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**September 15, 2025**

# Aquaculture Renewal Application

Licence/Lease No: 1040

**Licence/lease holder:**

Applicant: Kelly Cove Salmon Contact Person: Jennifer Hewitt

Nova Scotia Registry of Joint Stocks Number: _____

Revenue Canada Business Number: [redacted]

Telephone No. (Work): 9025218604 (Home): _____ (Cell): _____

Fax No.: _____ E-mail: Jennifer.Hewitt@cookeaqua.com

Mailing Address: 432 York St. Unit B

Bridgewater, NS Postal Code: B4V 0B4

Civic Address: _____

_____ Postal Code: _____

## Application Materials

A complete application includes the following:

- Renewal fee (payable to Minister of Finance) according to Section 77 of the Aquaculture Licence and Lease Regulations for Nova Scotia made under Section 64, Chapter 25 of the Acts of 1996, *the Fisheries and Coastal Resources Act*
- Application Form
- Development Plan according to application
- Copy of up-to-date Shareholder's Register which sets out the shareholdings of the company (if applicable)

## Public Notice and Disclosure

As part of the process for deciding on an aquaculture application, the Nova Scotia Department of Fisheries and Aquaculture ("Fisheries and Aquaculture") will disclose application information to other government bodies, including, if applicable, the Nova Scotia Aquaculture Review Board for use at an adjudicative hearing relating to the application.

**Submit completed applications to:**

**Nova Scotia Department of Fisheries and Aquaculture, Aquaculture Division**
**1575 Lake Road, Shelburne, NS B0T 1W0**
**E-mail: aquaculture@novascotia.ca**

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In accordance with departmental policy, which seeks to promote public involvement in the process for deciding on aquaculture applications, Fisheries and Aquaculture may disclose application information – not including, however, personal or business confidential information – on the departmental website.

## Privacy Statement

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

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

By signing and submitting this form, I acknowledge that I have read, understand, and accept the above statements regarding the collection, use, and disclosure of the information provided on this form.

Signature of Applicant [redacted]

Date Sept 15/25

Signature of Nova Scotia Department of Fisheries and Aquaculture Designate [redacted]

Date September 15, 2025

Received via Email September 15, 2025

# NS1040 Victoria Beach – Licence Renewal

**Finfish Marine Aquaculture Development Plan for Site #1040 Victoria Beach**
County of Annapolis
***Province of Nova Scotia***

**August 26, 2025**

Prepared for:
**Kelly Cove Salmon Ltd.**
P.O. Box 33
Bridgewater, NS
B4V 2W6

Prepared by:
***Sweeney International Marine Corp.***
46 Milltown Blvd.
St. Stephen, NB
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***www.simcorp.ca***

EP EMPLOYER

New Brunswick Newfoundland Nova Scotia

SIMCorp File #SW2025-031

**Sweeney International Marine Corp.**
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www.simcorp.ca

August 26, 2025

SIMCorp File # SW2025-031

[redacted]
Kelly Cove Salmon Ltd.
P.O. Box 33
Bridgewater, NS
B4V 2W6

Dear Ms. Hewitt:

Reference: **Application for licence renewal of aquaculture site #1040, Victoria Beach, Nova Scotia**

Please find enclosed the supporting materials for the above-mentioned application for a renewal of licence for the Victoria Beach marine aquaculture site #1040, in Annapolis Basin, NS.

If you have any questions or comments on the above-noted report, please do not hesitate to contact our office at 506.467.9014.

[redacted]
Senior Marine Environmental Biologist
Sweeney International Marine Corp.
[redacted]

cc: [redacted](SIMCorp)
[redacted](KCS)

## LIST OF SELECTED ACCRONYMS

| | |
|---|---|
| KCS | – Kelly Cove Salmon Ltd. |
| SIMCorp | – Sweeney International Marine Corp. |
| AAR | – *Aquaculture Activities Regulation* |
| CAI | – Cooke Aquaculture Inc. |
| DFO | – Department of Fisheries and Oceans Canada |
| EMP | – Environmental Monitoring Program |
| FCR | – Feed Conversion Ratio |
| FMP | – Farm Management Plan |
| GMG | – GMG Fish Services Ltd. |
| HDPE | – High-density polyethylene |
| NSDFA | – Nova Scotia Department of Fisheries and Aquaculture |

## PROJECT TEAM AND CONTACT INFORMATION

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

| Team Member | Affiliation | Role | Qualification |
|---|---|---|---|
| [redacted] | KCS | Corporate Support | Global Chief Sustainability Officer |
| Jennifer Hewitt | KCS | Corporate Support | Compliance Manager |
| [redacted] | KCS | Corporate Support | Production Manager NS |
| [redacted] | KCS | Survey Plan Preparation | P Eng |
| [redacted] | SIMCorp | Senior Marine Environmental Biologist, Atlantic Region | MSc |
| [redacted] | SIMCorp | Sr. Project Manager | Company Owner |

## CONTACT INFORMATION

**Proponent:**

Company Name: Kelly Cove Salmon Ltd.
Principal Contact: [redacted]
Mailing Address: P.O. Box 33
Bridgewater, NS, B4V 2V6
Telephone: (902) 875-8603
Facsimile: (506) 755-1492
Cellular: [redacted]
E-mail: [redacted]

**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]

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## APPENDICES

# FACTORS TO BE CONSIDERED IN DECISIONS RELATED TO MARINE AQUACULTURE SITES

## Section 1.0 OPTIMUM USE OF MARINE RESOURCES

Marine aquaculture site #1040, called Victoria Beach, is in Annapolis Basin, Annapolis County, Nova Scotia (Fig. 1). Kelly Cove Salmon Ltd. (KCS), the Atlantic Canadian farming division of Cooke Aquaculture Inc. (CAI), has been farming the Victoria Beach site since 2011.

The licence for marine aquaculture site #1040 will expire in April 2026. KCS would like to continue farming site #1040 and, therefore, is making application for a licence renewal. The Victoria Beach site has operated with sixteen 100-m cages housing up to 550,000 Atlantic salmon; however, it is currently under application for a boundary amendment. A development plan package dated October 11, 2022 was submitted to the Nova Scotia Department of Fisheries and Aquaculture (NSDFA). Additional information to what is contained within the present document can be found in the development plan package of October 11, 2022.

KCS is dependant on the production of the Victoria Beach site as a major contributor to its Nova Scotian operations. The Victoria Beach site directly employs 15 site workers, indirectly supports several other positions within KCS, and contributes to the provincial GDP and federal, provincial, and municipal taxes.

The general area of site #1040 appears on Canadian Hydrographic Service (CHS) Nautical chart #4396 (Annapolis Basin) and National Topographic Systems Map Sector 021A (Annapolis Royal, Nova Scotia). The coordinates of the corners of the proposed lease area are presented in Table 1. The existing Victoria Beach aquaculture site is compliant with NPP requirements.

Site #1040 is north-northeast of Digby, in Annapolis Basin. The Annapolis Basin provides many different resources for humans and animals. Fishing, especially lobster and scallops, are important activities contributing to the economic wellbeing of the communities in Digby and Annapolis Counties. In addition, Annapolis Basin is considered significant habitat for migratory and aquatic birds. The area offers a variety of tourist-related activities, including whale and bird watching, hiking, and boating. Being an existing site that has operated for several years, little change is expected with respect to environmental, social, or cultural concerns.

The Victoria Beach marine aquaculture site is within the range of the Nova Scotia Southern Upland and Inner Bay of Fundy designated units of Atlantic salmon. Both designated units have experienced drastic declines in population over recent decades. The closest river with a remnant population of salmon is the Bear River, located 6 km from the Victoria Beach marine farm. In stewardship of the nearshore environment, and recognizing potential risks to wild salmon in Nova Scotia, KCS has adopted many measures, best-practices, and state-of-the-art technologies known to greatly reduce potential impacts to wild salmon. KCS is constantly improving aquaculture practices with new and proven technologies. KCS routinely provides updated training and refreshes the knowledge of their operators in the leading best practices. Cage integrity is addressed with state-of-the-art, engineered netting and anchoring materials,

extensive computational modelling of real and potential farm environments, regular and frequent failure testing, and replacement of critical components and materials. All smolt stocked into marine farms can be tracked back to the operator via DNA as per the enhanced regulations in NS. KCS and its parent company, Cooke Aquaculture Inc., are committed to salmon conservation, as evidenced by their involvement as founding members of the Fundy Salmon Recovery Project, which is working toward restoration of Inner Bay of Fundy salmon populations.

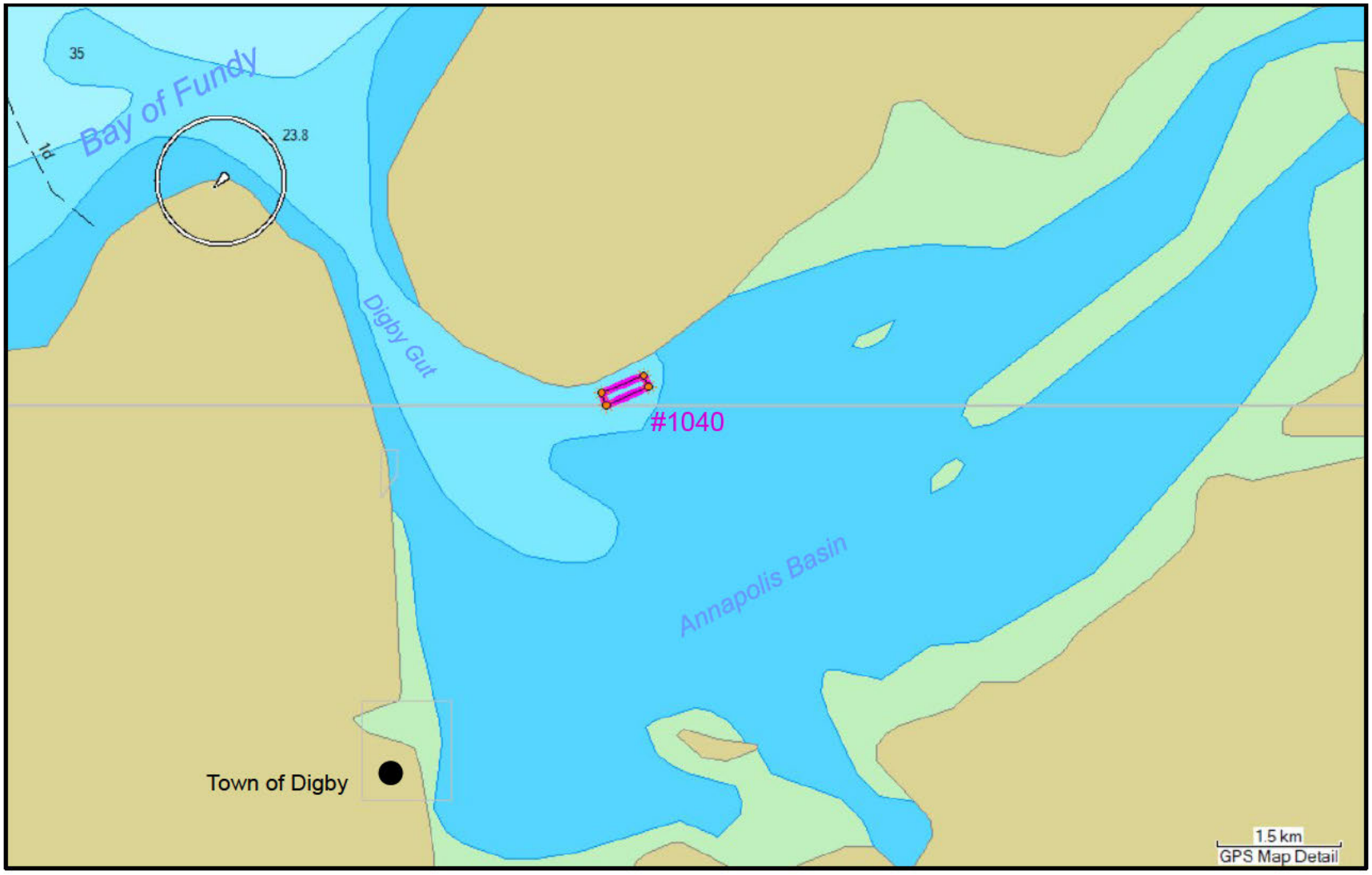
Aquaculture in Annapolis Basin has been able to successfully co-exist with other resources, providing increased employment and industry diversity. KCS is Cooke Aquaculture's farming division, and Cooke employs approximately 300 people in Nova Scotia through its various divisions. Victoria Beach is an existing site and does not displace or adversely affect other industries in the area. Extensive benthic and water-quality monitoring programs are in place at the site. KCS uses numerous operational measures to ensure wildlife interaction is as minimal and neutral as possible.

The following report and associated documents have been prepared and/or compiled by Sweeney International Marine Corp. (SIMCorp) for KCS in support of a licence renewal of #1040. SIMCorp is assisting KCS in this application through the preparation of this report and other supporting roles. All correspondence should be copied to SIMCorp.

