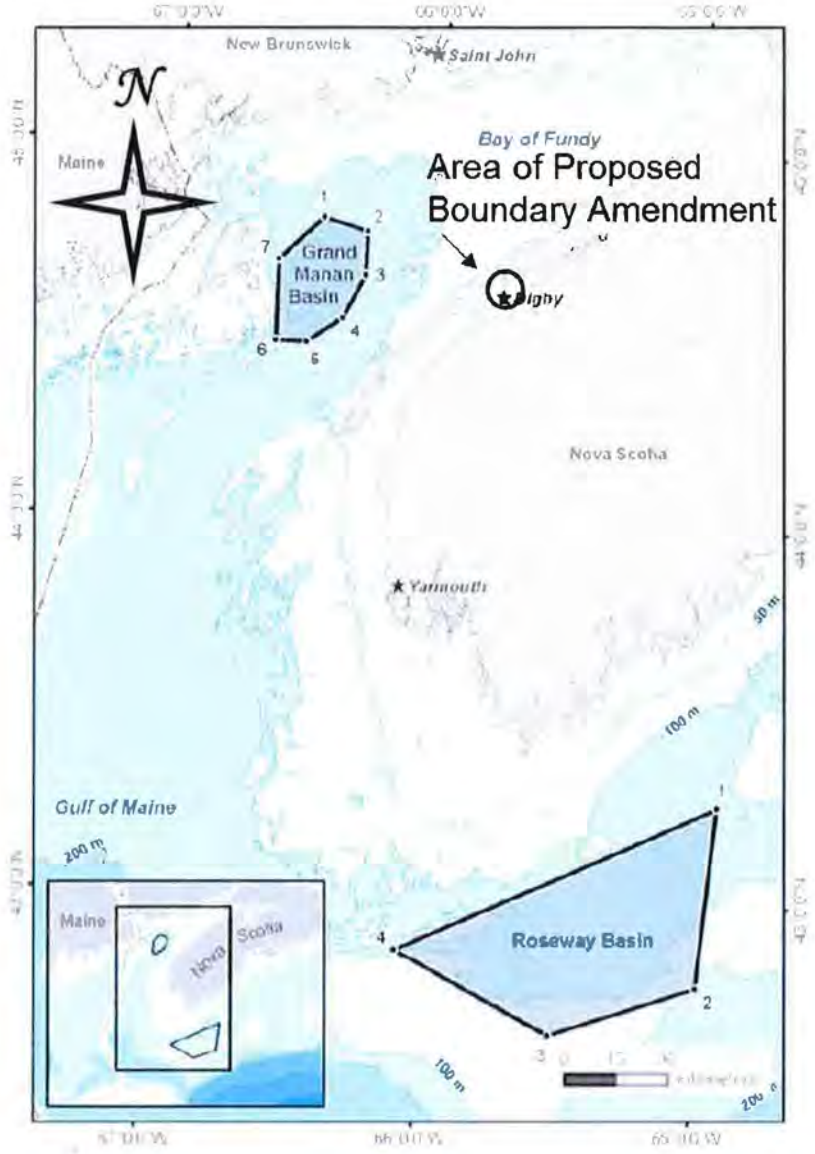
Despite best efforts, vessel strikes are currently the leading cause of right whale deaths (Fisheries and Oceans Canada 2014e). In an effort to protect the North Atlantic right whales, Fisheries and Oceans Canada have dedicated two habitats as conservational areas for right whales (Fisheries and Oceans 2014f). The Roseway Basin and the lower Bay of Fundy area (Grand Manan Basin) are understood to be seasonally high-use habitats for right whales in Canada (Fisheries and Oceans Canada 2014e). Since 2002, the diversion of vessel traffic in the lower Fundy Bay area has been enforced (Fisheries and Oceans Canada 2014e). The other conservation habitat, Roseway Basin, has no known traffic measures through the area (Fisheries and Oceans Canada 2014e). In 2007, the IMO safety committee proposal was accepted by Transport Canada, and Roseway Basin has been declared an "Area to be Avoided"; all traffic is strongly encouraged to find an alternate route (Fisheries and Oceans Canada 2014e).

Mitigation Plan for KCS: Many whales are protected under the Marine Mammals Regulations of the *Fisheries Act*. KCS will comply with these regulations and will not attempt to harvest, kill, or harass any whales that are seen during aquaculture activities. Should a whale in distress be noted by any of the crew members at the aquaculture sites, the Marine Animal Response Society (MARS) will be contacted at 1.866.567.6277 and given details of the sighting.

Vessels servicing the site will travel at a maximum speed of 9 knots in order to prevent damaging collisions between whales and aquaculture service vessels. This is below the recommended speed set by NOAA Fisheries Service for ships travelling through known whale areas (i.e. 9.9 knots).

Figure 36. Boundaries of North Atlantic Right Whale SARA Conservation Area for the Grand Manan Basin

Note: Figure produced by Oceans and Coastal Management Division, DFO and copied from the Species at Risk Public Registry (Fisheries and Oceans Canada 2014d)



Piping Plover

Suitable piping-plover habitat can be approximated as a beach with the following attributes: a gently sloping foredune, wide stretches of beach that afford protection from flooding during high water, sand and/or gravel and/or cobble substrate, and a lack of vegetation (Environment Canada 2012). A number of sites in Nova Scotia have been identified as meeting these criteria. Distribution often fluctuates due to changes in habitat. These changes may include,

but are not limited to, beach width, composition of substrate, feeding areas, vegetation coverage, and human disturbance (COSEWIC 2013c). There is no known piping-plover beach near the proposed aquaculture site.

Mitigation Plan for KCS: The piping plover is protected under the *Species at Risk Act* and the federal *Migratory Birds Convention Act.* KCS employees of the proposed aquaculture site will not kill, harm, or collect adults, young, or eggs of the piping plover.

Red Knot *rufa*

Breeding critical habitat for *rufa* cannot be identified at this time; however, the known stopover habitat attributes required by *rufa* are muddy, sandy, or rocky coastal marine and estuarine habitats with large intertidal flats [e.g. mouths of bays and estuaries, lagoons, salt marshes, sand spits, islets, shoals, sandbars, rocky (limestone) tidal flats (either covered or not covered) with seaweed (e.g. *Fucus* species), and features often associated with natural inlets] and/or inland saline lake habitat (Environment and Climate Change Canada 2016a). Stopover critical habitat is located at Beaverhill Lake, AB; Quill, Last Mountain, Chaplain, Old Wives, and Reed Lakes, SK; the shore of Hudson Bay in and adjacent to Wapusk National Park, MB; sections of shore along Hudson Bay in ON; shorelines of James Bay in ON and QC; sections of the Parc marin du Saguenay–Saint-Laurent and adjacent shores, QC; the Mingan Archipelago National Park Reserve, QC; and the Magdalen Islands, QC (Environment and Climate Change Canada 2016a).

Mitigation Plan for KCS: None of the listed areas are within 5 km of the proposed project. However, KCS will limit beach clean-up activities to only take place during the fall and winter months.

Roseate Terns

Two criteria have been used to identify critical habitat for the roseate tern in Canada (Environment Canada 2010). The first includes less than 10% of the Canadian populations of Roseate Terns. These sites currently support more than 15 pairs of roseate terns. This includes North Brother, South Brother, and Country Islands. The second criterion includes tern colonies in areas that have supported small but persistent numbers of nesting roseate terns. The areas currently identified under this criterion include Sable Island and the Magdalen Islands. In 2014, the critical habitat of Roseate Tern became legally protected on federal land and waters of the Sable Island National Park Reserve of Canada.

Mitigation Plan for KCS: None of the identified areas are within 5 km of the proposed project. However, KCS will limit beach clean-up activities to only take place during the fall and winter months and will be scheduled so as not to interfere with the sensitive breeding, nesting, and fledging times (i.e. mid-April to mid-August).

Blue Whale

Fisheries and Oceans Canada have been conducting studies on marine animal health since 1990. Causes of whale death are investigated to assess any potential threats to whale populations in their habitat.

As of February 2016, the blue whale remains listed under the *Species at Risk Act* as an endangered species throughout the Atlantic Ocean (Fisheries and Oceans Canada 2016f). New recovery, management, and action plans have not yet been released by the Species at Risk Public Registry but are expected in the near future (Fisheries and Oceans Canada 2016f). DFO is currently aiding in the recovery of the blue whale by enforcing the legislation. In doing so, DFO also reviews the environmental assessments of offshore petroleum industries to ensure that endangered species are considered (Government of Canada 2016). The *Fisheries Act*, *Species at Risk* Act, *Canadian Environmental Assessment Act*, and *National Energy Board Act* all consider the needs of the blue whale (Government of Canada 2016)

The Marine Animal Response Society (MARS) is working to develop and implement a cetacean sighting network in Nova Scotia and hopes to work with other groups in New Brunswick and Prince Edward Island to implement a Maritime-wide assistance network. The Grand Manan Whale and Seabird Research Station (GMWSRS) is developing a voluntary Code of Conduct for fishermen using fixed fishing gear near large whales in the Bay of Fundy. This will foster stewardship, provide information to prevent entanglement of whales and loss of fishing gear, and will promote education on endangered whales in the coastal communities of New Brunswick and Nova Scotia.

As of 2016, the recovery goal was to have a minimum of 1000 mature individuals within the North Atlantic (Government of Canada 2016). To meet this goal, measures are being taken to monitor the population trends within the Atlantic, to reduce noise and activities within feeding areas, and to gain knowledge of threats to the blue whale's food resources. Also of concern are injuries and mortalities, activities that cause disturbance to the whales, contamination, and other impacts and their effects on populations (Government of Canada 2016).

Mitigation Plan for KCS: Blue whales are protected under the Marine Mammals Regulations of the *Fisheries Act*. KCS will comply with these regulations and will not attempt to harvest, kill, or harass any blue whales (or any other whales, such as right whales) that are seen during aquaculture activities. Should any whale in distress be noted by any of the crew members at the aquaculture site, the Marine Animal Response Society (MARS) will be contacted at 1.866.567.6277 and given details of the sighting.

The Campobello Whale Rescue Team, located on Campobello Island, New Brunswick, specialises in the disentanglement of whales and provides advice through telephone conversations when in need of immediate help (Government of Canada 2016). This team works in close proximity with DFO, offering advice when a distressed or deceased whale is found (Government of Canada 2016). The Whale Release and Stranding Group established in Newfoundland and Labrador report incidents in which whales are injured or deceased (Government of Canada 2016). All documentation and samples are sent to DFO Science in the

surrounding area (Government of Canada 2016). As well as reporting and documenting, a response team aids with entanglements and awareness activities (Government of Canada 2016).

Vessels servicing the site will travel at a maximum speed of 9 knots in order to prevent damaging collisions between whales and aquaculture service vessels. This is below the recommended speed set by NOAA Fisheries Service for ships travelling through known whale areas (i.e. 9.9 knots).

White Shark

The white shark occurs in both inshore and offshore waters, from the intertidal to the upper continental slope and mesopelagic zone. Known bathymetric range is from just below the surface to just above the bottom to a depth of at least 1,280 m (Bigelow and Schroeder 1948). It occurs in the breakers off sandy beaches, off rocky shores, and readily enters enclosed bays, lagoons, harbours, and estuaries, but does not penetrate brackish or fresh waters to any extent (Compagno 2001). Critical habitat for this species has not been identified in Canada.

Mitigation Plan for KCS: KCS personnel will not attempt to attract, capture, or harass any sharks in any way.

Other Significant or Sensitive Habitats

There are a few significant habitats within 5 km of the Rattling Beach site. The whole of Annapolis Basin (9,273.2 ha) has been designated as significant habitat for migratory birds. This area is part of an important migratory route called the Atlantic Flyway which follows the Atlantic Coast of North America and the Appalachians Mountains with end points at the Eastern Artic Islands/the coast of Greenland and the Gulf of Mexico. A salt marsh is present approximately 2.2 km south-southeast of the Rattling Beach site and a number of marshes, bogs/fens, and swamps surround the basin (Fig. 37; NSDNR 2016). The only existing protected area within 5 km of the site is the Annapolis Basin Look-Off Provincial Park, which offers exceptional views of the whole basin on a clear day (Fig. 38).