**Table 1.** Proposed Coordinates of Lease #1040 in Annapolis Basin

| APPROXIMATE SITE CO-ORDINATES (NAD 83) | | |
|---|---|---|
| **Corner** | **Latitude** | **Longitude** |
| 1 | 44º 39' 55.54" | 65º 43' 31.94" |
| 2 | 44º 40' 04.18" | 65º 43' 37.12" |
| 3 | 44º 40' 08.52" | 65º 43' 31.14" |
| 4 | 44º 40' 14.90" | 65º 43' 10.28" |
| 5 | 44º 40' 15.78" | 65º 42' 59.15" |
| 6 | 44º 40' 07.14" | 65º 42' 53.97" |
| Approximate Site Center | 44º 40' 07.68" | 65º 43' 17.27" |

**Figure 1.** Location of Victoria Beach #1040 in Annapolis Basin



# Section 2.0 THE CONTRIBUTION OF THE PROPOSED OPERATION TO COMMUNITY AND PROVINCIAL ECONOMIC DEVELOPMENT

## 2.1 Production Plan

The number of fish introduced to the Victoria Beach (#1040) site in 2024 was 550,000 with an expected grow out period of 22 months or less (Table 2). The expected fallow period is 3 months as outlined in the harvest plan (Table 3).

**Table 2.** 2024 Production Cycle

| Species and Strain | Stock Source (hatchery) | Number of Cages and Type | Cage Size (m) | Rearing & Predator Net Depth (m) | | Total Number of Fish Introduced | Mean Weight of Fish Introduced (g) | Length of Grow-out Period | Maximum Stocking Density (kg/m$^3$)* | Maximum Biomass (kg)** | Total Amount of Feed (kg)** | Average Harvest Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Atlantic Salmon, SAGA strain** | Johnson's Lake | 16 | 100 | Predator | 10 | 550,000 | 100 | < 22 months | 26 | 3,025,000 | 4,158,000 | 5.5 |
| | | HDPE | | Rearing | 9 | | | | | | | |

**Table 3.** Harvest Plan Details

| End Date | Date of Re-entry | Expected Fallow Period |
|---|---|---|
| March 31, 2026 | June 31, 2026 | 3 months |

* Biomass will be stocked evenly among cages. Maximum stocking density is not expected to exceed 25 kg/m$^3$ (maximum would be 26 kg/m$^3$ if every fish survived).
** Projected maximum values for production cycle is assuming a mortality of 10% and an FCR of 1.4:1.

## 2.2 Infrastructure

All active finfish farms in Nova Scotia are required to have a Farm Management Plan (FMP), which is approved by NSDFA. The plan covers fish-health management, containment management, farm operations, and environmental monitoring.

Victoria Beach is an existing, approved site that currently has infrastructure to support the operations already in place, including sixteen (16) net pens.

The containment management is an essential part of a marine finfish farm. The cages at Victoria Beach are engineered to minimize wildlife interactions with farmed fish. Above-water bird rings and netting are installed to discourage bird encounters. Underwater predator netting during winter months eliminates incidents of predation.

GMG is the fish-services division of CAI and a sister company to KCS. GMG provides the moorings for installation, and the specifications were determined by modelling of the oceanographic conditions encountered at this location. CAI engineering staff determined all the infrastructure components are adequate as per NSDFA regulations. The cages and moorings were modeled using guidance from the following engineering standards:

- NS 9415:2009 – “Marine fish farms: Requirements for site survey, risk analyses, design, dimensioning, production, installation and operation”
- “Marine Scotland: A Technical Standard for Scottish Finfish Aquaculture”
- ISO16488 – “International Standard: Marine fish farms – open net cage – design and operation”
- API RP 2SK – “Design and Analysis of Stationkeeping Systems for Floating Structures”
- DNV-OS-E301 – “Position Mooring”

Each area of the grid was designed to withstand different maximum loads based on the criteria listed above. The cage components such as the handrail, float pipes, bird stands, and weight rings are made of HDPE.

Multiple KCS vessels are used to service the cages at the site, depending on the required task. Vessels include feeding boats, skiffs, and maintenance barges. While in use, the vessels will be tied to the cages, otherwise they will be moored to the wharf or in service at other locations. Home port for site #1040 is in Digby; KCS uses the government wharf.

## 2.3 Services and Suppliers

KCS is a vertically integrated company, with 14 hatcheries, 126 farm sites, 235 transport trucks, 7 processing facilities, and 288 vessels in Atlantic Canada. Despite this vertical integration, KCS uses local suppliers whenever possible, employing the services of 1269 local suppliers. Types of suppliers used by KCS in Nova Scotia include divers, mechanics, boat repair facilities, hardware providers, welders, heavy-equipment operators, crane operators, marine supplies, fuel distribution companies, environmental consultants, electricians, boat

brokers, boat builders, engine suppliers, hotels, restaurants, and ferries, with $231 million spent annually on goods and services. Figure 2 illustrates the location of CAI's suppliers in Atlantic Canada, including Nova Scotia.

**Figure 2.** Cooke Aquaculture Atlantic Canada Supplier Locations


## 2.4 Employment

KCS is Cooke Aquaculture's farming division, and Victoria Beach is an important component of KCS' success in Nova Scotia. Through its vertically integrated family of companies, Cooke Aquaculture employs more than 2300 people in Atlantic Canada, with ~ 300 people employed in Nova Scotia. KCS' positions include feed and maintenance technicians, fish-health and environmental-management professionals, technical support, boat captains, accounting, human resources, and various administrative positions. Most positions offered by KCS in Nova Scotia are full-time. The Victoria Beach site directly employs 5 full-time site workers and supports 10 part-time positions in fish health, diving, net washing, and maintenance barge deckhands.

## 2.5 Other Economic Contributions to the Local Community and Province

Cooke's operations contribute to employment in service and supply industries, as listed in section **2.3 Services and Suppliers**, which includes contributions to the local economy in the town of Digby and throughout Nova Scotia. Services and suppliers are locally sourced whenever possible. In addition, KCS' feed division, Northeast Nutrition Inc., is based in Truro and their distribution company, AC Covert, is based in Dartmouth. In addition to the direct and indirect employment the site provides, the Victoria Beach aquaculture site contributes to the provincial GDP and federal, provincial, and municipal taxes.

In 2024 alone, Cooke Aquaculture sponsored over 60 Nova Scotian organizations, charities, associations, and events throughout the province, with support mainly focused on the rural communities in which KCS operates.

## 2.6 Adverse Economic Impacts

The Victoria Beach site was first issued in 2005 to Casey Fisheries. It was purchased by KCS in 2011. KCS actively communicates with other local industries and permits local fishermen to use the lease area for fishing. This lease has been in production continually since KCS took possession in 2011; there has been no known adverse economic impacts.

# Section 3.0 FISHERIES ACTIVITIES IN THE PUBLIC WATERS SURROUNDING THE PROPOSED AQUACULTURAL OPERATION

## 3.1 Impact on Fisheries Activities

NSDFA's Environmental Monitoring Program Framework for Marine Aquaculture in Nova Scotia – July 2021 (Nova Scotia Department of Fisheries and Aquaculture 2021a) outlines a series of principles and criteria to guide the management process and to determine levels of monitoring and mitigation strategies for each aquaculture site. The Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia – July 2021 (Nova Scotia Department of Fisheries and Aquaculture 2021b) describes the procedures that support the application of the framework.

The Environmental Monitoring Program Framework focuses on benthic marine habitat in the immediate vicinity of the aquaculture site. Although sediment sulfide concentration is the key indicator for assessing organic loading, which is one of the primary concerns regarding aquaculture impacts on the environment, fish, and fish habitat, a suite of sediment variables is used to validate sulfide data. In addition, benthic video collected at each monitoring station is required and used to evaluate a site's performance in the event sediment samples are unattainable.

KCS and their contractors adhere to the Environmental Monitoring Program Framework and Standard Operating Procedures established by NSDFA.

### *3.1.1 Commercial Fisheries*

There are over 500 species of fish found in Atlantic Canada and most of them are present off the Atlantic 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 seafloor. Various shellfish and seaweeds also support commercial fisheries. In 2023, the top five groundfish and pelagic species landed in Nova Scotia included herring, haddock, redfish spp., halibut, and hake (Fisheries and Oceans Canada 2025a).

The Victoria Beach (#1040) aquaculture site is in Maritimes statistical district 39. Active fisheries in the vicinity of site #1040 include a few species of groundfish (including cod and some flatfish) (Rozalska and Coffen-Smout 2020). The Victoria Beach aquaculture site is in Annapolis Basin, Annapolis County, within 90 m from low tide, where the harvesting of some shellfish is prohibited (Government of Canada 2024). However, other shellfish, such as scallops and lobsters, are captured (Rozalska and Coffen-Smout 2020).

KCS has successfully operated the Victoria Beach lease since 2011 and there have been no known impacts between the salmon farm and commercial fisheries in the area. KCS has been operating in the same waters as commercial lobster fisherman (allowing traps to be set within the lease boundaries), ground & pelagic fisheries, and shellfish harvesters without any adverse impacts. Since 2002, KCS has been farming another site within Annapolis Basin, known as Rattling Beach.

### *3.1.2 Recreational Fisheries*

Local angling associations, such as the Nova Scotia Association of Anglers and Hunters do not record landing numbers.

Tidal recreational fisheries in Nova Scotia include Atlantic sturgeon, eel, gaspereau, smelt, and striped bass. No licence is required for either of these species if fishing in tidal waters (Fisheries and Oceans Canada 2025b). Fishing for these species could occur in the vicinity of aquaculture lease #1040, but the lease does not block access to these recreational fisheries.

The Victoria Beach aquaculture site is within clam harvesting area 2: which includes the inland and tidal waters of Digby County, Annapolis County, and Kings County. Harvesting of shellfish is always prohibited within 125 m of a wharf or aquaculture operation, for example, finfish cages (Fisheries and Oceans 2022).

The recreational scallop fishery requires a licence from DFO. Licence conditions specify the season dates and minimum scallop size. The daily bag limit is 100 scallops (Fisheries and Oceans Canada 2025c). While scallops could be harvested by recreational divers if further than 125 m from the cages of the Victoria Beach lease, water currents would make the site unappealing as a recreational dive site for scallop fishing. The continued presence of the aquaculture site is not expected to impact recreational scallop fisheries.

Recreational licences for harvesting of marine worms are available on an open-entry basis from DFO. The Victoria Beach aquaculture site is in marine worm harvest area 2. Marine worm harvesting is conducted by hand or with hand-held tools on mud flats throughout Maritimes Region (Fisheries and Oceans Canada 2025c) and would not occur within lease #1040.

### *3.1.3 Aboriginal Fisheries*

Mi'kmaq of Nova Scotia harvesters have aboriginal and treaty rights to fish and do not require provincial fishing licences or need to follow provincial seasons. Mi'kmaq of Nova Scotia harvesters do have to follow provincial regulations related to safety and measures necessary for conservation, such as species at risk (Nova Scotia Canada 2021a). In Digby and Annapolis Counties, herring, bluefin tuna, alewives/gaspereau, elvers, soft shell clam, sea scallop, lobster, Jonah crab and green crab were landed in 2020 - 2021. Gear used for all fisheries included rakes/tongs, angling, drag, gill/drift nets, traps, and electric harpoon (D. Eberhard, pers. comm.).

## 3.2 Impact on Fisheries Activities

Standard best management practices for rearing fish in a marine environment are followed at the site. These practices have controls in place to mitigate potential environmental effects on fish and fish habitat. The site must also have a selection of additional mitigation strategies to apply if an environmental compliance threshold is exceeded (refer to section **3.2.1 Environmental Impact Mitigation Strategies**).

### *3.2.1 Environmental Impact Mitigation Strategies*

Mitigation strategies must be based on best management practices and a hazard analysis of environmental impacts. For the environmental-impact mitigation plan, hazards are identified for each operational process, and measures to control the hazard, in the form of procedures and policy, must be outlined. The site's FMP contains site-specific mitigation strategies which are reviewed annually and amended after every production cycle by NSDFA. For this site, there were five potential critical control points for environmental impact noted in the HACCP plan of the FMP (Table 4).

Net washing may contribute to benthic impacts if not done correctly and frequently. KCS nets are cleaned regularly during the warmer months to ensure that the amount of fouling remains minimal. KCS has invested in remotely operated net washing equipment to ensure the proper resources are available to wash the nets on a regular schedule. Nets are washed every two weeks from June to October, except for during periods of extreme tide. This schedule is based on monitoring of biofouling levels on nets.

**Table 4.** Potential Environmental Impact Hazards & Mitigation plans

| | **Potential Environmental Impact Hazard** |
|---|---|
| 1. | Overstocking of site, or specific areas of site |
| 2. | Settlement of feces affects bottom sediments |
| 3. | Cleaning of nets causes release of biofouling |
| 4. | Overfeeding causes settlement of uneaten feed |
| 5. | Improper feeding techniques cause settlement of uneaten feed or overfeeding |
| | **Mitigation for Potential Environmental Hazards** |
| 1. | Do not overstock cages. If the biomass exceeds 25 $m^3$, thinning of the cages will occur. |
| 2. | This is a parameter that is focused on during site selection to ensure proper current flow and flushing. |
| 3. | Nets are cleaned on a regular schedule to limit biofouling. KCS maintains a two-week net cleaning schedule, but frequency may be increased if needed. |
| 4. | Adjust feed given according to expected rate. Remote feeding technicians aggressively monitor feed targets, and maximum allowable feed levels for each cage have been set. These are updated after each mort dive to ensure accurate biomass per cage is reported and available. |
| 5. | Remote feeding technicians take an annual training program which covers; feed ingredients, nutrition, feeding principles and practice, site communication, extended communication pathway, team focus and development to ensure all technicians are feeding according to the SOPs. |

If poor environmental performance is determined through monitoring, mitigation must be implemented as stated in the Environmental Monitoring Program Framework. Furthermore, an updated mitigation plan to address the poor environmental performance must be added to the FMP and submitted to NSDFA. A healthy marine environment is vital to the site's operation. If the marine environment is poor enough to affect fishing activities, it would also be detrimental to the site's production.

KCS provides detailed maps and diagrams of their sites when requested. These maps and diagrams show the location of all above-water and underwater infrastructure, thus informing fishing efforts. KCS reports harmful algal blooms to the province of Nova Scotia, potentially benefiting invertebrate fishing activities near the site.

# Section 4.0 OCEANOGRAPHIC AND BIOPHYSICAL CHARACTERISTICS OF THE PUBLIC WATERS

## 4.1 Oceanographic Environment

### *4.1.1 Wind*

The Victoria Beach aquaculture site #1040 is located along the northern shore of Annapolis Basin, between Port Wade and Victoria Beach. The site is sheltered by the surrounding land, with the most significant wind direction from the east-northeast, to which the site is exposed to an 11-km fetch.

The closest weather station from which hourly wind-speed and direction data are available is the Brier Island station located on Brier Island at N44˚ 17’ 09.000” W66˚ 20’ 48.000” (Government of Canada 2021). Data collected between January 1, 2012 and December 31, 2021 were used to produce the wind-rose plot of Figure 3. Based on this data, the most common winds in the Brier Island area occur between 145º and 165º (coming from approximately the south-southeast). The strongest winds are from the west-northwest to the northwest. The most common wind-speed class is 7 to 11 knots (Fig. 4). Maximum wind speed and direction recorded at the Brier Island weather station is presented in Table 5.

**Figure 3.** Wind-rose Plot of Brier Island Weather Station Data Collected Between January 1, 2012 and December 31, 2021
Note: the bars on the plot indicate the direction the wind was coming from; Data sourced from Government of Canada (2021)

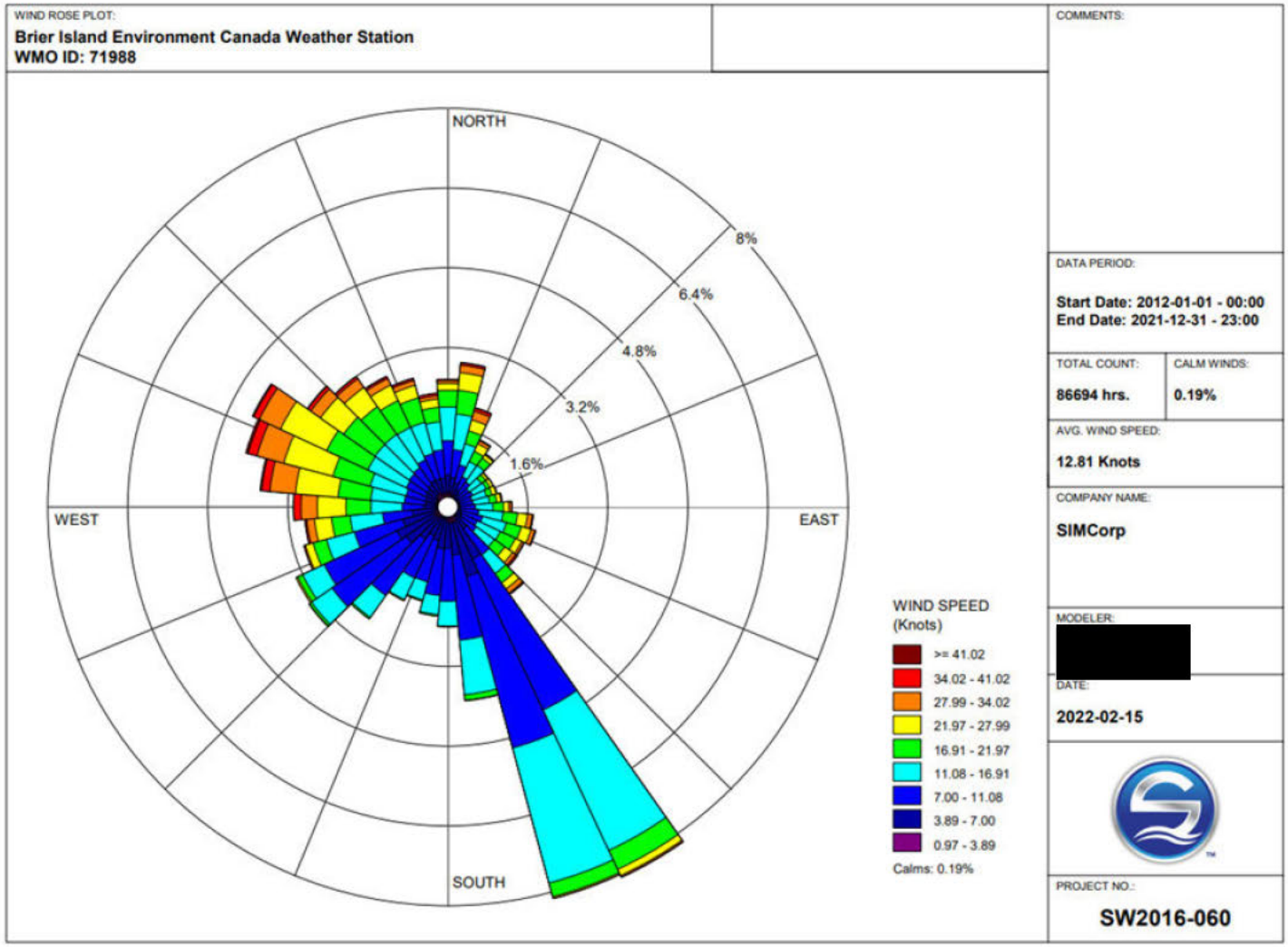


**Figure 4.** Frequency of Wind Speed Observed at the Brier Island Weather Station between January 1, 2012 and December 31, 2021
Data sourced from Government of Canada (2021)

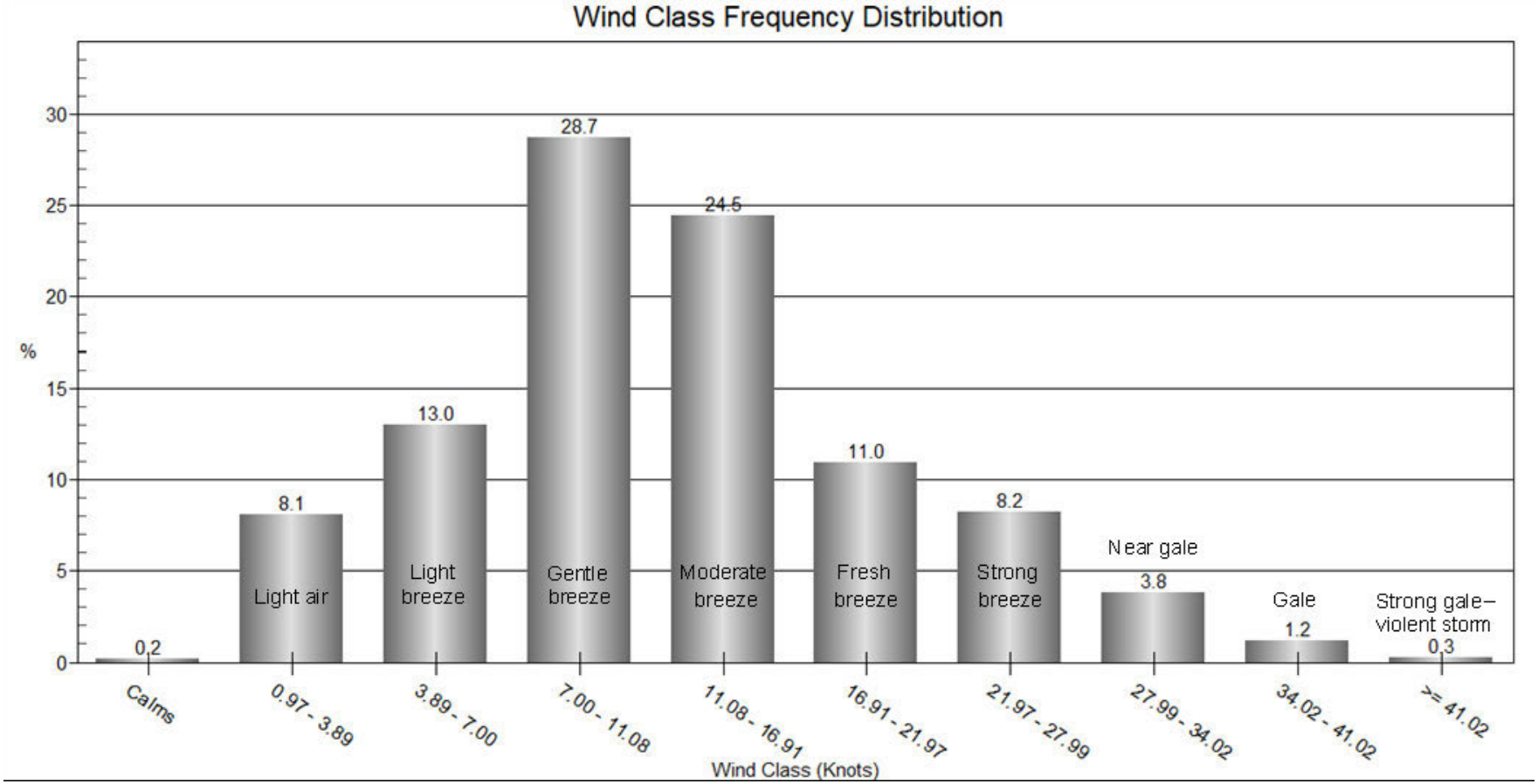


**Table 5.** Maximum Wind Speed and Direction Measured at the Brier Island Weather Station
Note: current to December 31, 2021(Government of Canada 2021)

| Date of Maximum Wind of the Year | Wind Speed (knots) | Wind Direction |
|---|---|---|
| November 13, 2021 | 46 | ESE |
| May 9, 2020 | 44 | W |
| September 7, 2019 | 46 | N |
| January 4 & November 14, 2018 | 45 | SE & W |
| February 13, 2017 | 49 | N |
| February 16, 2016 | 50 | SE |
| February 15, 2015 | 51 | NNW |
| March 26, 2014 | 58 | NNW |
| February 17, 2013 | 51 | W |
| December 30, 2012 | 49 | NW |

### *4.1.2 Waves*

The effect of waves generally diminishes with distance into the Bay of Fundy, with mean significant wave height being 1.0 to 1.6 m in the outer Bay of Fundy and Gulf of Maine, 0.5 to 1.0 m in the mid-Bay, and < 0.5 m in the upper Bay (Li et al. 2015). Maximum significant wave heights can reach 5 to 6 m in the outer Bay but are generally < 4 m in the mid-Bay and upper Bay (Li et al. 2015).

Wind and wave conditions for site #1040 in Annapolis Basin were described by Karimi and Steinke (2020). For site #1040, the largest waves are generated from the south and reach maximum heights of 0.9 m (10-year return) and 1.1 m (50-year return).

### 4.1.3 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. 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 on the cage grid caused by weather and climate extremes. In New Brunswick, Nova Scotia, and Newfoundland, KCS has several high energy sites, which are exposed to strong winds and large waves. The grid and anchoring systems used on site #1040 in Annapolis Basin are engineered to be successful at these high energy sites. The plastic, circular cages and grid components that are employed by KCS have been engineered to withstand expected conditions at this location. During extreme weather conditions, personnel will not be working on the cage site. Once the extreme weather has passed, crews will examine the cage system and fish stock for damage. If damage is sustained, repairs will be carried out as necessary. Any significant damage will be reported to NSDFA.

### 4.1.4 Currents

Collection of local current speed and direction data throughout the water column was performed from September 8 to October 17, 2011 using a 300-kHz Acoustic Doppler Current Profiler (ADCP) deployed by SIMCorp. The current meter was deployed at the center of the proposed lease, in approximately 21 m of water, at coordinates N44° 40.117’ W65° 43.298’.

Throughout the water column, the most common flow was in a general western direction, with a categorical mode of 265 to 275 degrees (Table 6). The overall, average, current speed throughout the entire water column was 31.2 cm/s. Mean current speeds were 23.7 cm/s near bottom and 41.0 cm/s at the surface. The most frequently observed speed class, throughout the water column, was 24.0 - 32.0 cm/s, and current velocities below 35.0 cm/s represented 60.1% of the measurements. Current velocities below 7.0 cm/s were only observed 6.8% of the time whereas current velocities above 56.0 cm/s accounted for 8.8% of profiles recorded throughout the deployment. Current speeds above 60 cm/s occurred at each observable depth and were more common near the surface than at depth, with maximum velocities exceeding 100 cm/s within the uppermost 7 m of the water column. The higher energy conditions near the surface are likely the result of strong tides and the influence of the Annapolis River.