Figure 37. Significant Habitats
Note: Base map was obtained from NSDNR (2016)

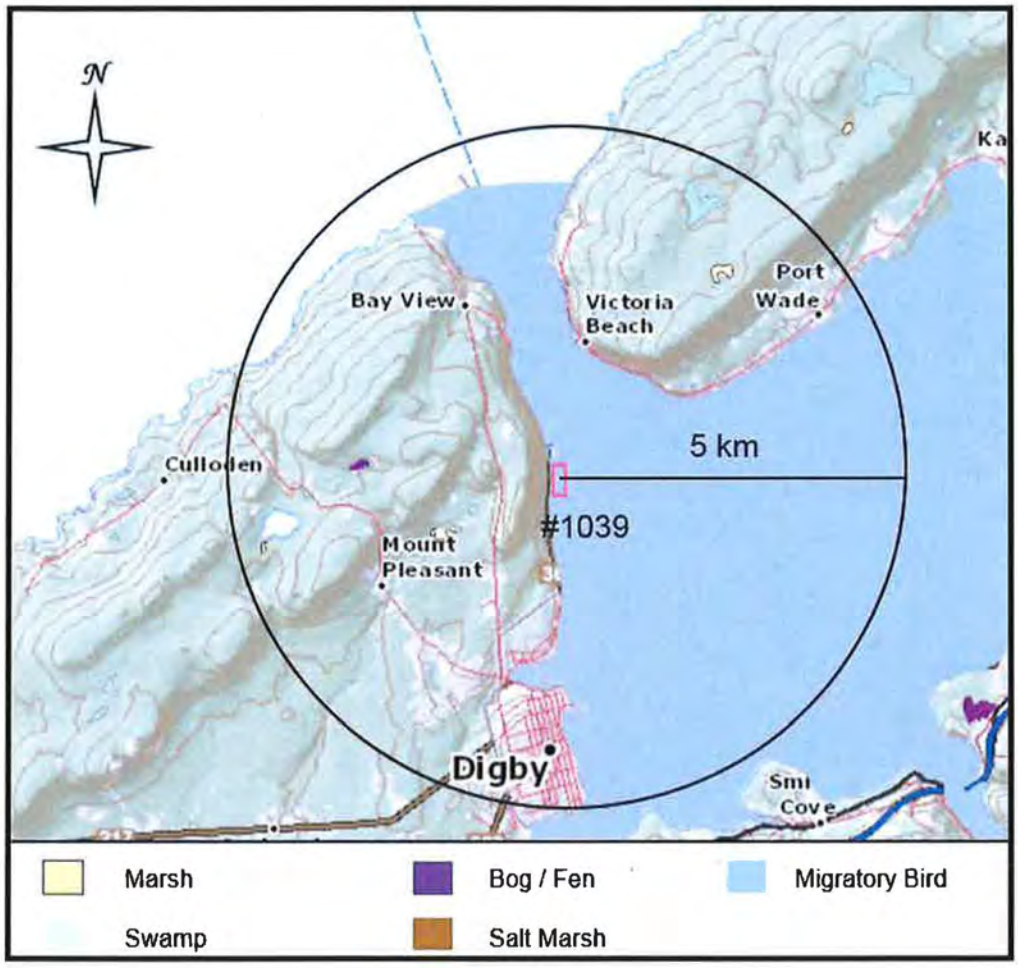
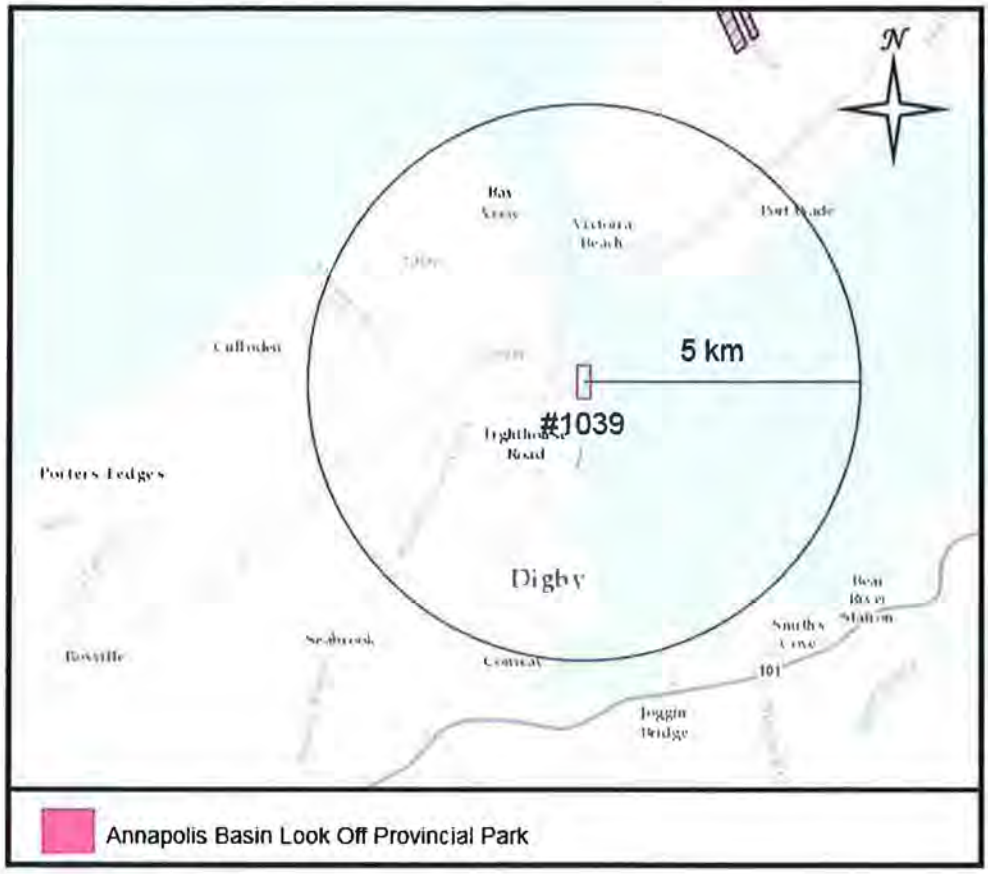


Figure 38. Existing and Pending Protected Areas
Note: Base map was obtained from NS Environment (2016)



Birds

Most of the species of birds in Canada are protected under the *Migratory Birds Convention Act* (Environment and Climate Change Canada 2016b). A number of migratory marine birds, shorebirds, gulls, and waterfowl inhabit the waterways and shores of coastal Nova Scotia. Migratory birds protected by the *Migratory Birds Convention Act* and associated regulations generally include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds, such as eagles, falcons, and hawks.

The location of the proposed farm falls within block 113 of the Canadian Wildlife Service survey areas (Fig. 39). This bird block is not considered an Important Bird Area (IBA) by Bird Studies Canada (2014); however, the Province of Nova Scotia (2016b; Fig. 37) recognises Annapolis Basin as a significant habitat for migratory birds. Surveys, completed between February 2000 and March 2010 by the Canadian Wildlife Service (CWS) and Nova Scotia's Department of Natural Resources, identified several species of birds in blocks 113 (Table 14). Due to funding deficiencies, few surveys have been performed since March 2010 and no

additional data are available for this block (A. Hicks, pers. comm.). The long-tailed duck was the most common bird noted followed by the merganser and scaup.

Mitigation Plan for KCS: To limit any potential disturbance to nesting shorebirds, beach clean-ups for the proposed farm will only take place during the fall and winter months and will be scheduled so as not to interfere with the sensitive breeding, nesting, and fledging times of mid-April to mid-August.

Figure 39. Map of Canadian Wildlife Service Survey Area Block 113

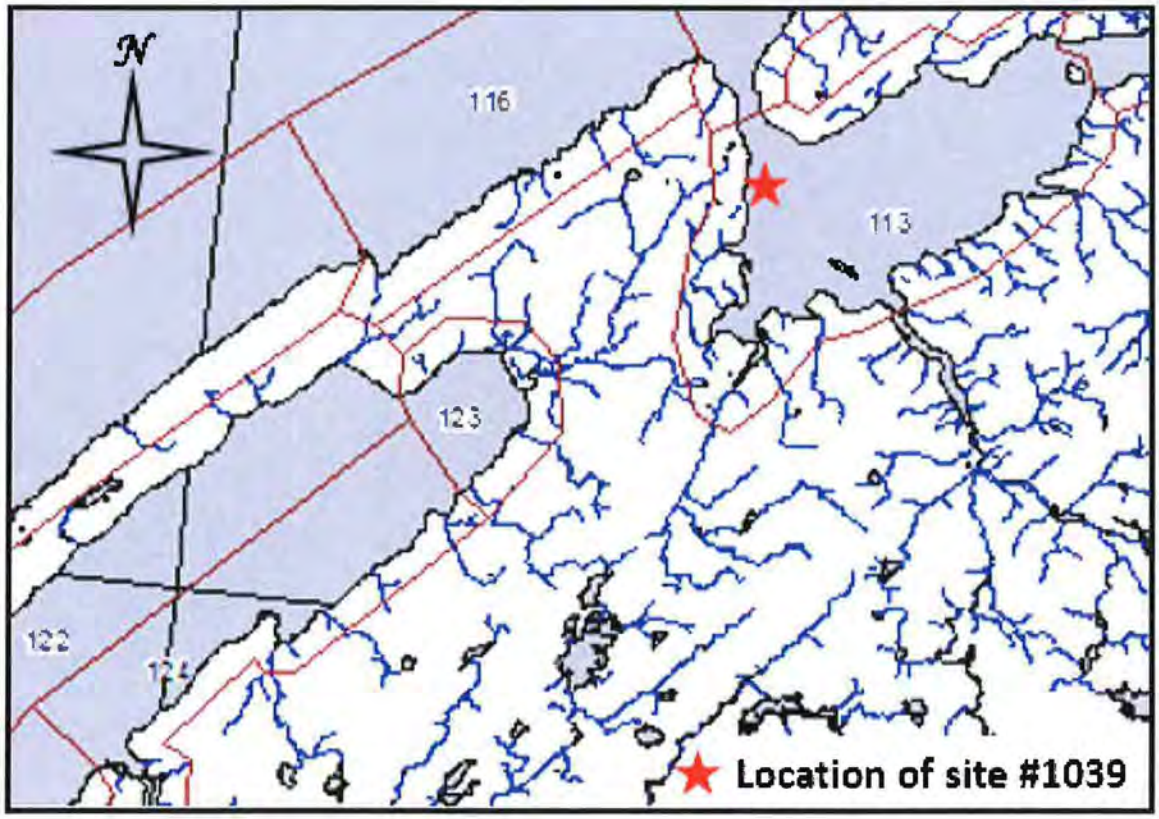


Table 14. Waterfowl Identified in Block 113

Canadian Wildlife Service – Block 113							
	Numbers of Sightings per Survey						
Bird Name	**02-Feb-00**	**16-May-00**	**04-Mar-04**	**26-Feb-07**	**18-Feb-09**	**22-Jan-10**	**Grand Total**
American Black Duck		0	81	98	424	312	**915**
American Green-winged Teal	0	0	0	0	0	0	**0**
American Wigeon	0	0	0	0	0	0	**0**
Atlantic Brant	0	0	0	0	0	0	**0**
Barrow's Goldeneye	0	0	0	0	0	0	**0**
Black Scoter	0	0	0	75	61	137	**273**
Blue-winged Teal	0	0	0	0	0	0	**0**
Bufflehead	130	0	44	0	37	0	**211**
Canada Goose	44	0	0	0	0	0	**44**
Common Eider	0	0	5	47	18	0	**70**
Common Goldeneye	0	0	48	9	111	22	**190**
Common Loon	0	0	9	9	21	2	**41**
Common Merganser	11	0	0	0	0	0	**11**
Female Common Eider	2	0	0	0	0	0	**2**
Gadwall	0	0	0	0	0	0	**0**
Greater Scaup	0	0	0	0	0	0	**0**
Harlequin Duck	0	0	0	0	0	0	**0**
Hooded Merganser	0	0	0	0	0	2	**2**
King Eider	0	0	0	0	0	0	**0**
Lesser Scaup	0	0	0	0	0	0	**0**
Long-tailed Duck	0	0	306	224	88	0	**618**
Male Common Eider	2	0	0	0	0	0	**2**
Mallard	0	0	0	0	0	0	**0**
Northern Pintail	0	0	0	0	0	0	**0**
Northern Shoveler	0	0	0	0	0	0	**0**
Red-breasted Merganser	0	0	0	0	11	0	**11**
Ring-necked Duck	0	0	0	0	0	0	**0**
Snow Goose	0	0	0	0	0	0	**0**
Surf Scoter	0	0	0	0	8	0	**8**
Unidentified Cormorant	0	0	0	1	2	0	**3**
Unidentified Diving Duck	0	0	0	0	0	0	**0**
Unidentified Duck	0	0	0	0	0	0	**0**
Unidentified Goldeneye	5	0	0	0	0	0	**5**
Unidentified Merganser	0	0	91	317	139	1	**548**
Unidentified Scaup	62	0	52	192	33	0	**339**
Unidentified Scoter	0	0	2	85	0	0	**87**
Unidentified Teal	0	0	0	0	0	0	**0**
White-winged Scoter	1	0	0	0	0	0	**1**
Wood Duck	0	0	0	0	0	0	**0**
Grand Total	**257**	**0**	**639**	**1057**	**953**	**476**	**3382**

f. Public Right of Navigation

The following figures provide information regarding navigation routes that are used by KCS while servicing the aquaculture site in Annapolis Basin (Fig. 40) and the layout of on-site equipment (Figs. 41 - 45)