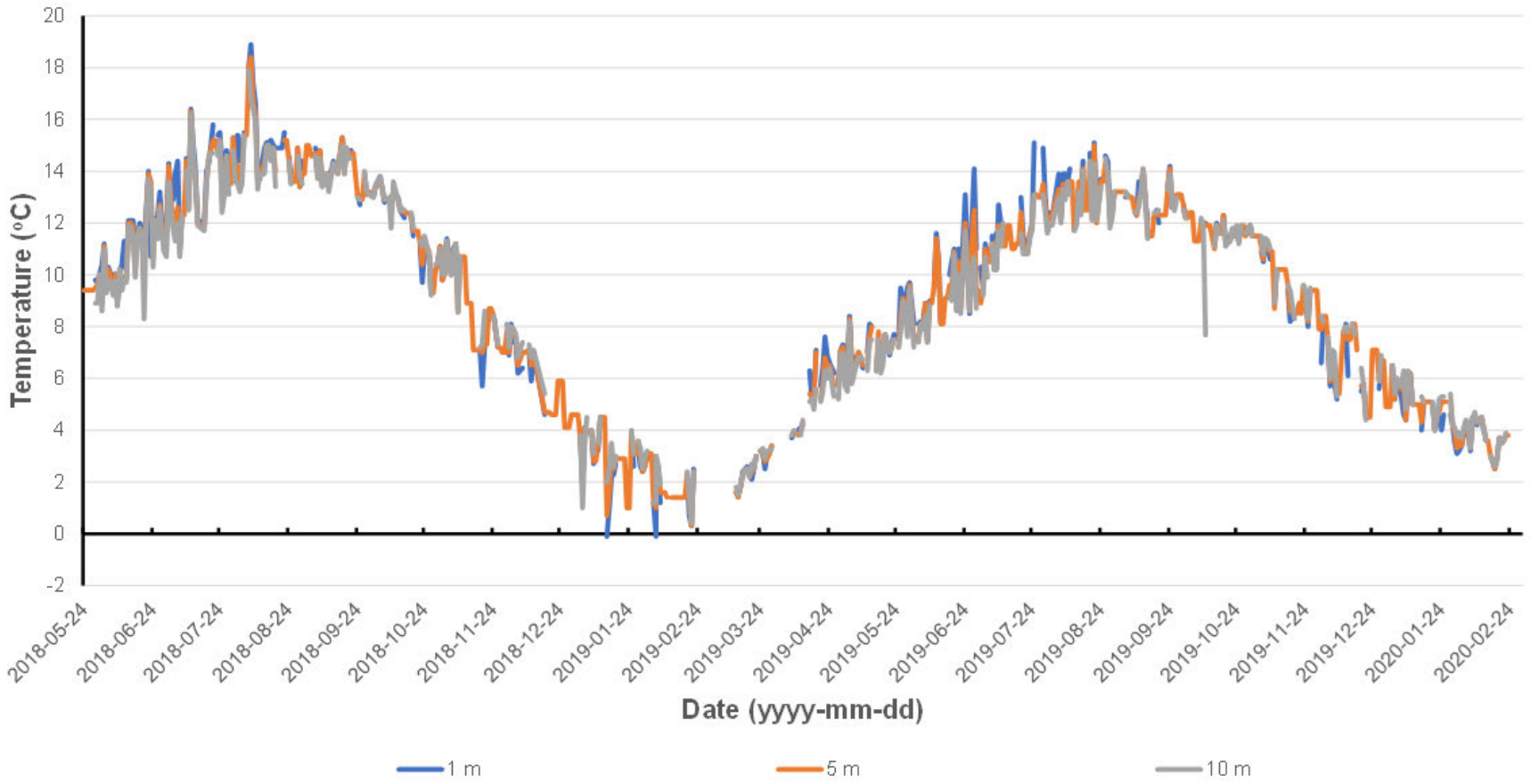
**Table 6.** Current Data Summary Statistics for Victoria Beach

| Distance from Bottom (m) | Distance from Surface (m) | Speed Most Frequent (cm/s) | Speed Minimum (cm/s) | Speed Average (cm/s) | Speed Maximum (cm/s) | < 7.0 cm/s (%) | < 35.0 cm/s (%) | > 56.0 cm/s (%) | Direction Highest Frequency (°) |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 17 | 16.0 - 24.0 | 0.1 | 23.7 | 74.2 | 8.7 | 80.9 | 1.6 | 265-275 |
| 5 | 16 | 24.0 - 32.0 | 0.2 | 25.3 | 80.6 | 6.2 | 75.9 | 2.4 | 265-275 |
| 6 | 15 | 24.0 - 32.0 | 0.5 | 26.6 | 85.2 | 8.6 | 71.7 | 3.0 | 265-275 |
| 7 | 14 | 24.0 - 32.0 | 0.5 | 27.7 | 87.6 | 7.7 | 68.5 | 3.9 | 265-275 |
| 8 | 13 | 24.0 - 32.0 | 0.6 | 28.7 | 88.2 | 7.1 | 65.8 | 4.6 | 265-275 |
| 9 | 12 | 24.0 - 32.0 | 0.0 | 29.6 | 89.0 | 6.4 | 63.9 | 5.3 | 265-275 |
| 10 | 11 | 24.0 - 32.0 | 0.4 | 30.3 | 93.5 | 6.6 | 61.9 | 6.0 | 265-275 |
| 11 | 10 | 24.0 - 32.0 | 0.4 | 31.0 | 94.0 | 6.2 | 59.5 | 6.8 | 265-275 |
| 12 | 9 | 32.0 - 40.0 | 0.5 | 31.7 | 96.0 | 6.2 | 58.0 | 7.7 | 265-275 |
| 13 | 8 | 32.0 - 40.0 | 0.5 | 32.3 | 99.4 | 6.7 | 56.3 | 8.6 | 265-275 |
| 14 | 7 | 32.0 - 40.0 | 0.1 | 33.0 | 100.3 | 6.5 | 54.6 | 9.9 | 265-275 |
| 15 | 6 | 40.0 - 48.0 | 0.4 | 33.9 | 103.4 | 6.4 | 53.0 | 11.8 | 265-275 |
| 16 | 5 | 48.0 - 56.0 | 0.4 | 34.8 | 103.7 | 6.2 | 50.9 | 13.7 | 265-275 |
| 17 | 4 | 48.0 - 56.0 | 0.3 | 36.4 | 105.0 | 6.0 | 47.8 | 16.8 | 265-275 |
| 18 | 3 | 48.0 - 56.0 | 0.1 | 39.4 | 105.7 | 2.2 | 41.4 | 22.0 | 265-275 |
| 19 | 2 | 48.0 - 56.0 | 0.4 | 41.0 | 109.3 | 5.2 | 38.9 | 26.8 | 265-275 |
| Depth Averaged | | 24.0 - 32.0 | 0.0 | 31.2 | 109.3 | 6.8 | 60.1 | 8.8 | 265-275 |

### *4.1.5 Temperature*

Temperatures at the Victoria Beach aquaculture site were recorded and collected by KCS between the dates May 24, 2018 and February 23, 2020 (Fig. 5). The minimum water temperature experienced was approximately -0.1°C, which occurred on January 14 and February 5, 2019 at 1 m below the surface. The maximum temperature recorded was approximately 18.9°C on August 7, 2018 at 1 m deep. Water temperatures at 5 and 10 m deep remained above 0°C. Keizer et al. (1996) reported a similar temperature range for the Annapolis Basin, with a minimum value of -0.11°C and a maximum of 17.5°C. The existing, successful aquaculture site at Victoria Beach would indicate that the temperatures in this area are tolerable for Atlantic salmon.

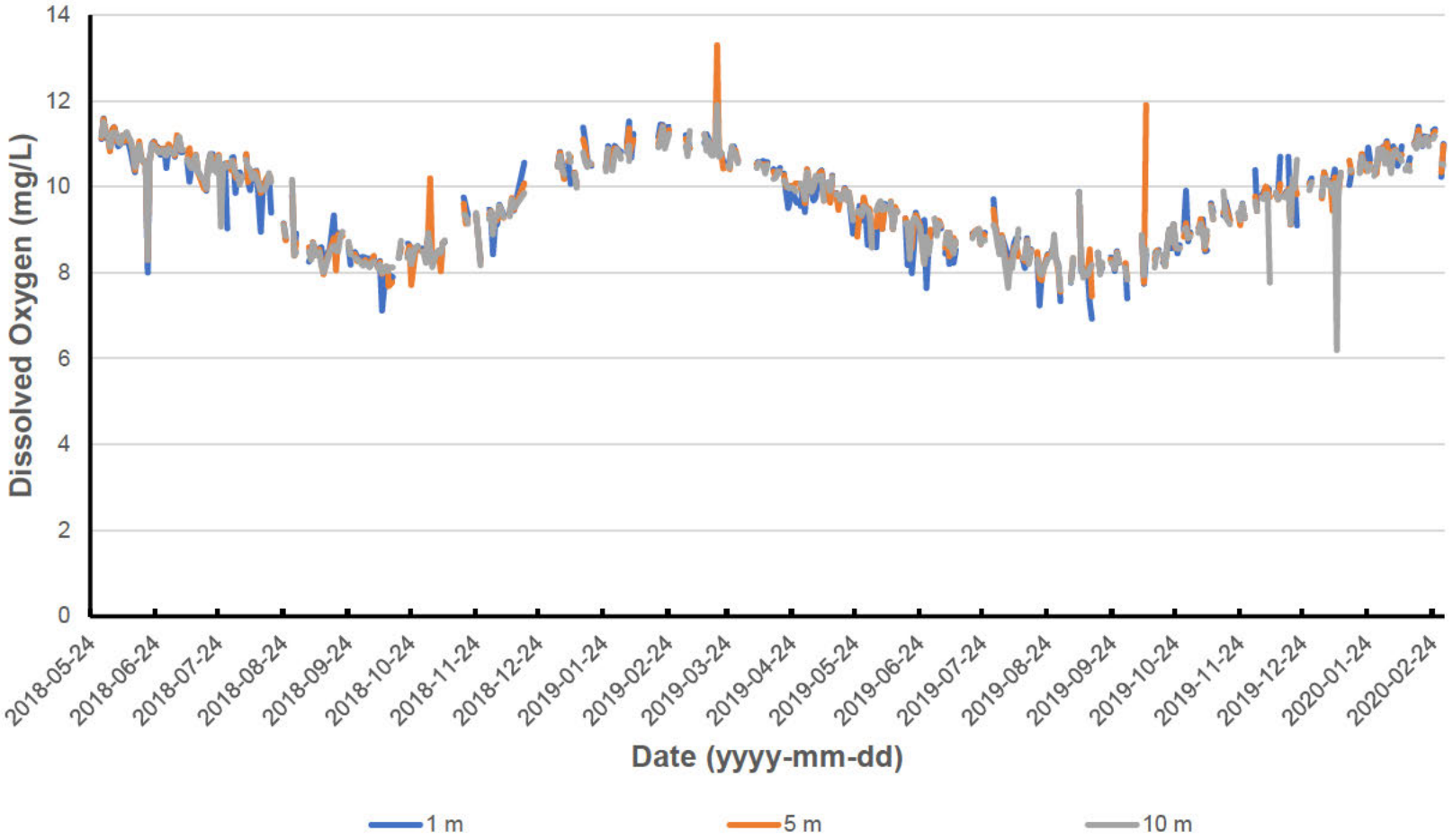
**Figure 5.** Water Temperatures at Site #1040



### *4.1.6 Oxygen*

Dissolved oxygen (DO) concentrations at the Victoria Beach aquaculture site were recorded by KCS staff during site operations for the 2018 year class. The minimum DO value recorded was approximately 6.2 mg/L on January 2, 2020 at 10 m below the surface; however, this was an anomaly since DO is typically around 10 mg/L at this time of year. The second lowest DO value was 6.9 mg/L, recorded on September 14, 2019 at 1 m deep. The maximum value recorded was approximately 13.3 mg/L on March 19, 2020 at 5 m deep. For adult salmon, the lower limit of DO for optimal growth is generally accepted as 6 mg/L. The Victoria Beach site typically displays DO values well above this threshold. Figure 6 displays DO-concentration trends from the 2018 production cycle at Victoria Beach.

**Figure 6.** Dissolved Oxygen at Site #1040



### *4.1.7 KCS Mitigation Strategy*

Water quality is monitored because of the uncertainty of natural cycles and processes such as season, thermoclines, weather, haloclines, algal blooms, etc. Monitoring specific water parameters will aid the producer in preparedness for dealing with fish health and will assist with feeding regimes. Mitigative actions will be taken when conditions are less than optimum. Water quality parameters are measured 24 hours a day using Innovasea sensors.

Requirements for water-quality monitoring and mitigation strategies are contained in the site-specific FMP, which is reviewed annually and amended after every production cycle.

KCS uses Fishtalk, a software system, to track water-quality parameters such as oxygen, temperature, and turbidity, as well as other records including inventory (biomass, fish number, average weight), feeding (type and quantity), and fish density.

## 4.2 Environmental Monitoring

A baseline survey of the proposed lease area was conducted on May 28 and 29, 2019. The baseline survey report entitled Victoria Beach Baseline Assessment Report and dated April 27, 2022 was submitted to NSDFA. The baseline survey was conducted in accordance with the NSDFA Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia (NSDFA 2021b) and the *Aquaculture Activities Regulations* (Government of Canada 2025) Sections 8 and 9. Specifically, *Annex 7* in the *Aquaculture Activities Regulations* Guidance Document (Government of Canada 2018a) and *Section I: Survey for baseline information for new sites and expansion of existing sites* in the *Aquaculture Activities Regulations* Monitoring Standard state the federal government requirements for baseline monitoring (Government of Canada 2018b). It should be noted that at the time of the baseline monitoring, the 2018 version of the NSDFA Standard Operating Procedures was followed. There were no significant changes made to the way baseline environmental data was collected between 2018 and the most recent version of the NSDFA Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia (NSDFA 2021b).

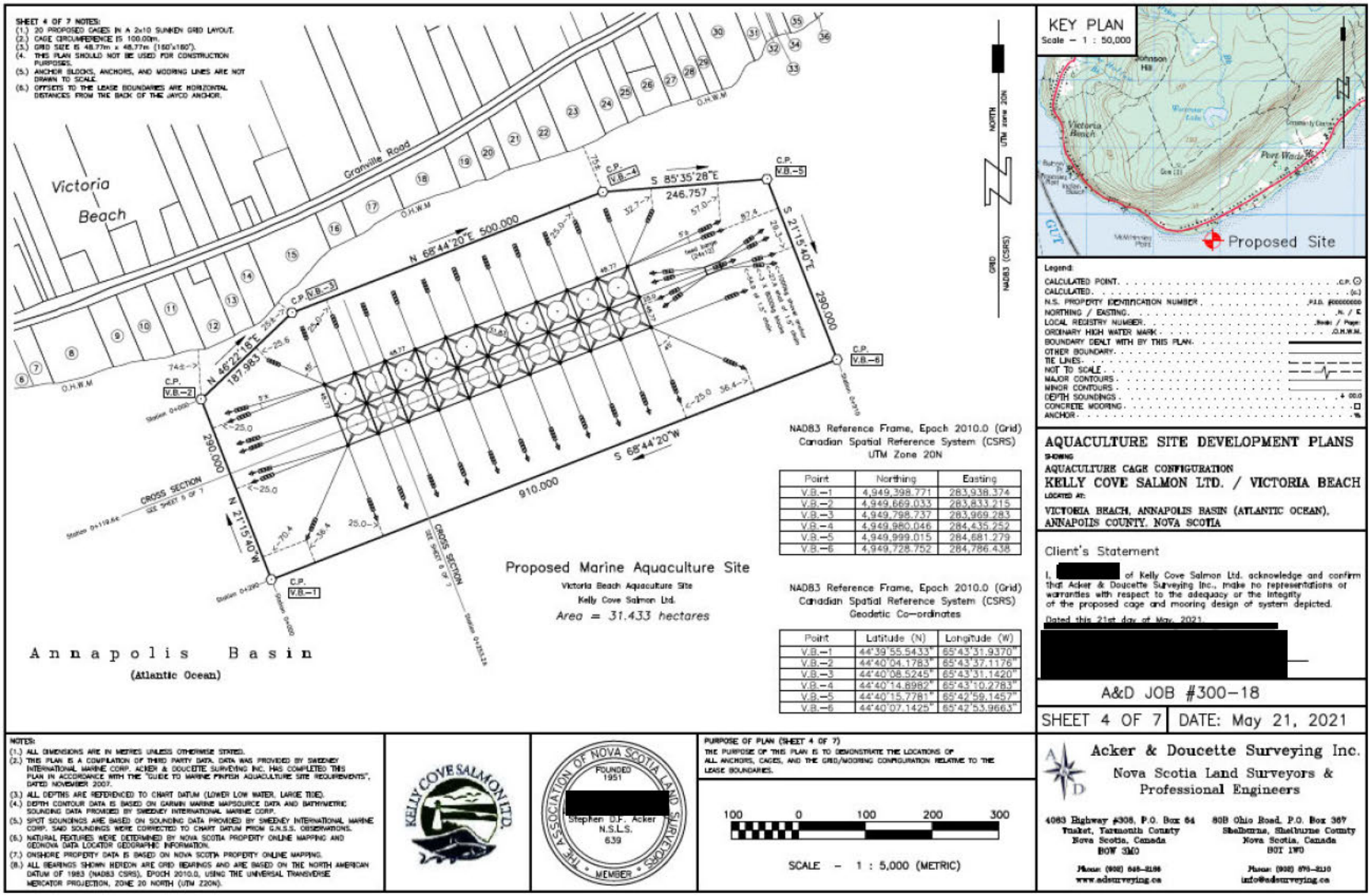
As stated in section **3.1 Impact on Fisheries Activities**, NSDFA's Environmental Monitoring Program Framework for Marine Aquaculture in Nova Scotia – July 2021 (NSDFA 2021a) and the Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia – July 2021 (NSDFA 2021b) provide a means for NSDFA to monitor the environmental performance of aquaculture in Nova Scotia. KCS and their contractors adhere to the Environmental Monitoring Program Framework and Standard Operating Procedures established by NSDFA. The FMP contains site-specific mitigation strategies which are reviewed annually and amended after every production cycle by NSDFA.

## 4.3 Site Design

As stated in section **2.2 Infrastructure**, the Victoria Beach site was designed with acknowledgement of local conditions, including bathymetry, oceanographic conditions, and the benthic environment. KCS has spent 30 years researching the mooring, grid, and cage components that are used on their aquaculture sites. KCS uses an in-house professional

engineer to complete modeling and engineering analyses on the components to ensure that they can withstand the extreme storm conditions anticipated. Each site operated by KCS in NS has an Infrastructure Analysis Report approved by NSDFA. The site design is detailed in Figures 7 – 9.

**Figure 7.** Victoria Beach Site Development Plan Showing Cage Configuration




*SW2025-013*

**Figure 8.** Victoria Beach Cross-Sectional Plan A

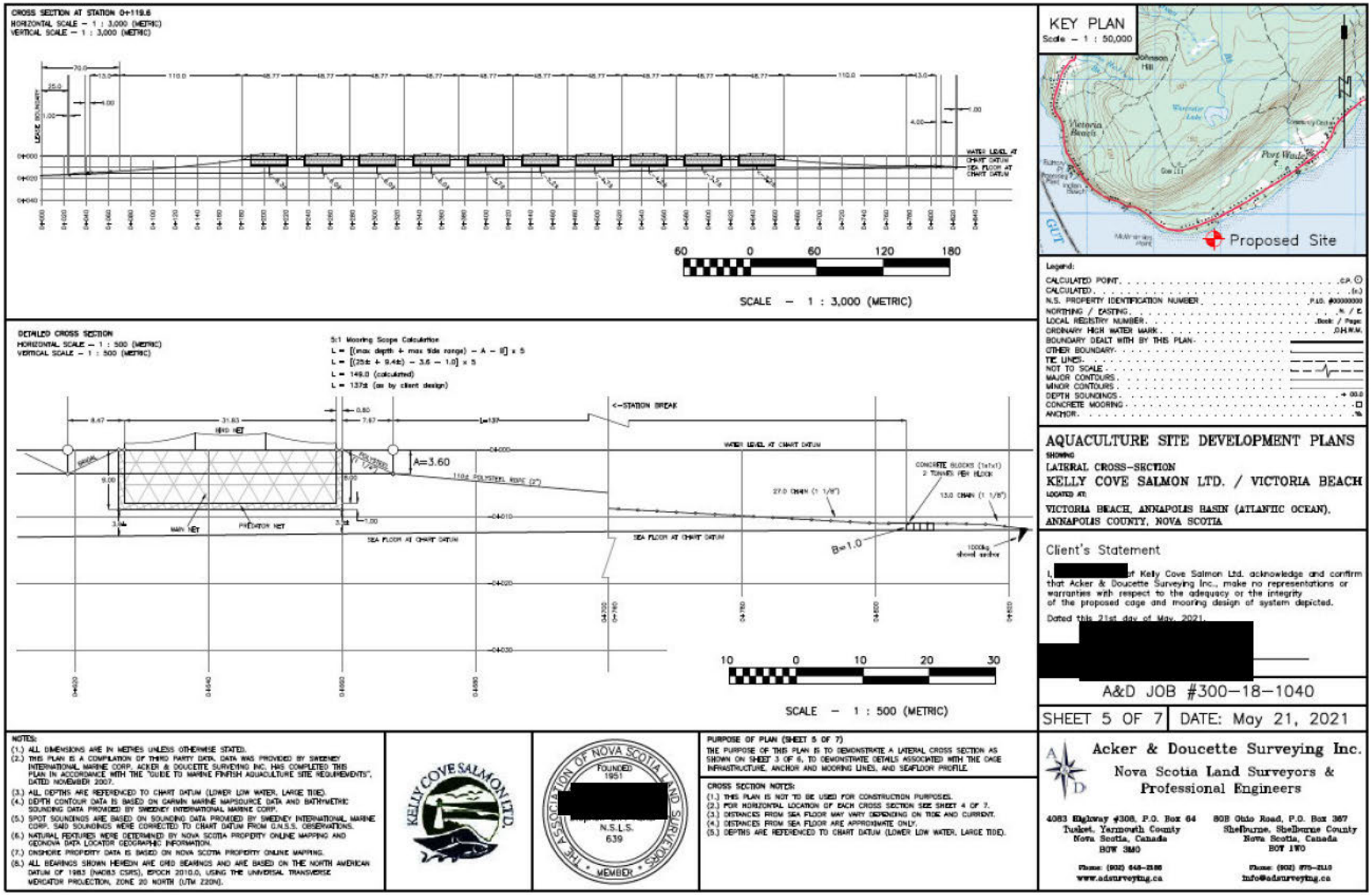
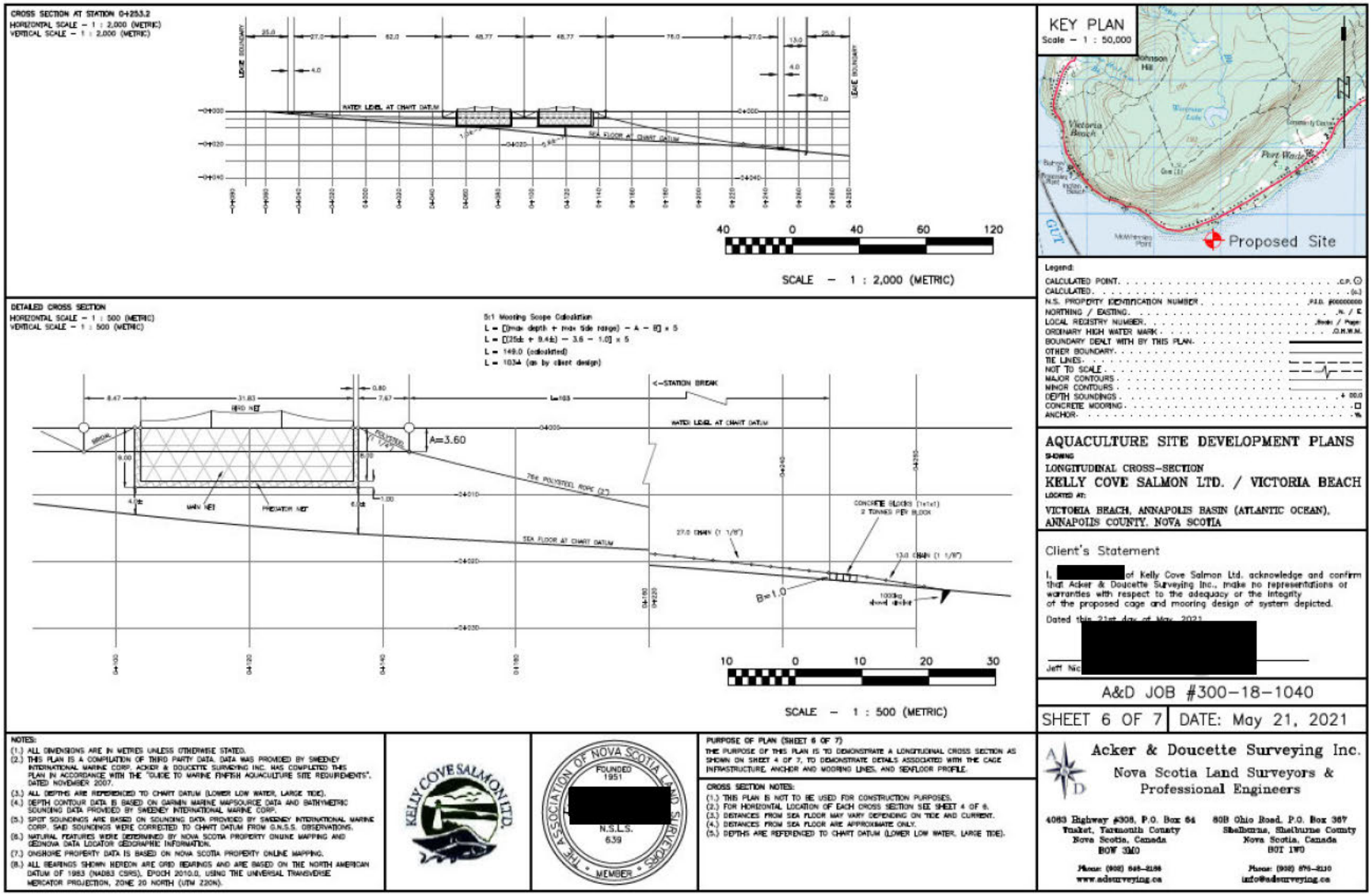


**Figure 9.** Victoria Beach Cross-Sectional Plan B



# Section 5.0 THE OTHER USERS OF THE PUBLIC WATERS SURROUNDING THE PROPOSED AQUACULTURAL OPERATION

## 5.1 Impacts to Other Users Including Wildlife

The Victoria Beach site has been in existence since 2005. It is on the north side of Annapolis Basin. Although a rural area, several properties border the shore adjacent to site #1040. All pleasure craft and commercial vessels must abide by the navigation buoys and markers present around the site.