Figure 40. Marine Chart showing KCS vessel route from Rattling Beach to the Digby Government Wharf

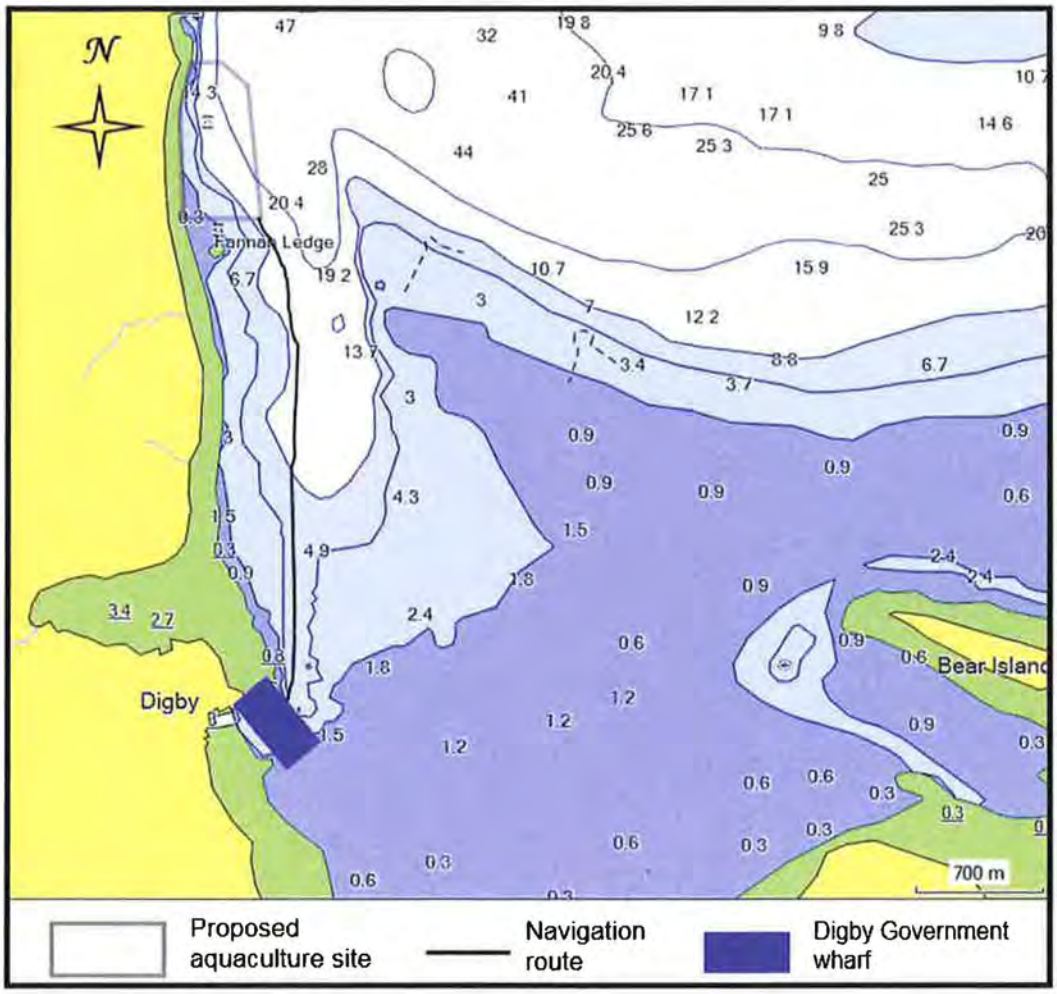
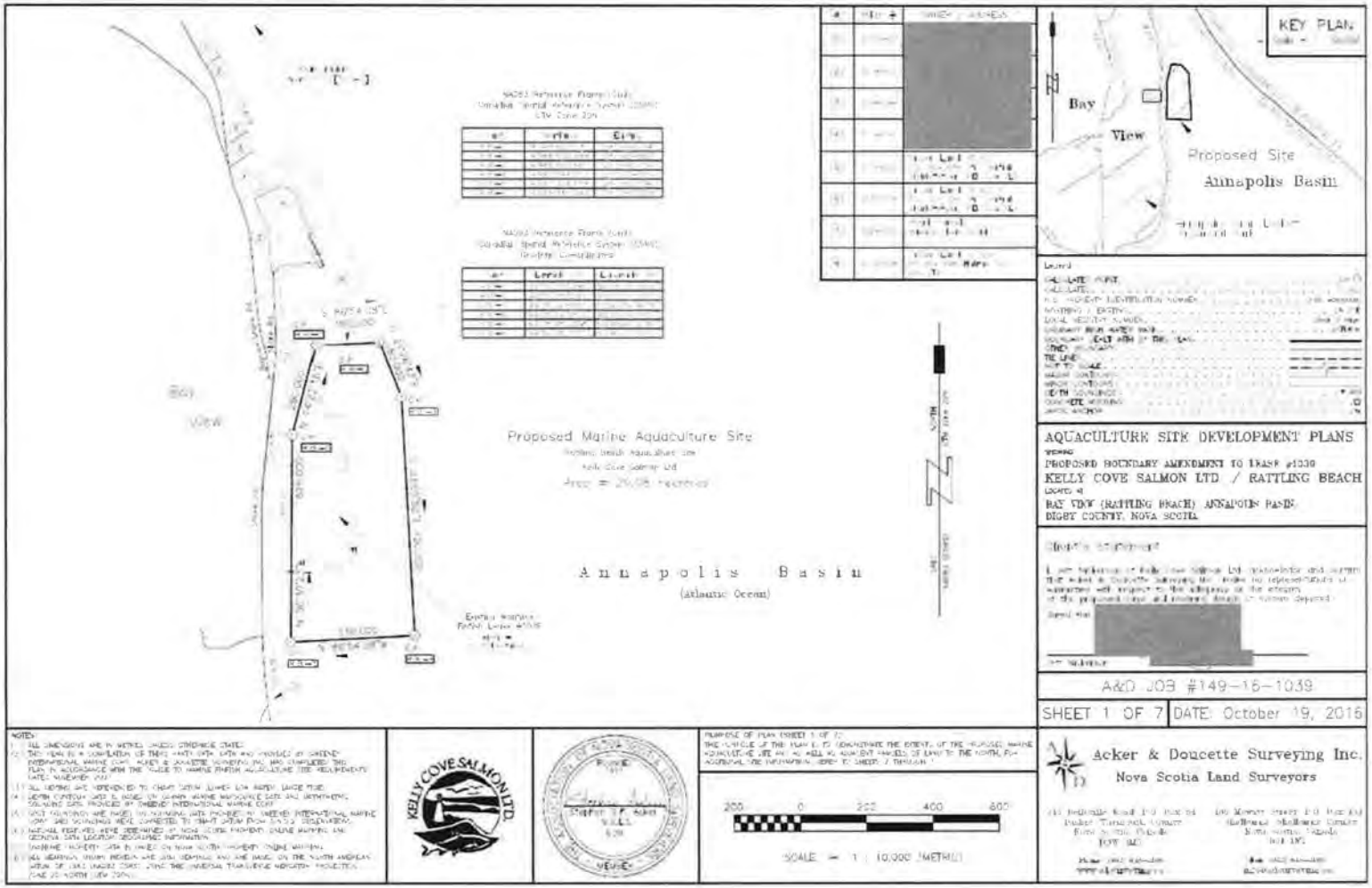


Figure 41. Plan View of the Proposed Boundary Amendment of the Rattling Beach Aquaculture Site Showing Nearby Property Owners



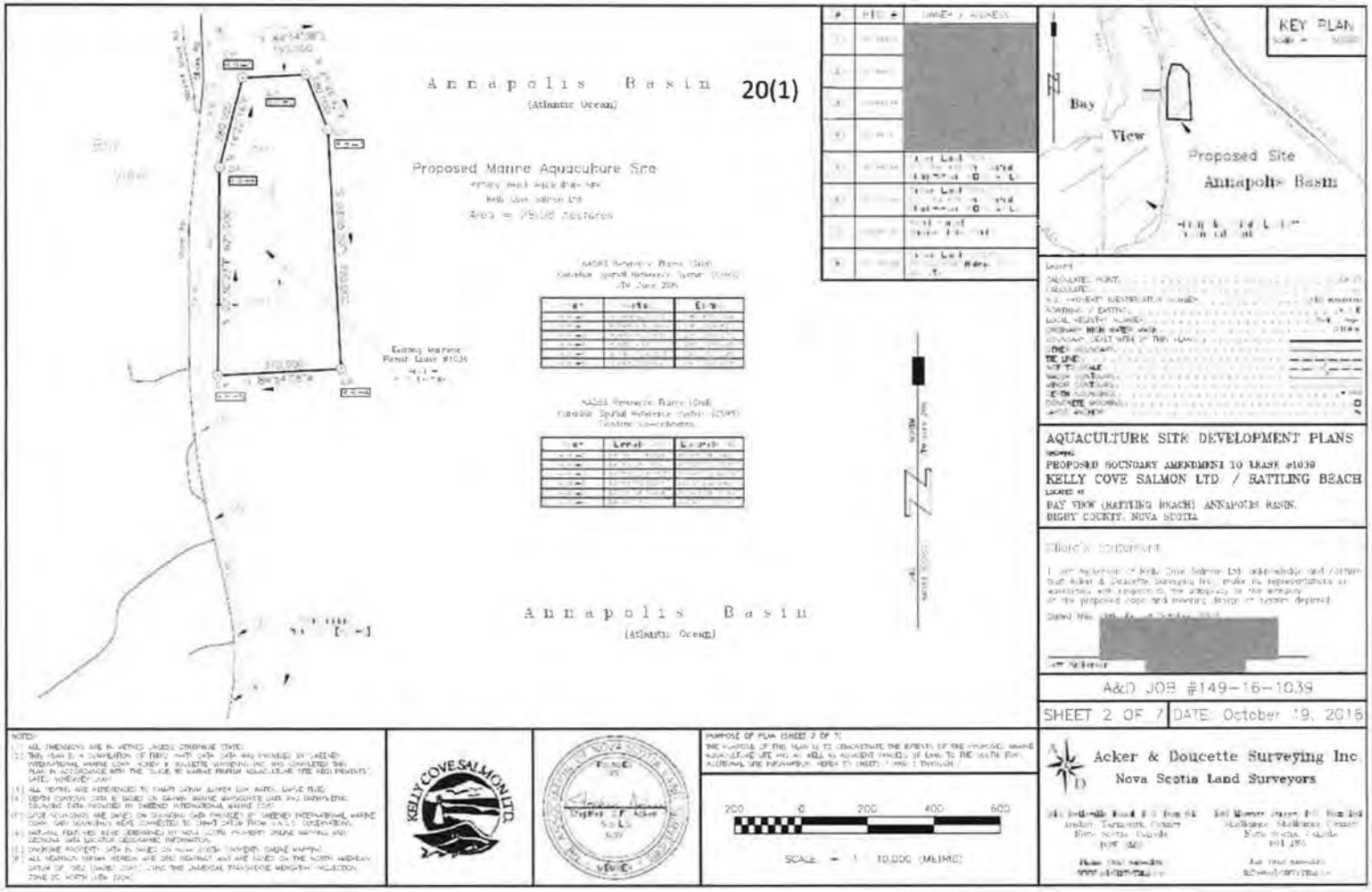

Annapolis Basin
(Atlantic Ocean)
20(1)
Proposed Marine Aquaculture Site
Existing Marine Finfish Lease #1039
Annapolis Basin
(Atlantic Ocean)
KEY PLAN
Bay
View
Proposed Site
Annapolis Basin
AQUACULTURE SITE DEVELOPMENT PLANS
PROPOSED BOUNDARY AMENDMENT TO LEASE #1039
KELLY COVE SALMON LTD / RATTLING BEACH
BAY VIEW (RATTLING BEACH) ANNAPOLIS BASIN,
DIGBY COUNTY, NOVA SCOTIA
A&D JOB #149-16-1039
SHEET 2 OF 7
DATE: October 19, 2016
PURPOSE OF PLAN (SHEET 2 OF 7)
200 0 200 400 600
SCALE = 1 : 10,000 (METRIC)
Acker & Doucette Surveying Inc
Nova Scotia Land Surveyors

Figure 42. Rattling Beach Site Development Plan Showing Basic Seafloor Topography

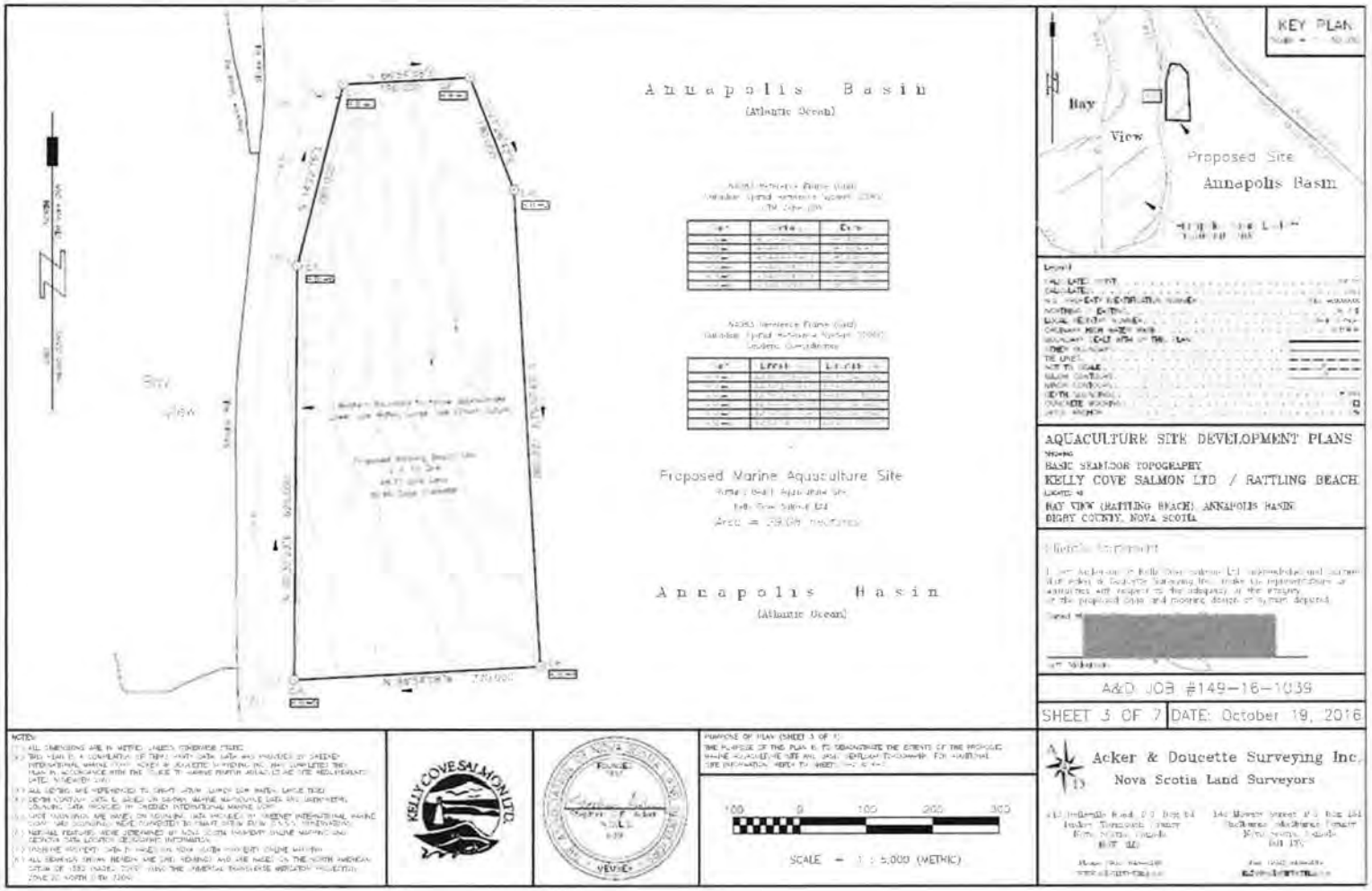


Figure 43. Rattling Beach Site Development Plan Showing Cage Configuration

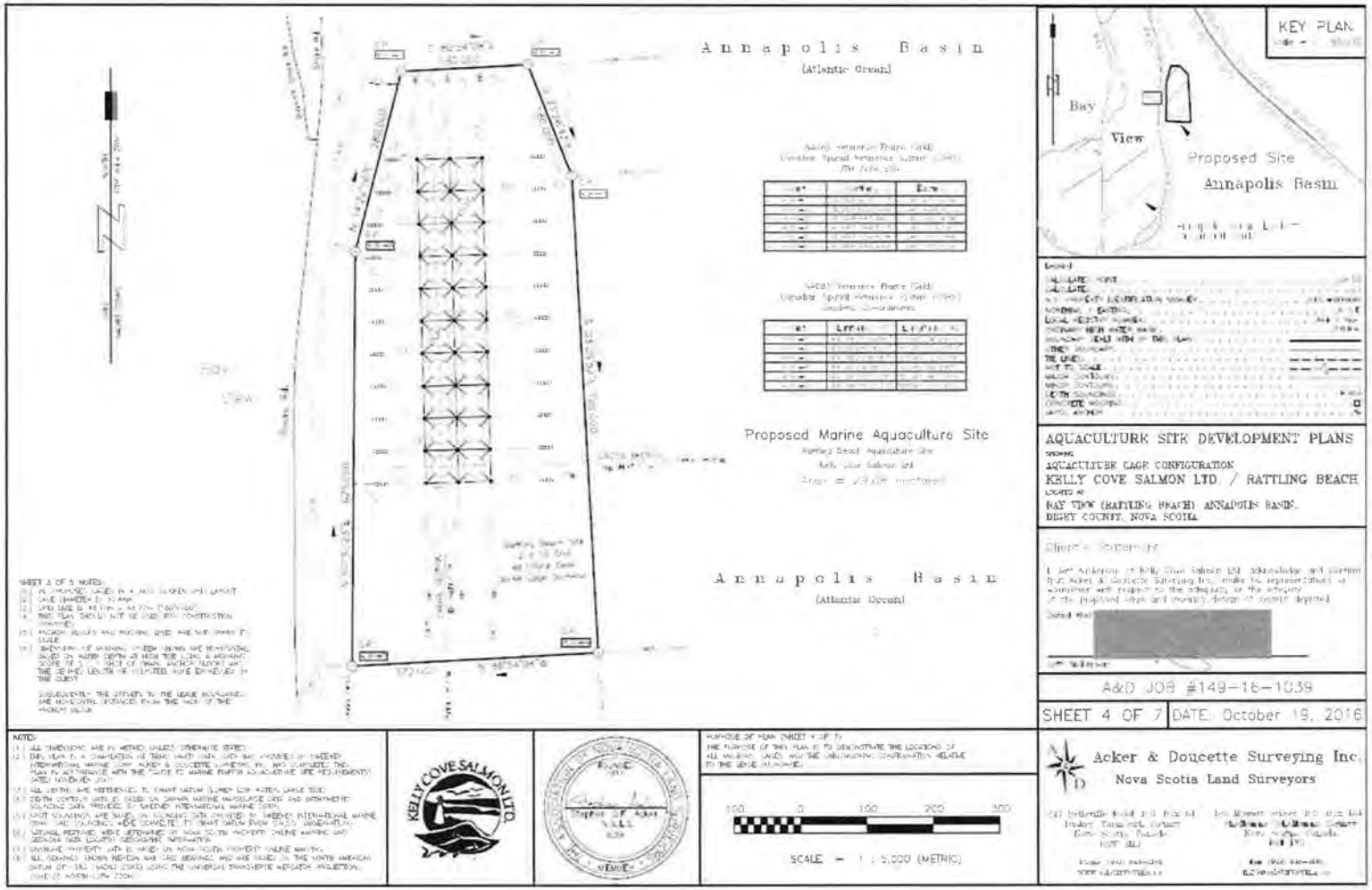


Figure 44. Rattling Beach Cross-sectional Plan A

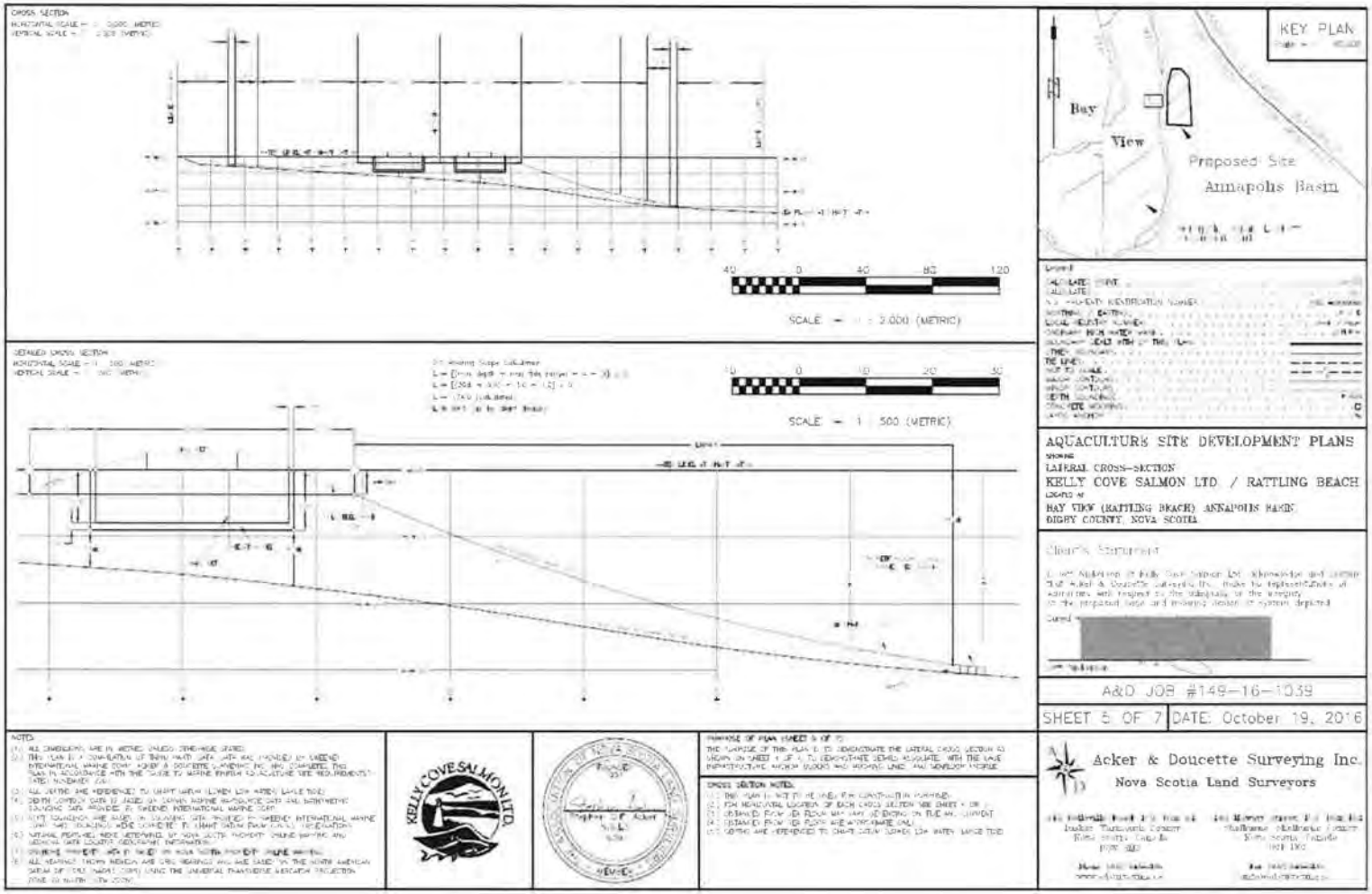
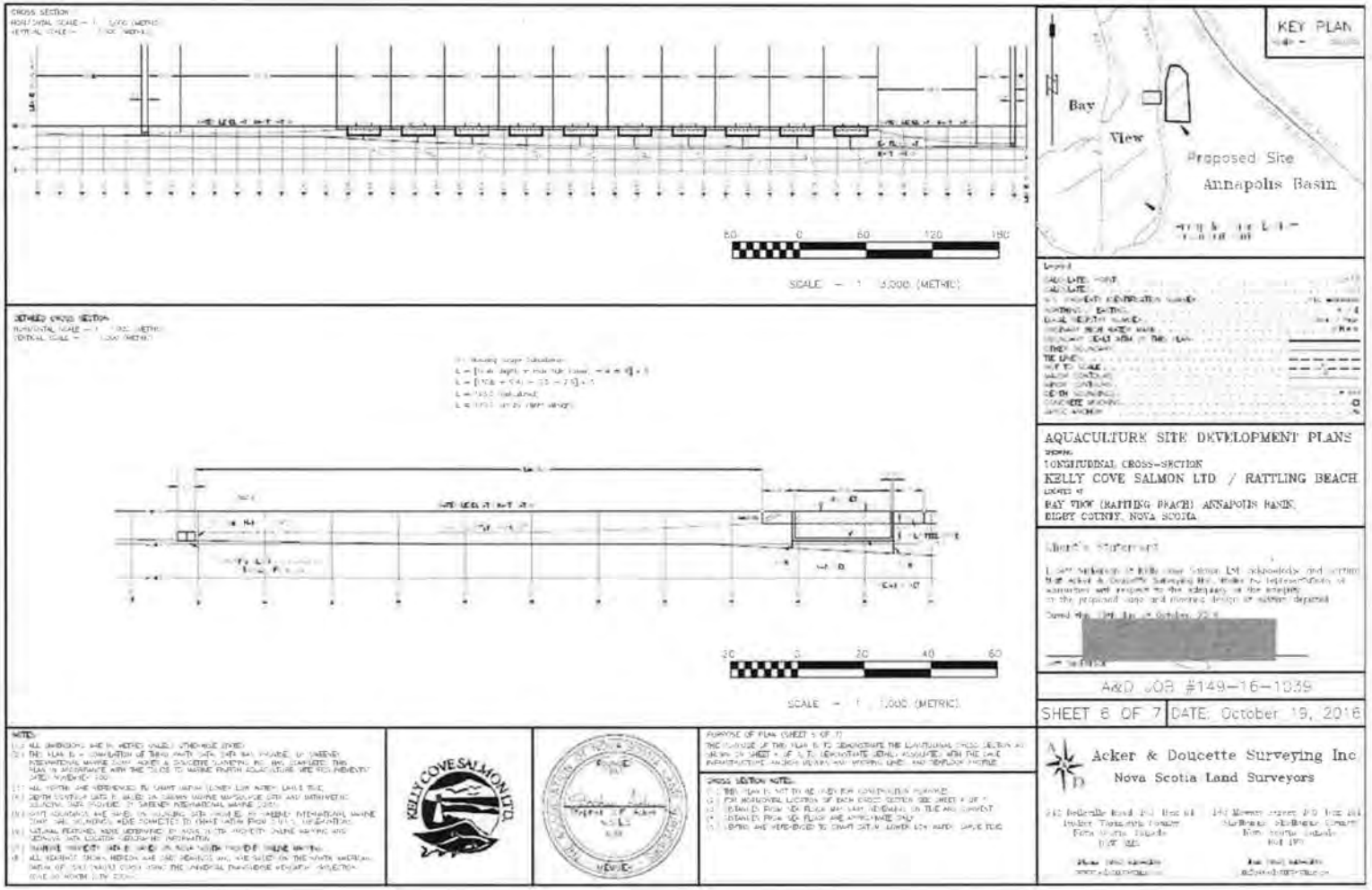