Commercial fishermen, pleasure craft operators, and a few tour operators are the only human users of this section of Annapolis Basin. Both the aquaculture site and fishermen have successfully operated together for many years with no known negative impacts.

A map showing property owners (Fig. 10) and a general resource map (Fig. 11) showing other users are made available in the following sections. Other users in the vicinity of the Victoria Beach aquaculture lease include outdoor enthusiasts and marine wildlife, including migratory birds (Nova Scotia Canada 2021b).

### *5.1.1 Adjacent Property Owners*

Aquaculture-site development plans have been produced to show adjacent property owners within a radius of approximately 1,000 m of center of the proposed lease boundaries for Victoria Beach #1040.

**Figure 10.** Plan View of the Proposed Boundary Amendment of the Victoria Beach Aquaculture Site Showing Nearby Property Owners

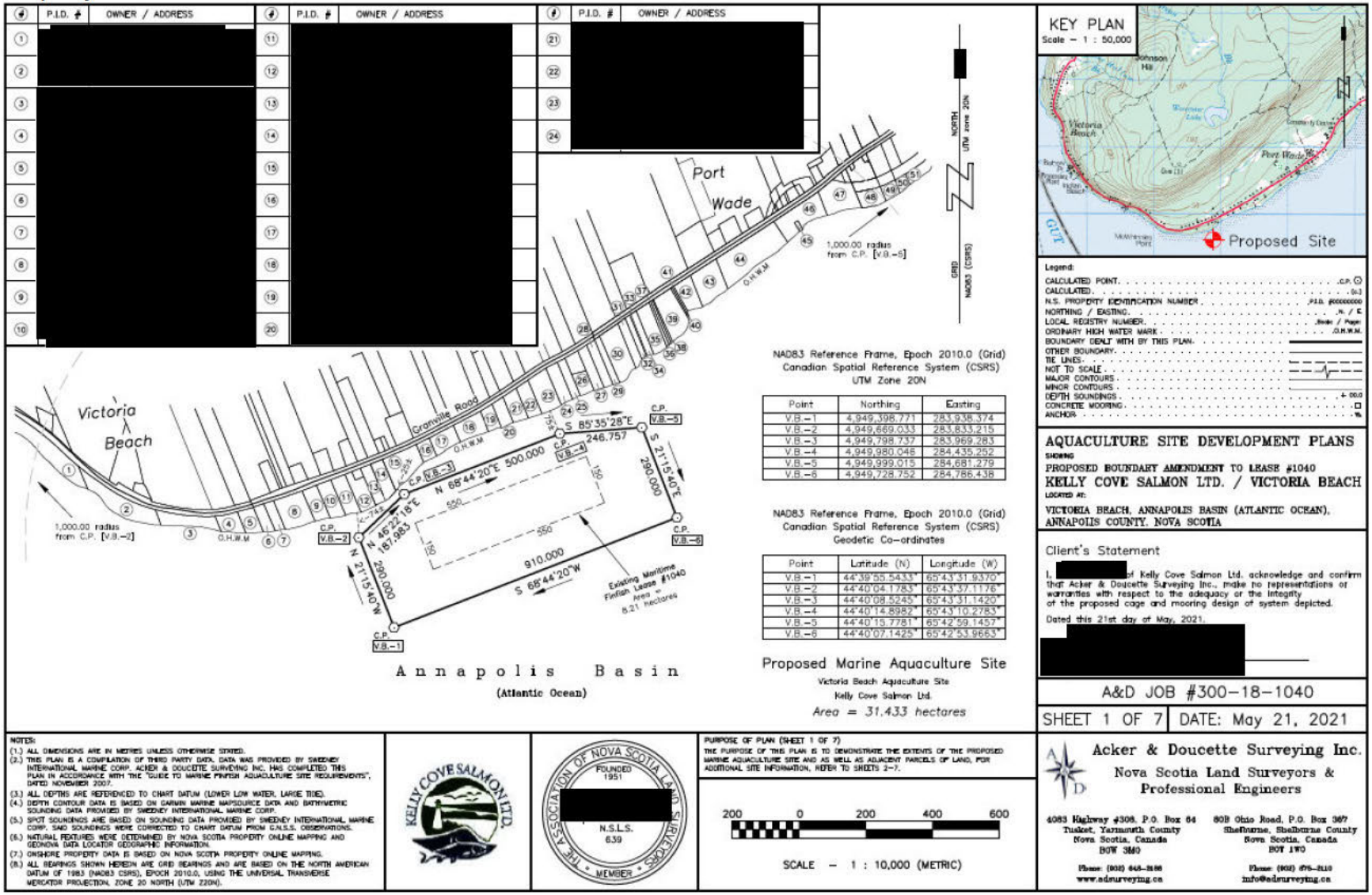


**Figure 10.** Plan View of the Proposed Boundary Amendment of the Victoria Beach Aquaculture Site Showing Nearby Property Owners (continued)

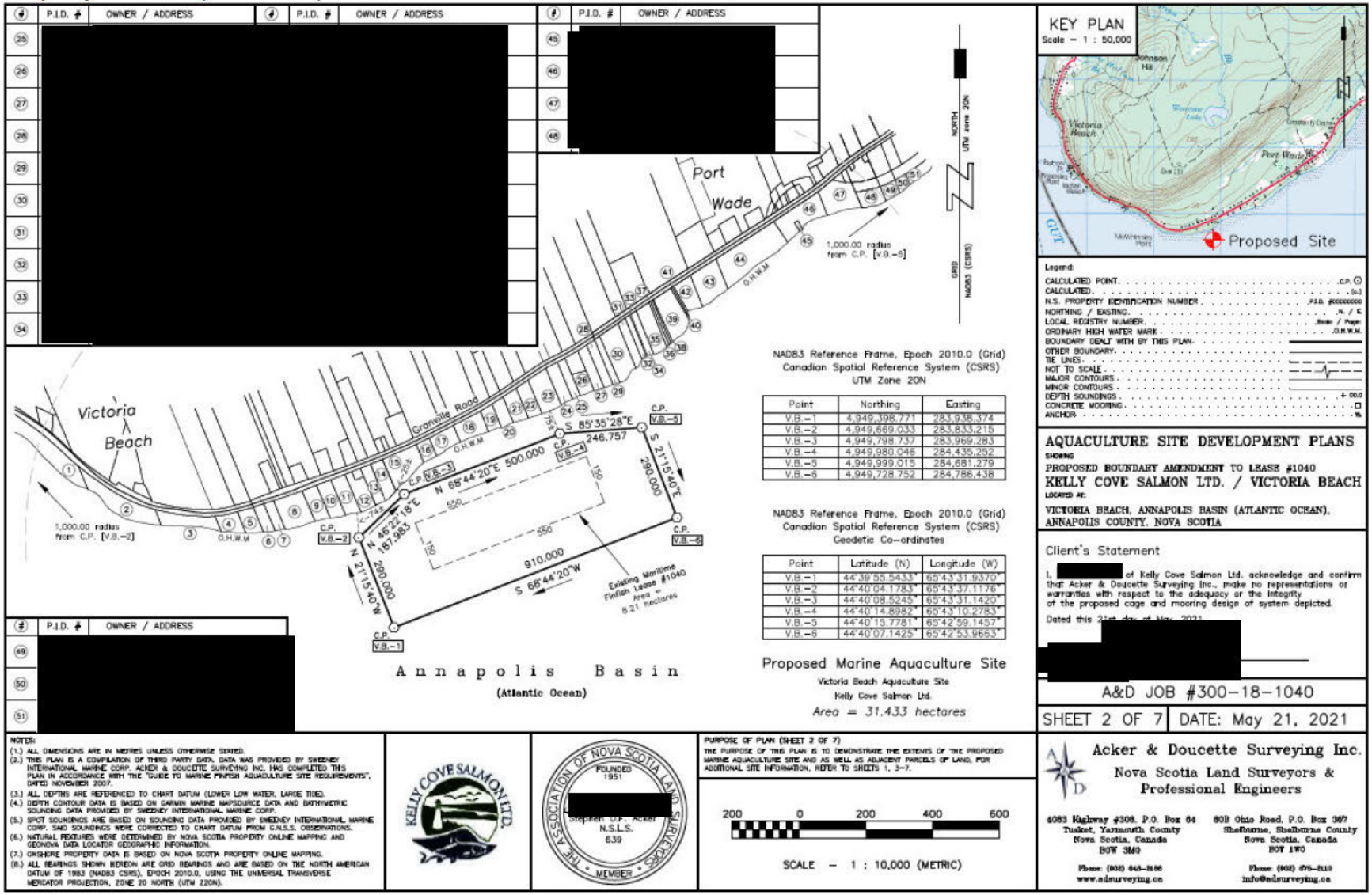
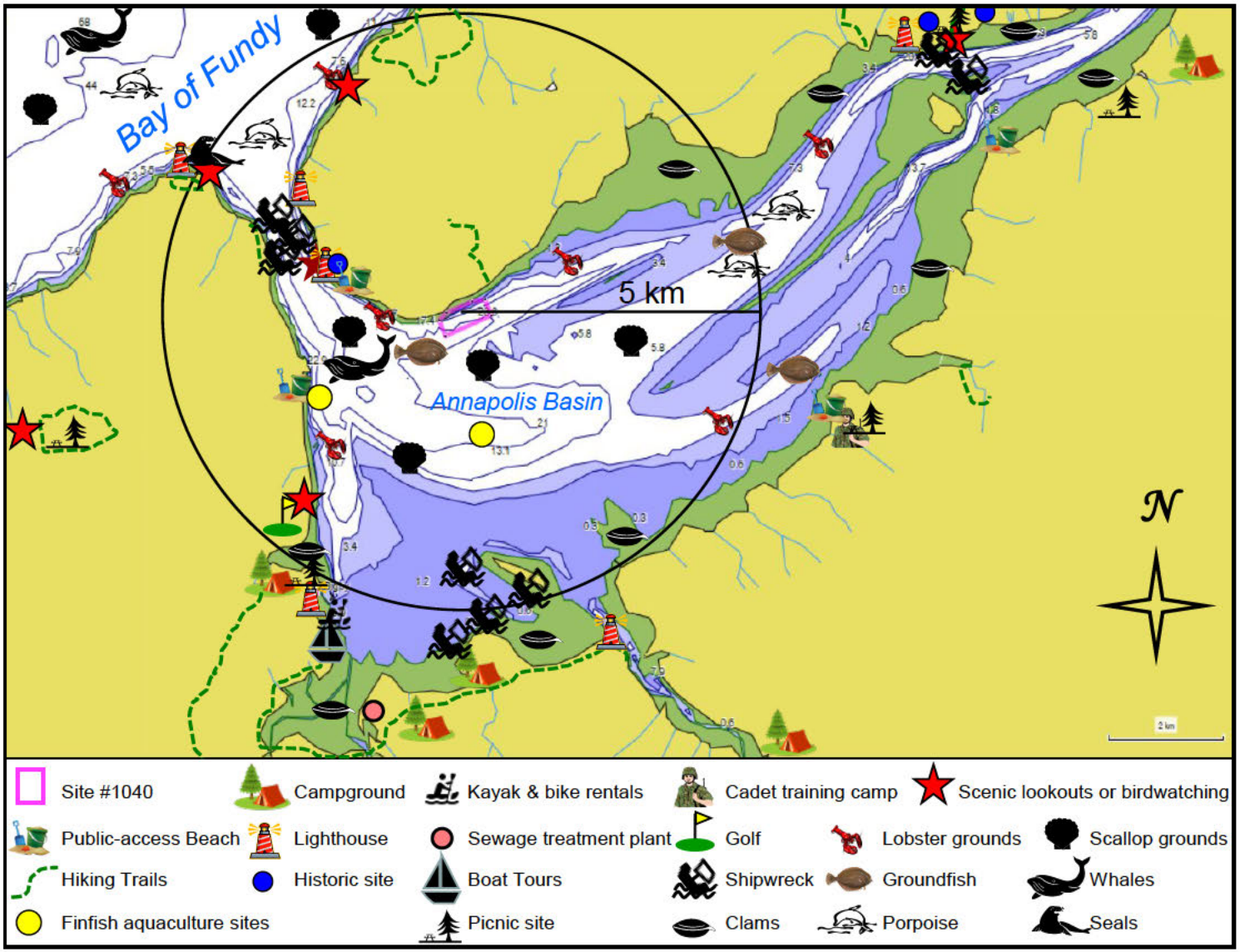


**Figure 11.** Resource Map of the Area around the Victoria Beach Site



## 5.2 Impacts by Other Users Including Wildlife

### 5.2.1 *Wildlife*

Due to the environment in which KCS operates, wildlife interactions will be unavoidable – positive, neutral, or negative. Positive and neutral interactions may require management notification if the species is listed on a species-at-risk registry or other similar document.