Figure 45. Rattling Beach Cross-sectional Plan B



Notice of Works

Transport Canada requires a notice of works form in order to notify the Navigation Protection Program (NPP) regarding a proposed or existing work in navigable water. The notice of works form will be completed and submitted separately from this document.

g. Sustainability of Wild Salmon

The Rattling Beach marine aquaculture site is located in the range of the Nova Scotia Southern Upland Population of Atlantic salmon. The Southern Upland region of Nova Scotia is divided into three salmon fishing areas: SFA 20, SFA 21, and part of SFA 22 (Fig. 46). The marine aquaculture site in Annapolis Basin is located in SFA 21. A region-wide electrofishing survey conducted in 2000 found salmon in 28 of 52 rivers surveyed (54%) whereas a similar survey conducted in 2008 and 2009 found salmon in only 21 of 54 rivers surveyed (39%) (DFO 2011a). The pH of water samples collected in the 1980s and 1990s indicated that several rivers in Nova Scotia were partially to heavily acidified (Lacroix and Knox 2005, Gibson et al. 2009, DFO 2011b). River acidification is recognised as a major factor in the survival of Atlantic salmon in Nova Scotia.

All Atlantic salmon index populations within DFO's Maritimes Region were assessed to be well below conservation (egg) requirements in 2014. Southern Upland (SU) and Outer Bay of Fundy (OBoF) Atlantic-salmon populations remain critically low; adult salmon returns to the LaHave River (SU), the Saint John River upriver of Mactaquac Dam, and the Nashwaak River (OBoF) remain among the lowest returns on record with estimated egg deposits ranging between 2 and 4% of conservation requirements in 2014 (Fisheries and Oceans Canada 2015e). In November 2010, COSEWIC designated the Outer Bay of Fundy, Nova Scotia Southern Upland, and Eastern Cape Breton population assemblages as endangered (Fisheries and Oceans Canada 2011). However, the SARA status is "no status, no schedule". There are a number of rivers in the Upper Bay of Fundy and Minas Basin which COSEWIC has listed as endangered or possibly extirpated for Atlantic salmon. These rivers are all over 100 km away from the proposed aquaculture site (ASF 2016b).

The Salmon Atlas and the Atlantic Salmon Federation (Figs. 47 - 48) count five salmon rivers feeding into the Annapolis Basin: Annapolis River, Round Hill River, Moose River, Bear River, and Acacia Brook; the Lequille River is considered extirpated (ASF 2016b). Other nearby rivers that flow into Saint Mary's Bay include the Boudreau and Meteghan rivers, which both also have wild salmon (ASF 2016b). The aquaculture site under boundary amendment application is located approximately 4 and 6 km from the mouths of Acacia Brook and Bear Rivers, respectively, the nearest identified wild salmon rivers.

The abundance of Atlantic salmon in the Maritimes Region has been in decline for over 20 years leaving populations in many rivers to become extirpated and Inner Bay of Fundy Salmon to be listed as endangered under the Species at Risk Act (SARA).

Figure 46. Atlantic Salmon Fishing Areas of Atlantic Canada
Note: Figure was sourced from the Fisheries and Oceans (2015e). White, numbered circles identify designated Salmon Fishing Areas.

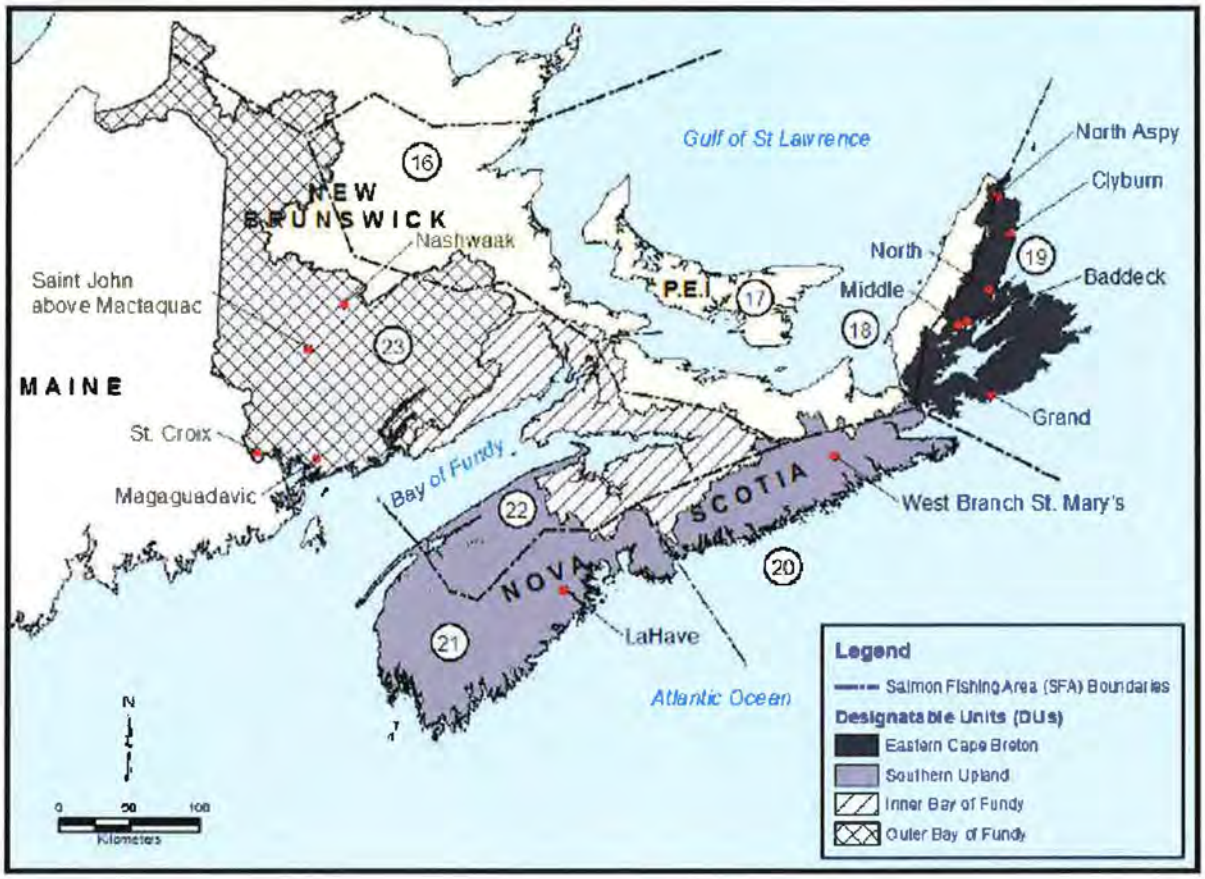


Figure 47. Atlantic Salmon Rivers of Nova Scotia According to The Salmon Atlas
Note: Figure was sourced from The Salmon Atlas (http://www.salmonatlas.com/atlanticsalmon/canada-east/nova-scotia/mapnovascotia.html)

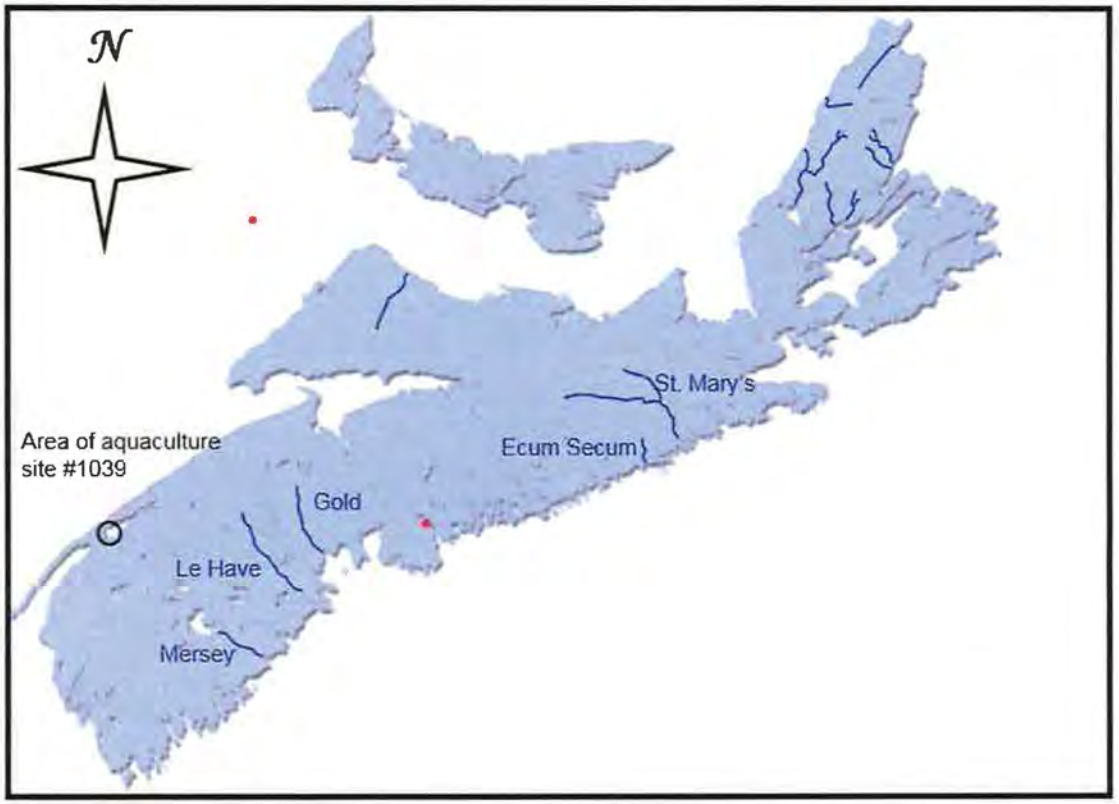
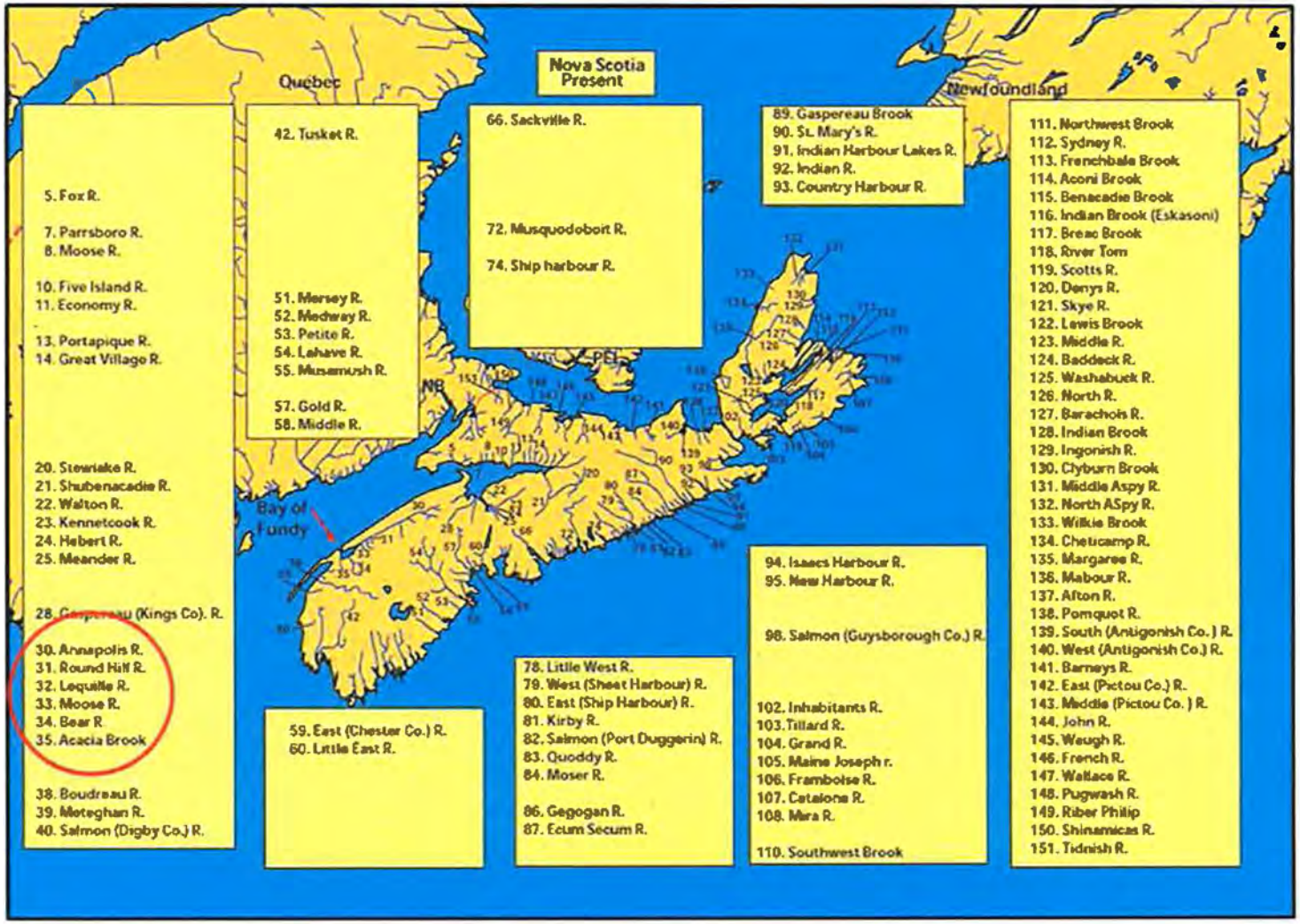


Figure 48. Present Atlantic Salmon Rivers of Nova Scotia
Note: Figure was sourced from the Atlantic Salmon Federation (2016)



A number of mitigation measures can be employed to reduce the potential impacts of salmon aquaculture on wild salmon populations. A list of priority objectives to reduce the risk of interactions between wild and farmed salmon was provided by DFO (1999). They are as follows:

1) Improved containment, including the development and implementation of Code of Practice, contingency plans, and a reporting system for escapees
2) Improved fish health management, including completion and implementation of provincial Codes of Practice, including contingency plans and a reporting system for specified diseases
3) Upgrading policy for introductions and transfers of fishes and improving related enforcement
4) Enhancing education and training of aquaculture workers, particularly relative to containment and farm/hatchery management
5) Ensuring the maintenance of wild stocks at or above their conservation requirements
6) Continuing the use of local stocks as donors, where possible, for currently practiced aquaculture, or using other strains if rendered sterile or properly contained, and
7) Continue incorporating risk analysis into the review process for the location of hatcheries and salmon farms

KCS has in place plans and codes of practice that address points 1, 2, 4, and 6 above. Points 3, 5, and 7 are beyond the control of KCS.

KCS' plans for containment include checking net integrity after every severe weather event and carrying out repairs as necessary. Net changes are conducted in such a manner as to prevent escapes and salmon losses. KCS will also follow the *Code of Containment for Culture of Atlantic Salmon in Marine Net Pens in New Brunswick* (2008), published by the New Brunswick Salmon Growers Association – now the Atlantic Canada Fish Farmers Association. In the unlikely event that there is an accidental release, the Site Manager will contact the Production Manager, who will then contact NSDFA to report the losses.

KCS follows their fish health management plan. A copy of this plan will become part of the Farm Management Plan, as required by NSDFA. As part of the fish health management, veterinarians regularly visit the marine sites to inspect fish and collect samples. Any diseases that are discovered are treated accordingly and any federally reportable aquatic animal diseases identified will be reported to CFIA.

All KCS farm-site workers involved in transferring or moving fish (e.g. introductions, harvests, net changes, etc.) receive training in proper techniques.

Currently, all of the KCS broodstock are of the Saint John River strain, a local, Maritime Canada strain of Atlantic salmon. Broodstock from other countries are not used.

h. The Number and Productivity of Other Aquaculture Sites in the Public Waters Surrounding the Proposed Aquacultural Operation

There are nine (9), aquaculture sites less than 15 km from the Rattling Beach site; two are marine finfish (Atlantic salmon), one is licensed for halibut (#1302), one for quahog (#1228), five for soft-shell clam (#1343, 1338, 1342, 1339, 1340) and one is for mixed species of sea/bay scallop, American Oyster, and European Oyster (#1042; Fig. 49, Table 15). The Atlantic salmon farms nearest to the site are both owned by KCS; however, only one (#1040) is operational. Victoria Beach #1040 was acquired in 2014 with an approved production level based on December 2015 I&T permit of 440,000 fish. The site is currently being operated to its fullest capacity.

Annual environmental monitoring of Rattling Beach has resulted in Oxic site classifications for the last two production cycles, indicating this site is stocked and managed sustainably. Production information for KCS Atlantic salmon sites in Annapolis Basin is privileged and confidential. KCS may be directly contacted with inquiries as it is not intended for public dissemination.

Figure 49. Marine Chart Showing Other Aquaculture Operations
Note: Figure was sourced from the Department of Fisheries and Aquaculture (2016)

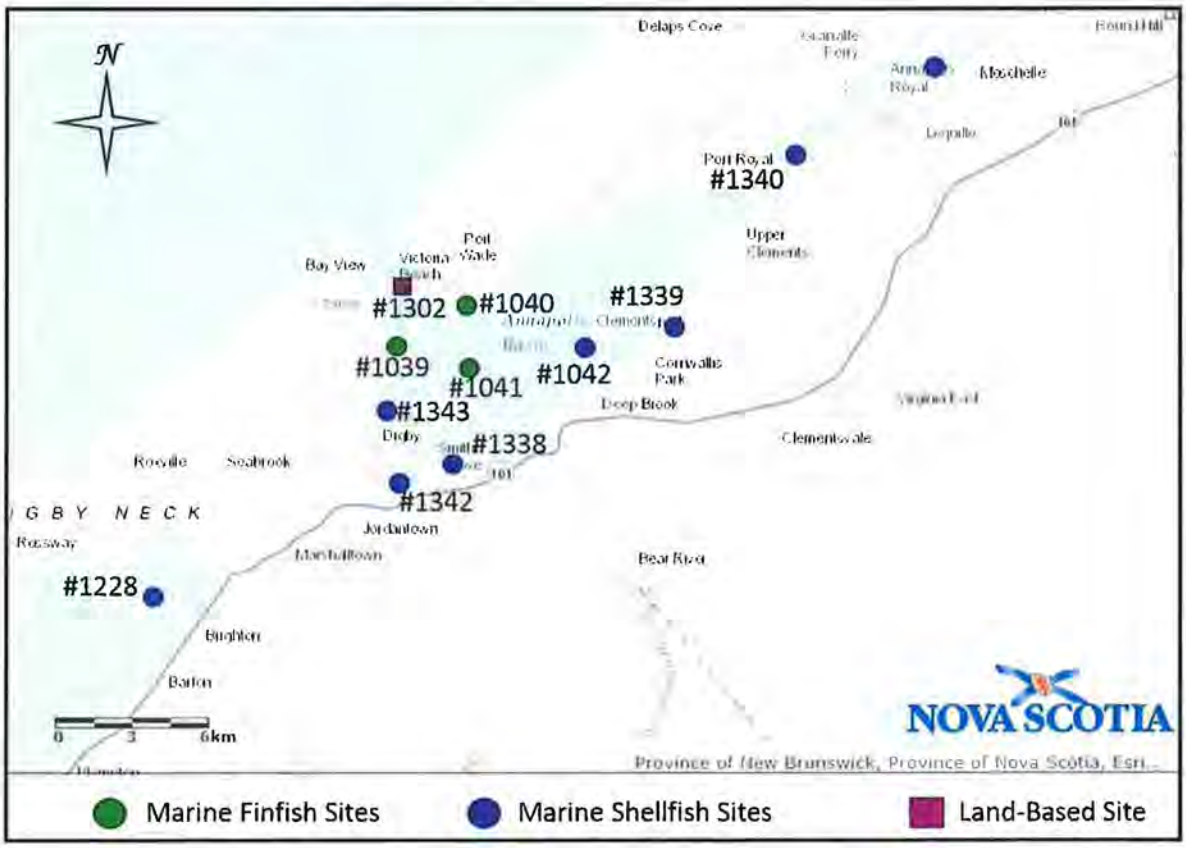


Table 15. Distance from Rattling Beach #1039 to nearby finfish and shellfish aquaculture sites

Site #	Distance to Rattling Beach (km)	Species	Owner
1302	2.2	Halibut	Pronet Micro Systems Inc.
1343	2.2	Soft-shelled clam	Innovative Fisheries Products
1041	2.7	Atlantic salmon	Kelly Cove Salmon
1040	2.8	Atlantic salmon	Kelly Cove Salmon
1042	3.9	Sea scallop, bay scallop, American oyster, European oyster	Innovative Fisheries Products
1338	5.9	Soft-shell clam	Innovative Fisheries Products
1342	6.6	Soft-shell clam	Innovative Fisheries Products
1339	7.5	Soft-shell clam	Innovative Fisheries Products
1340	11.1	Soft-shell clam	Innovative Fisheries Products
1228	14.2	Quahog	Innovative Fisheries Products