Negative interactions, such as predators, should be noted to determine if there is an increase or decrease in activity. Interactions with birds and predators at a marine finfish site are to be avoided. Unwanted attention from birds and predators, such as seals, endangers the wildlife themselves, can present a nuisance to workers, may cause stress on the fish, and may pose biosecurity and fish-health risks.

Predator deterrence is key to containment management. Predator exclusion includes predator netting, bird nets, and containment nets. Site mortalities are to be contained in a secure, closed bin and removed promptly from the site. The containers are to be checked daily to ensure their integrity. Feed is to be stored inside. Routine, daily examinations of dead and live fish are conducted to inspect for signs of predator attack and are noted. Divers are called in when deemed necessary to verify net integrity below the water if predator problems are detected.

To deter birds and to mitigate against interactions, each cage containing fish is equipped with a bird stand and net for the duration of the grow-out. These stands and nets remain in place during the production cycle but may be temporarily lifted during activities such as mortality dives, net washing, fish transfers, or treatments. KCS performs and documents surface inspections to ensure netting and gear are maintained in good working order. At minimum, weekly bird-net inspections are performed.

Predator nets surrounding the primary nets will be in use during the months of December to May to aid with predator deterrence. Predator nets will not be placed on the cages from May to December as predator presence is low. Removal of the predator nets on the cages during these months will aid in reducing the amount of biofouling on the cages. Measures taken to protect fish from predators are always carried out in a manner that considers predator welfare and does not endanger the predator population.

KCS operates with a Wildlife Interaction Plan (WIP). The WIP outlines all control measures and special requirements as they relate to wildlife encounters at the site. Birds are specifically addressed in the WIP. The WIP contains prevention and control measures for wildlife (Appendix A).

### 5.2.2 *People Interaction*

Interaction with people outside of KCS is inevitable. Use of the government wharf in Digby contributes to this. Interactions with people and organizations outside of KCS can raise concerns for biosecurity, pollution, and safety of site staff.

Biosecurity is a key component to managing the risk of pathogen spread. Biosecurity helps mitigate outbreaks of disease through the control of personnel, traffic, vehicles, biologics, and equipment. Biosecurity standard operating procedures must be developed and used to mitigate risk and to manage activities to reduce stress in animals and to reduce the potential for pathogen spread. Biosecurity must be considered for all procedures and must be addressed within procedural descriptions. All KCS aquaculture sites have a wharf-usage biosecurity procedure, which considers other users of the wharf.

Visitors to the Victoria Beach site are welcomed and are expected to follow basic biosecurity and health and safety (H&S) rules. This aids in ensuring that all parties on the site remain safe. The Site Management should confirm with the Area Manager that any visitor has approval to be on site if the Site Manager was not previously informed. All visitors must sign the logbook. Visitors must change their footwear prior to stepping on site; rubber boots will be provided from the office. All visitors must wear a PFD while travelling to/from the site and while on site, and the use of footbaths and proper hygiene is mandatory. By adhering to strict biosecurity, H&S rules, and visitor protocols, KCS provides a safe environment for employees, visitors, and the fish on site.

# Section 6.0 THE PUBLIC RIGHT OF NAVIGATION

## 6.1 Navigation Protection Program Approval

### *6.1.1 Notice of Works*

Transport Canada requires a notice of works form to notify the Navigation Protection Program (NPP) regarding a proposed work or change to an existing work in navigable waters. An application for approval has been filed via the online portal for the proposed boundary amendment of Victoria Beach. The site operates with a current NPP approval, dated January 10, 2017 (Appendix B). Acker & Doucette Surveying Inc. produced the aquaculture site development plans submitted with the signed notice of works. The plans include:

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

### *6.1.2 Project Description*

The proposed lease incorporates all proposed aquaculture-related gear, above and below the water line. The site plan of Figure 7 includes georeferenced coordinates for the lease corners. Installation of specific buoys to mark the original lease area was completed, as per Transport Canada's approval package. The current NPP approval can be found in Appendix B.

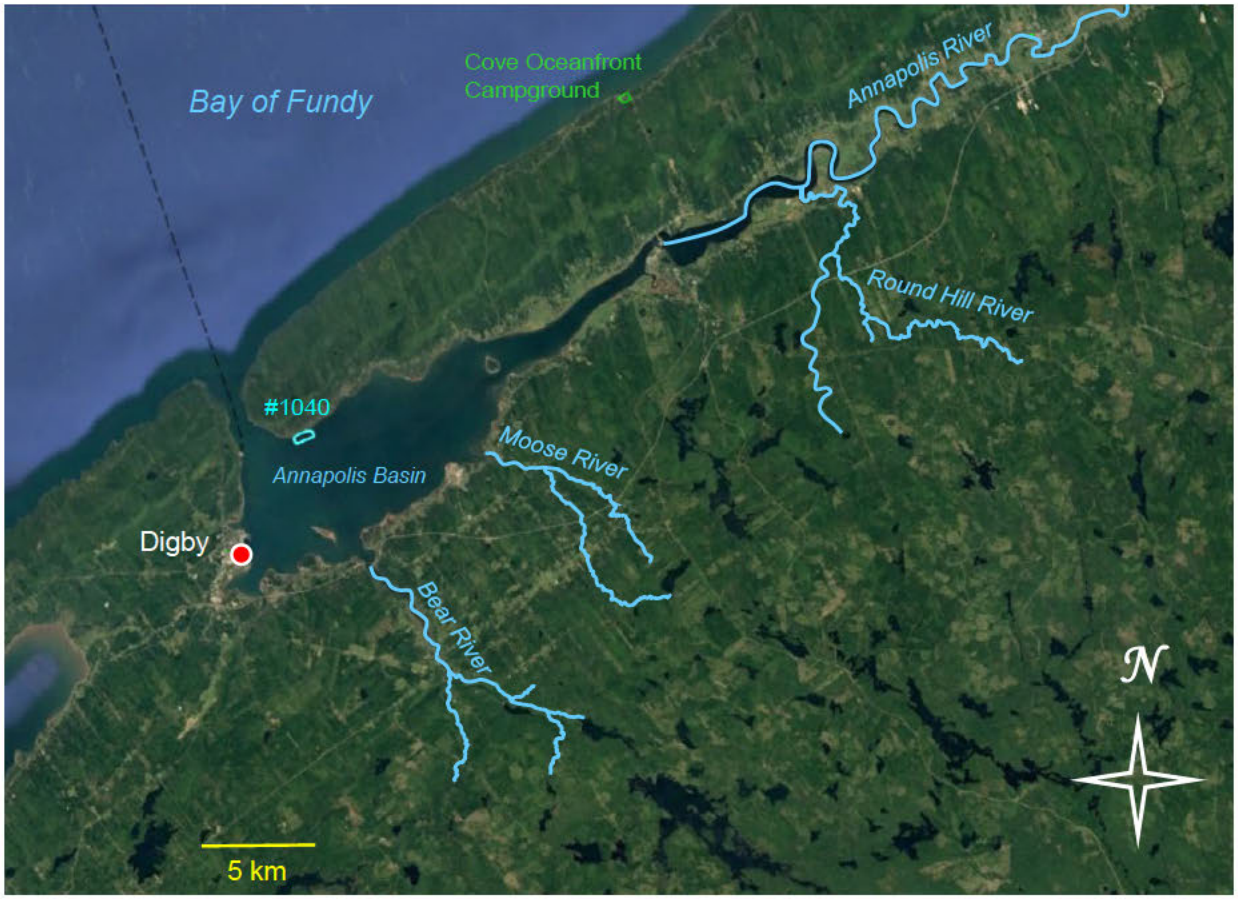
# Section 7.0 THE SUSTAINABILITY OF WILD SALMON

## 7.1 Identification of Local Salmon Populations

The Victoria Beach marine aquaculture site is in the range of the Nova Scotia Southern Upland population of Atlantic salmon. There are at least 72 rivers in the Southern Uplands region thought to have historically held Atlantic salmon (Bowlby et al 2013a). The Southern Upland region of Nova Scotia is divided into three salmon fishing areas: SFA 20, SFA 21, and part of SFA 22. The marine aquaculture site in Annapolis Basin is in SFA 22. The SFA 22 includes the traditional range of the Nova Scotia Southern Upland (SU) population of Atlantic salmon, as well as the Inner Bay of Fundy (IBoF) population of Atlantic salmon. The SU salmon populations differ from the IBoF stocks in that they migrate to the Northwest Atlantic off the west coast of Greenland and have a significant 2 sea-winter (2SW) component to their life history, while the IBoF population tends to remain in the Bay of Fundy/Gulf of Maine (DFO 1998). Notable salmon rivers of SFA 22 connected to the Annapolis basin are the Annapolis/Nictaux/Round Hill, Bear, and Moose Rivers (Fig. 12).

Historically, these regional rivers supported strong salmon populations (Dunfield 1985). DFO stock-status reports, most of which pre-date any significant local commercial aquaculture activity (mid 2000's), indicate an increasingly dire condition of the local stock. According to the DFO Science Stock Status Report D3-12 (1998), all commercial fisheries of wild salmon, due to reduced catches, were closed in 1985. Following subsequent local salmon declines, all remaining recreational and aboriginal fisheries were also closed by 1990. Extensive regional electrofishing surveys conducted in 2000 found remaining salmon in only 28 of 52 rivers surveyed (54%), and more recent surveys conducted in 2008/2009 indicated continuing decline, with remaining salmon in only 21 of 54 rivers surveyed (39%) (DFO 2011). Although adjacent rivers of the Annapolis Basin watershed (Annapolis, Bear, Moose, Round Hill Rivers) likely retain some residual salmon populations (Smith 2021; Native Council of Nova Scotia Netukulimkewe'l Commission 2018, Bear River Historical Society; The Atlantic Salmon Conservation Foundation 2015), these watersheds have been severely degraded by centuries of silting and runoff from forestry and intensive agricultural activities, acid rain, commercial fishery dredging, as well as by substantial dams/barriers and sewer outfalls associated with human settlements along former salmon habitats. Indeed, the massive tidal power dam on the mouth of the Annapolis River had a tangible, adverse effect on all anadromous fish. According to a 2019 DFO report by Gibson, Fulton & Harper, the barrage and turbines presented an "extreme risk" to wild salmon, and all species of fish migrating into the Annapolis/Nictaux/Round Hill watersheds.

**Figure 12.** Potential Salmon Rivers around Annapolis Basin, Nova Scotia




## 7.2 Support of the Sustainability of Wild Salmon

### *7.2.1 Potential Impacts to the Wild Salmon Population*

To reduce potential impacts to the wild salmon population, Doelle-Lahey (2014) panel suggested that a regulatory framework should deal more extensively with the prevention of escape and should require operators to adopt, implement, track, and report on the performance of a comprehensive containment system. Such a system should aim to prevent escapes to the greatest extent that is practicable, using best management practices and the best-available, commercially proven technologies.

Accidental farmed-salmon escapes and potential breeding with wild-salmon populations (introgression) are both concerns for wild-salmon conservation and KCS' business continuity. Proactively, KCS is constantly improving aquaculture practices with new and proven technologies. KCS routinely provides updated training and refreshes the knowledge of their operators in the leading best practices. Cage integrity is addressed with state-of-the-art, engineered netting and anchoring materials, extensive computational modelling of real and potential farm environments, regular and frequent failure testing, and replacement of critical components and materials. All smolt stocked into marine farms can be tracked back to the operator via DNA as per the enhanced

regulations in NS. Farms in Nova Scotia are managed by experienced teams, with a demonstrated, excellent track record for site integrity and performance. Additionally, KCS is consistently developing new protocols to suit changing conditions, allowing it to adaptively manage operations for over 25 years in Nova Scotian waters. Lastly, KCS operates under full transparency regarding any real or potential escape events, communicating to government immediately as is required.

#### 7.2.1.1 *Infrastructure*

An essential component of a marine finfish farm is containment. Equipment and infrastructure must be capable of withstanding the prevailing environmental factors. Any mechanical damage from ill-repaired or ill-suited equipment/infrastructure can become a fish health and containment concern. All moorings, cages, containment nets, and predator nets meet best management practices and are engineered to meet the expected conditions of the location and have engineering approval.

#### 7.2.1.2 *Containment Strategy*

*Fish*

KCS ensures that the fish size is adequate not only for fish health and survival but to prevent containment breaches due to inappropriate netting size in relation to fish size. The net-mesh-sizing strategy was determined to be adequate based on thirty years of experience with fish farming in Atlantic Canada and exceeds the guidelines proposed by research conducted at Memorial University of Newfoundland Marine Institute in March 2000 (Newfoundland Fisheries and Aquaculture 2012).

*Infrastructure and Equipment*

Moorings and anchors are inspected prior to the stocking of a new production cycle. This may include removing them from the water and visually inspecting prior to redeployment. Once installed, the grid system, moorings, and anchors are inspected every 6 months, unless otherwise required. After a change in tension, a shift in the array, or a significant storm event, the moorings and anchors are visually inspected at depth using divers or ROV. Any issues and their causes will be determined and corrected as soon as possible. All inspections and corrections/repairs are recorded by KCS in a central database.