LIST OF CONTACTS

Table 16. Contacts

Contact Name	Affiliation	E-mail	Phone	Date of Contact	Reason for Contact
Andrew Hicks	Environment Canada	Andrew.Hicks@ec.gc.ca	(506) 364-5138	Oct 4, 2016	Bird Surveys
Justin Huston	NSDFA	hustonje@gov.ns.ca	(902) 424-2996	May 11, 2007	Rockweed harvesting
David MacArthur	Environment Canada	David.MacArthur@eg.gc.ca	(902) 426-6296	Jul 5, 2016	Shellfish Areas
Carl MacDonald	DFO	Carl.MacDonald@dfo-mpo.gc.ca	(902) 426-1488	Sep 28, 2011	Fisheries
Colin O'Neil	DFO – Policy & Economics	Colin.ONeil@dfo-mpo.gc.ca	(902) 426-6296	Oct 18, 2016	Fisheries
Wendy Vissers	NSDFA	Wendy.Vissers@novascotia.ca	(902) 526-3617	Oct 4, 2016	Rockweed licences
Sean Weseloh McKeane	Communities, Culture and Heritage	Sean.WeselohMcKeane@novascotia.ca	(902) 424-6475	Jun 12, 2016	Archaeological resources

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APPENDIX A
Baseline Assessment Report

Baseline Assessment Report

Site #1039
Rattling Beach

Annapolis Basin
Digby County
Nova Scotia

October 20, 2016

Prepared for:
Kelly Cove Salmon Ltd.
P.O. Box 1546
Shelburne, NS
B0T 1W0

Prepared by:
Sweeney International Marine Corp.
NRC-IMB Research Facilities
1411 Oxford Street
Suite 264-265
Halifax, NS
B3H 3Z1
Tel: (902) 492-7865
(902) 492-0359
Fax: (902) 492-7734
www.simcorp.ca

SIMCorp File #SW2016-059

New Brunswick Newfoundland Nova Scotia

NRC-IMB Research Facilities
1411 Oxford Street
Suite 367-368
Halifax, NS
B3H 3Z1
Tel: (902) 492-7865
(902) 492-0359
Fax: (902) 492-7734
www.simcorp.ca

October 20, 2016

SIMCorp File #SW2016-059

Mr. Jeff Nickerson
Kelly Cove Salmon Ltd.
P.O. Box 1546
Shelburne, NS
B0T 1W0

Dear Mr. Nickerson,

Reference: **Rattling Beach (#1039) Baseline Report**

Please find enclosed the above noted report and attached video footage for the proposed boundary amendment of site #1039 at Annapolis Basin, N.S.

If you have any questions or comments on the above noted report please do not hesitate to contact me at 902-492-7865.

Sincerely,

[redacted]

Marine Environmental Biologist
Sweeney International Marine Corp.

cc: Jessica Feindel (NSDFA)
[redacted] (KCS)
[redacted] (SIMCorp)

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1.0 INTRODUCTION

The following baseline report and attached video have been prepared by SIMCorp for Kelly Cove Salmon Ltd. to summarize the findings of the formal baseline environmental survey required as part of the application for a boundary amendment of Rattling Beach (#1039). Marine aquaculture site #1039 is located on the western shore of the Annapolis Basin, near the mouth of Digby Gut channel in Digby County (Fig. 1). This area is shown on CHS chart #4396. The current lease has dimensions of approximately 160 x 460 x 210 x 460 m with an area of approximately 8.74 ha (Table 1).

Figure 1 – Current Rattling Beach (#1039) location in Annapolis Basin

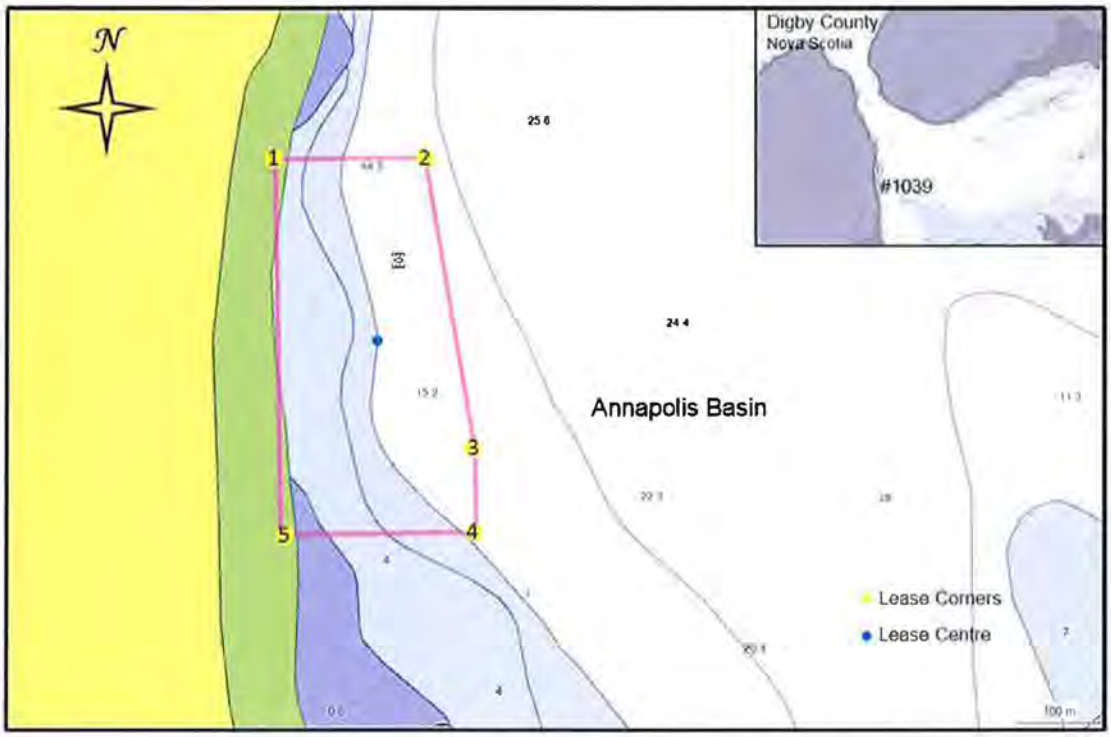


Table 1 – Current boundary and center coordinates of Rattling Beach (#1039)

SITE COORDINATES (NAD 83)		
Corner	**Latitude**	**Longitude**
1	44° 39' 20.34"	65° 45' 27.36"
2	44° 39' 20.40"	65° 45' 20.10"
3	44° 39' 08.76"	65° 45' 17.64"
4	44° 39' 05.52"	65° 45' 17.58"
5	44° 39' 05.40"	65° 45' 27.06"
Site Centre	44° 39' 12.68"	65° 45' 22.68"

The proposed boundary amendment extends the lease boundaries to accommodate all below surface gear. The dimensions of the proposed lease are approximately 140 x 180 x 725 x 590 x 260 m with an area of approximately 24.01 ha (Fig. 2, Table 2).

Figure 2 – Proposed boundary location for Rattling Beach (#1039)

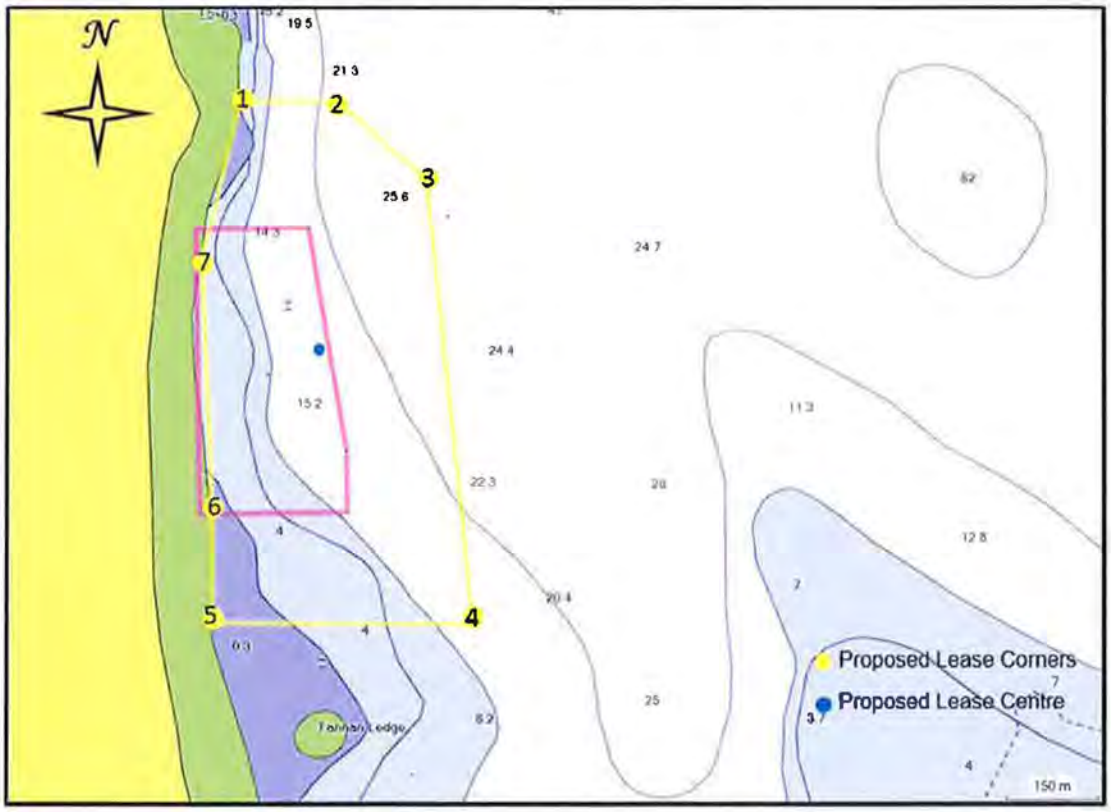


Table 2 – Proposed boundary and center coordinates of Rattling Beach (#1039)

SITE COORDINATES (NAD 83)		
Corner	**Latitude**	**Longitude**
1	44° 39' 27.0"	65° 45' 24.5"
2	44° 39' 27.0"	65° 45' 18.2"
3	44° 39' 22.9"	65° 45' 12.6"
4	44° 38' 59.6"	65° 45' 09.7"
5	44° 38' 59.7"	65° 45' 26.3"
6	44° 39' 05.8"	65° 45' 26.3"
7	44° 39' 18.8"	65° 45' 27.0"
Approximate Site Center	44° 39' 13.8"	65° 45' 19.2"

Benthic field data contained within this report were collected by SIMCorp Field Supervisor and Marine Environmental Biologist [redacted], B.Sc. and Marine Environmental Biologists [redacted] B.Sc. and [redacted] B.Sc., and Technician [redacted] on July 20, 2016. High tides were at 12:40 (7.7 m), low tides were at 18:49 (1.2 m).

Current speed and direction data presented in this document were collected with the use of an Acoustic Doppler Current Profiler (ADCP), deployed by Nova Scotia Department of Fisheries and Aquaculture (NSDFA) at site #1039 from June 29 to August 4, 2016 (37 days).

2.0 CONTACT INFORMATION

Proponent:

Company Name:	Kelly Cove Salmon Ltd.
Principal Contact:	Mr. Jeff Nickerson
Mailing Address:	P.O. Box 1546 Shelburne, Nova Scotia B0T 1W0
E-mail:	jnickerson@cookeaqua.com

Project Management:

Company Name:	Sweeney International Marine Corp.
Principal Contact:	[redacted]
Mailing Address:	46 Milltown Blvd. St. Stephen, New Brunswick E3L 1G3
Telephone:	(506) 467-9014
Cellular:	[redacted]
Facsimile:	(506) 467-9503
E-mail:	[redacted]@simcorp.ca

3.0 METHODOLOGY

The methods employed to conduct the seafloor sediment condition analyses were adapted, in consultation with Nova Scotia's Department of Fisheries and Aquaculture (NSDFA) officials, from a combination of Appendix 2 of the New Brunswick Department of Agriculture, Aquaculture and Fisheries (NB DAAF) *Bay of Fundy Marine Aquaculture Site Allocation Application Guide* (SOPs) and Appendix B of the Nova Scotia Department of Fisheries and Aquaculture draft *Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia* dated June 2016.

3.1 Sampling Locations

A total of nine stations were investigated for the purpose of this baseline survey (Fig. 3). Currently, the site is stocked, therefore only the seven corners of the proposed boundaries and two reference stations were sampled. The sampling station coordinates

are present in Table 3; sampling at the approximate site center was omitted because gear is present on site.

Reference stations previously sampled for the site (ANB-01 and ANB-05) are approximately 374 and 100 m from the current lease boundaries (Table 4). Extending the lease boundaries to incorporate all aquaculture site specific gear, above and below the waterline, will decrease the distance of the reference station ANB-01 to 155 m. ANB-05 will be within the proposed boundary; therefore, a new reference station is required. It is proposed ANB-A be located at N44° 38' 56.5" W65 45' 13.5", which is approximately 105 m south of the lease boundary. The recommended locations of the reference stations to accommodate the proposed boundaries are illustrated in Figure 3 and Figure 4.

An ADCP was deployed by Nova Scotia's Department of Fisheries and Aquaculture at the coordinate N44° 39' 03.3" W65° 45' 14.8" in approximately 14 m of water on June 29 to August 4. The current meter could not be deployed at the center of the proposed site due to the presence of gear and fish. Therefore, the location between the current and proposed site boundaries was chosen which is greater than 100 m from the nearest aquaculture site gear to avoid distortion of data (Fig. 4).

Figure 3 – Baseline sampling stations at Rattling Beach (#1039)

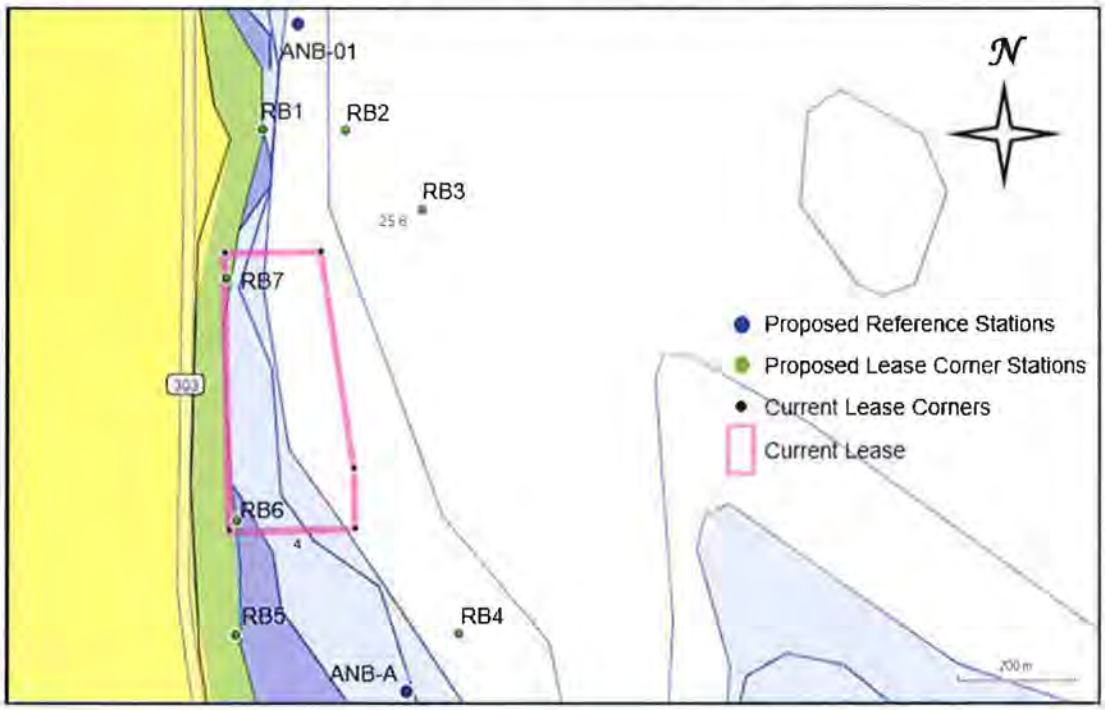


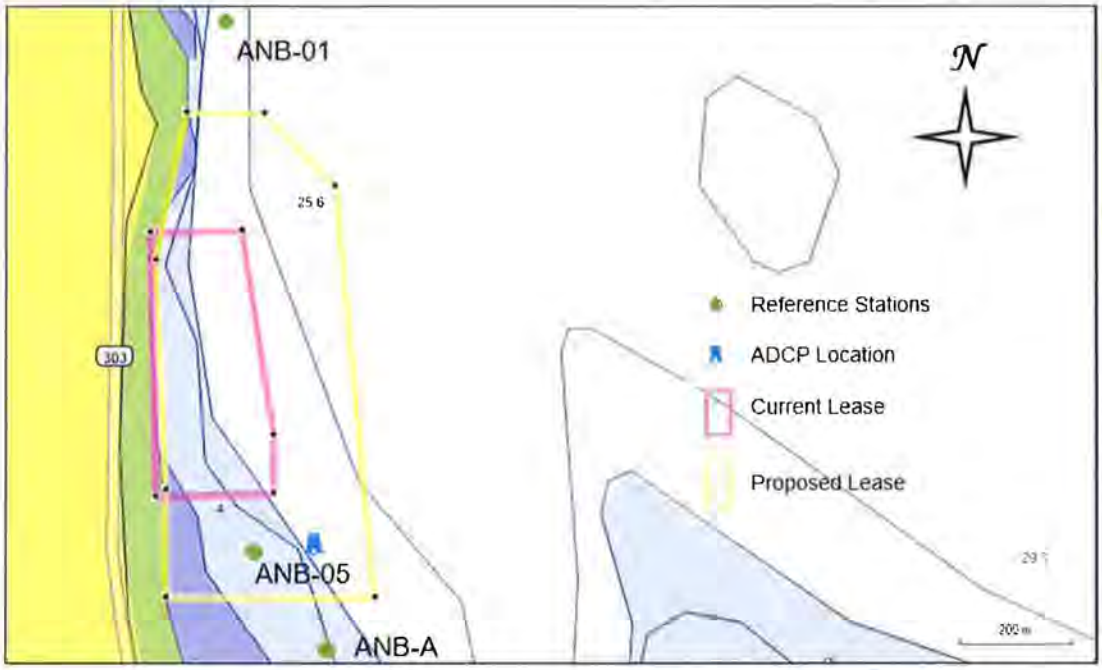
Table 3 - Baseline Sampling Coordinates at Site #1039, Annapolis Basin for Boundary Amendments

SITE COORDINATES (NAD 83)			
Station	**Location**	**Latitude**	**Longitude**
RB1	NW corner	44° 39' 27.0"	65° 45' 24.5"
RB2	NE corner	44° 39' 27.0"	65° 45' 24.5"
RB3	ENE corner	44° 39' 27.0"	65° 45' 18.2"
RB4	SE corner	44° 39' 22.9"	65° 45' 12.6"
RB5	ESE corner	44° 38' 59.6"	65° 45' 09.7"
RB6	SE corner	44° 38' 59.7"	65° 45' 26.3"
RB7	SSE corner	44° 39' 05.8"	65° 45' 26.3"
ANB-01	Upstream Reference	44° 39' 18.8"	65° 45' 27.0"
ANB-A	Downstream Reference	44° 39' 13.8"	65° 45' 19.2"

Table 4 – Reference station coordinates for current and proposed lease boundaries at Rattling Beach (#1039)

REFERENCE STATION COORDINATES (NAD 83)			
Station	**Latitude**	**Longitude**	**Lease Boundary**
ANB-01	44° 39' 32.5"	65° 45' 21.2"	Current and Proposed
ANB-05	44° 39' 02.3"	65° 45' 19.7"	Current
ANB - A	44° 39' 56.5"	65° 45' 13.5"	Proposed

Figure 4 – Proposed reference station locations for new lease boundaries and ADCP deployment location at Rattling Beach (#1039)



3.2 Sample Collection

A standard Ponar grab was used to collect sediment samples from all of the baseline stations; however, many of the samples could not be collected as the stations were located on hard bottom. After deployment, the grab was pulled aboard and placed on the deck. When present, the overlying water in the grab was removed via siphon and a picture was taken of the contents (Appendix D). Notes were taken on time, location, sediment type, colour, depth, odour, flora and fauna, etc. Sediment subsamples were collected from the top 2-cm of the grab samples with 10-mL syringes that were sealed with Parafilm M® and capped to form an airtight seal until analysed. Syringes were labelled and placed in a plastic cooler with ice. Samples were kept cool until analysed for redox, sulphide, porosity, and percent organic matter. The remaining top 2-cm of sediment was placed in 2-oz Whirl-Paks for use in grain size analysis.

Sample temperatures were recorded using HOBO ProV2 temperature loggers. Temperatures recorded from inside the sample cooler are presented graphically in Appendix F.

All reasonable efforts were made to conform to the SOPs, maintain storage temperature of samples, to collect samples that were as undisturbed as possible and to preserve the

integrity of the samples until analysed. However, site #1039 is characterized by coarse sediments, mainly of cobble stones, pebbles, and moderately packed medium-to-fine sand, gravel, and mud. Retrieving three undisturbed, soft sediment samples with minimal leakage from the grab and at least 5 cm sediment depth was not possible from at any of the stations. Samples were collected from both of the reference stations (ANB -01 and A) as well as three corner stations (Corners #2, 3, & 4) for redox, sulphide, porosity, percent organic matter, and grain size analyses. These samples came from grabs which failed to meet one or more of the criteria; achieving 5 cm of sediment penetration was not always possible and grabs were often leaking due to catching rocks and shells (Appendix G).

3.3 Video Surveillance

Video footage was recorded using a Seaviewer Underwater Camera System, which was mounted perpendicular with the seafloor in an aluminum frame; i-Torches were used for light. A 0.25-m^2 quadrat was visible in the field of view as a size reference. The video camera frame includes a scale bar demarcated with 5-cm segments. Live video footage from the underwater camera was recorded using a J.W. Fishers digital video recorder (DVR) built into a VRM-1 video recorder and monitor system with a GPS interface, which allowed coordinate positions to be overlaid onto the video. Video recording of each sampling station started at the surface with the viewing of a "whiteboard" showing collection location information, followed by a 360° pan of the area at the sampling station and then the underwater footage. The recording continued uninterrupted for the duration of the underwater surveillance and was concluded only after the camera was returned to the vessel at the surface. Footage coverage included the camera's descent, impact with the sediment surface, and minimum of 5-m^2 of seafloor over a minimum duration of two minutes. Screen shots of the seafloor for each sample location were taken and are presented in Appendix E. All on-site visual assessments have been recorded in the field notes and video assessments supplement the field data included in this report. Seafloor characteristics for each station are presented in Tables 6 - 14.

3.4 Bathymetric Profiling

Bathymetric profiling of the existing lease area was carried out on October 5, 2016 using a Hummingbird system Helix 5 SI-GPS to record X, Y, and Z coordinates throughout the lease. The data gathered during the scanning was then compiled and a three dimensional surface map and a two dimensional contour diagram produced by interpolation. Scanning of the Rattling Beach area began at the northern boundary of the proposed lease. Parallel transects were run the length of the lease area, separated by approximately 50 m. The maps illustrate the basic bathymetry of the scanned area and can serve to aid in the planning and placement of marine farm infrastructure such as grid anchors and other moorings.

4.0 SEDIMENT SAMPLE ANALYSIS AND DATA COLLECTION

4.1 Sediment Sample Analysis

All sediment samples were analysed within 72 hours of collection for redox potential and sulphide ion concentration (Table 15, Fig. 5). Temperatures were taken for each sample. Redox readings in mV were adjusted for temperature to produce mV readings relative to the normal hydrogen electrode (mV_{NHE}). Sulphide samples were brought to the same temperature at which the sulphide probe was calibrated before a reading was taken. Redox and sulphide measurements were made on the 0- to 2-cm deep portion of the grab samples. These results can be related to the Environmental Quality Definitions for Nova Scotia Marine Aquaculture Monitoring seen in Table 5. A copy of the laboratory data sheet for the redox and sulphide is presented in Appendix B.

Sediment samples from each station were sent to the SIMCorp Marine Benthic Sediments Laboratory for analysis of porosity, total organic content and grain size. The results of these analyses are presented in Table 16 and Appendix C.

Table 5 – Environmental Quality Definitions for Nova Scotia Marine Aquaculture Monitoring

	Sediment Classification		
Measurement	**Oxic**	**Hypoxic**	**Anoxic**
Sediment colour	Tan to depth > 0.5 cm	Tan to < 0.5 cm with some black sediments at surface	Surface sediments black
Microbial presence	No sulphur bacteria present	Patchy sulphur bacteria	Widespread bacterial mats
Macrofaunal Assemblage	Wide array of infauna and epifauna	Mixed group of mostly small infauna	Small infauna only
Sulfide, µM	< 750 (A) 750 to 1500 (B)	1500 to 3000 (A) 3000 to 6000 (B)	> 6000
Redox (Eh), mV	>100 (A) 100 to -50 (B)	-50 to -100 (A) -100 to -150 (B)	<-150
Organic matter, %	<= reference*	1.5 to 2X ref.	>2X reference
Porosity, %	<= reference*	1 to 10X ref.	>10X reference