Above-water inspections will be continuous as staff work on the site daily. Any net repairs will be recorded in the on-site net-repair record. In addition, formal inspections will occur on a weekly basis for surface components, and they will be recorded in the surface-inspection record. This inspection examines compensator buoys, visible portions of the grid, shackles, thimbles, float collars, stanchions, jump-net rails, above-water nets (containment, bird), attachment of nets, and site markers.

Underwater inspections are conducted every six months using divers and/or an ROV. Additionally, cameras placed in each of the cages on site can be used to ensure all below-water infrastructure is being monitored and maintained. Additionally, maintenance barges are used to lift the components to the surface for visual inspection at the end of each production cycle when

the site is fallowed. Any weaknesses in the containment structure are repaired as soon as possible and recorded. Suspected underwater irregularities, damage, or points of wear will be investigated and repaired as soon as possible and recorded in the on-site net-repair record. Furthermore, below-water net inspections are formally completed every 60 days; a below-surface inspection checklist is to be completed.

*Severe Weather*

Severe weather can greatly impact the containment structures. Immediately after a severe weather event, a detailed evaluation of damage(s) will be conducted. A complete list of repairs will be created. Repairs will then be prioritized and tracked until completed. In some instances, temporary repairs may take place until permanent repairs can be completed.

*Mortality Collection*

The procedure to collect mortalities at the Victoria Beach site has been approved by NSDFA, as outlined in the site's FMP. The procedure considers containment risks. Note, the mortality collection schedule varies depending upon the age of the fish. During smolt entry and the first few weeks after entry, the frequency of mortality collection may increase. After these production milestones, mortality collection occurs once per week unless there is a fish-health event identified.

*Harvesting*

NSDFA has approved harvesting procedures at the Victoria Beach site as outlined in the site's FMP. The procedure considers fish health and welfare, biosecurity, and containment risks.

#### 7.2.1.3 *Breach Response*

All sites have an emergency response plan to address a breach as outlined in the site's FMP. This plan considers the areas of potential impact and respects all federal and provincial regulations and licencing requirements. After a breach of containment is confirmed or suspected, NSDFA is notified as soon it is safe and possible to do so. If the cages or nets have been damaged or compromised by an unusual event such as vandalism or boat collision, KCS' escape-and-response procedures will be followed. These procedures have been approved under the Best Aquaculture Practices (BAP) certification. Situations such as interactions with vessels, marine mammals, or other users will require specific handling, and the best course of action is determined in consultation with senior management and/or regulatory bodies.

### *7.2.2 Restoration Efforts*

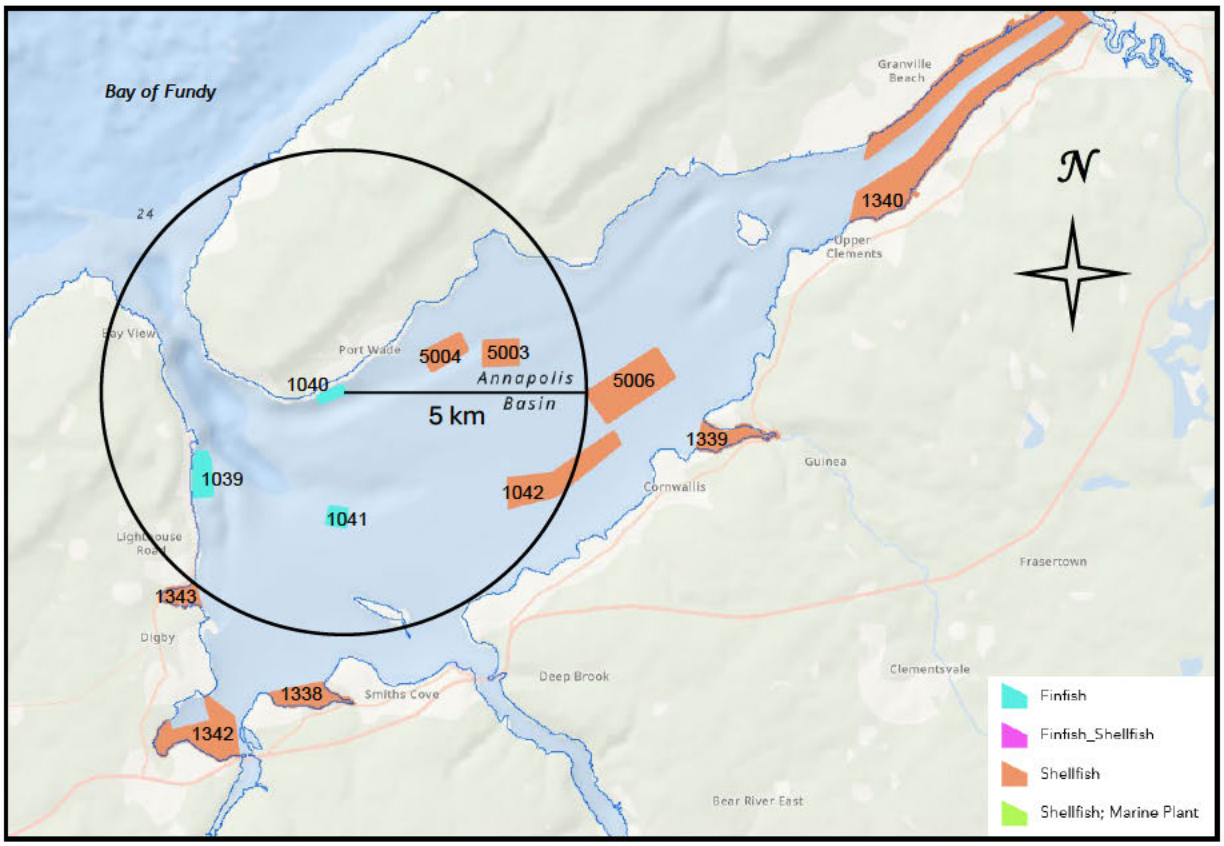
Leadership by CAI towards salmon conservation in Atlantic Canada is demonstrated by its founding role in the Fundy Salmon Recovery (FSR) project. CAI helped develop and operate the world's first wild-salmon marine conservation farm on Grand Manan Island, New Brunswick. This on-going project is a collaboration of community, academic, government, First Nations, and industry stakeholders to protect and restore severely threatened IBoF salmon. FSR is the first project in the world to rear wild-origin salmon within a marine conservation farm (operated by CAI) and subsequently return mature adults back to their natal river to spawn naturally. FSR is built on research demonstrating the immense value of early wild exposure on Atlantic salmon development and fitness (Clarke et al. 2016).

# Section 8.0 The Number and Productivity of Other Aquaculture Sites in the Public Waters Surrounding the Proposed Aquacultural Operation

## 8.1 Identification of Other Aquaculture Sites

There are five aquaculture sites less than 5 km from the Victoria Beach site. Marine finfish aquaculture sites #1039 and #1041 are licenced/leased to KCS for producing Atlantic salmon; however, only one (#1039) has been recently operational. Bear River First Nation is the lease/licence holder of the two shellfish sites (#5003 and #5004). They are licenced for American oyster. The remaining site, #1042, is issued to Innovative Fisheries Products Inc. and is licenced for sea scallop, bay scallop, American oyster, and European oyster (Fig. 13).

**Figure 13.** Marine Chart Showing Other Aquaculture Operations within Annapolis Basin
Note: Figure was sourced from CMAR Resource Map



## 8.2 Interactions with Other Aquaculture Operations

This site is not part of an aquaculture management area (AMA) for the purpose of managing the health of aquatic animals. KCS agrees to establish an AMA agreement(s) with other licence holders, if required by the Minister. However, KCS operates with a company management stocking/harvesting plan that follows similar principles to an AMA.

Shellfish aquaculture is present in Annapolis Basin. Shellfish aquaculture near Victoria Beach is not cause for concern for either industry as there are no known direct interactions between shellfish and Atlantic salmon aquaculture, specifically related to disease transfer.

## Section 9.0 DEVELOPMENT VIABILITY

[redacted]

[redacted]

## 9.2 Technical Ability

KCS is a family-owned company that has been operating in Atlantic Canada for over 30 years. Beginning with one cage stocked with 2,500 fish, they have grown to be a vertically intigrated company with global operations. With both internal and external partnerships, KCS has the capacity to build their own equipment designed to meet the specifications of each location in which they operate.

KCS maintains control of every phase of production from egg to plate, ensuring superior products and attention to safety and environmental stewardship.

KCS is part of the Cooke Seafoods group of companies, which includes a dedicated sales and marketing team who access global markets for sale of products created with fresh Atlantic salmon produced at KCS' marine farms, including site #1040. The salmon from site #1040 will be sold under the True North Seafood brand. True North Seafood has sales representatives across North America and has acquired years of marketing success dealing directly with retailers and food service customers. True North Salmon sells fresh fish, both whole and as value-added products such as fillets, portions, skewers, and smoked, achieving the best possible return for the product. Marketing and sales campaigns use all the most up-to-date digital platforms as well as site tours, chef demonstrations, and trade shows to promote the products.

There is a well-established fresh-seafood logistics system in Atlantic Canada, delivering fresh seafood to markets east of Ontario and south to Florida, USA. This network has developed and improved over the past 35 years with Atlantic salmon being produced in the region.

Atlantic salmon pricing fluctuates, and the demand for fresh Atlantic salmon continues to grow. Marketing campaigns promoting the freshness, flavor, and excellence of seafood from Eastern Canada have developed customers who continue to pay a premium for the quality of east coast Atlantic salmon.

Table 7 details the technical team for the Nova Scotian operations of KCS.

**Table 7.** KCS Technical Team

| Team Member | Affiliation | Role | Qualification |
|---|---|---|---|
| [redacted] | KCS | Vice President of Aquaculture | [redacted]rings 25 years of experience in aquaculture; he has held senior roles in both corporate and entrepreneurial settings across Canada and Chile. |
| [redacted] | KCS | Global Chief Sustainability Officer | [redacted]as over 25 years of experience in the aquaculture industry. He will provide overall leadership on the project. |
| [redacted] | KCS | VP of Public Relations | [redacted] leads community engagement processes with his knowledge and skills in public engagement. |
| [redacted] | KCS | Director of Marine Infrastructure | [redacted]has over 10 years of experience in ocean and aquaculture engineering and is responsible for the technical development of mooring and containment infrastructure for all marine farming sites. |
| Jennifer Hewitt | KCS | Compliance Manager | Jennifer is responsible for all farm management plans and will work as a liaison with government and community leaders to ensure farm compliance. |
| [redacted] | KCS | Production Manager NS | [redacted] has over 25 years' experience in the Nova Scotia aquaculture industry. He will oversee all saltwater sea sites. |
| [redacted] | KCS | Area Manager – South | [redacted]as over 20 years' experience with aquaculture, and he is responsible for all sea sites on the south side of the province. |
| [redacted] | KCS | Area Manager - West | [redacted]has 8 years' experience with aquaculture, and he is responsible for the sea sites on the northwest side of the province. |

## 9.3 Compliance History

KCS has been farming site #1040 since 2011. In compliance with Provincial requirements, annual environmental monitoring surveys have been conducted in accordance with the Environmental Monitoring Program Framework for Marine Aquaculture in Nova Scotia and the Standard Operating Procedures for the Environmental Monitoring of Marine Aquaculture in Nova Scotia (NSDFA 2021a, 2021b).

There has been no Natural Resources inspection during KCS' occupancy of the Victoria Beach lease.

## LIST OF CONTACTS

**Table 8.** Contacts

| Contact Name | Affiliation | E-mail | Phone | Date of Contact | Reason for Contact |
|---|---|---|---|---|---|
| [redacted] | DFO – Commercial Data, Policy & Economics | XMARComData@dfo-mpo.gc.ca | (902) 440-0392 | March 24, 2023 | Landings data Fisheries |

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# APPENDIX A
# Wildlife Interaction Plan

# Wildlife Interaction Plan

for Marine Salmonid Farms on the East Coast of North America

Version 23.07-08

**This Wildlife Interaction Plan (WIP) has been created to address Section 7 Environment – Predator and Wildlife Interactions of the Best Aquaculture Practices (BAP) Salmon Farms Standard. The guidance and practices herein have and will continue to be followed by all North American-East Coast employees of Cooke Aquaculture who are employed in the Saltwater Division and those who directly interact with the salmon farms. This plan merely acts as an overall summary of the current requirements that each salmon farm must follow and in the event of any conflict of information or direction between this document and the requirements and the plans related to address those requirements, those plans, and the requirements will prevail.**

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**Newfoundland**
NL Protected Wildlife ID Chart

**Nova Scotia**
NS Protected Wildlife ID Chart

# SECTION 1 - Local Laws and Regulations for Wildlife Management and Protection

## *1.1 Canadian Federal Legislation*

- **Aquaculture Activities Regulations (AAR), 2015** - Fisheries and Oceans Canada has developed the Aquaculture Activities Regulations, to clarify conditions under which aquaculture operators may treat their fish and deposit organic matter, while ensuring the protection of fish and fish habitat and sector sustainability.
- **Canadian Environmental Assessment Act, 2012** - CEAA is an environmental assessment focused on potential adverse environmental effects that are within federal jurisdiction, including: fish and fish habitat; other aquatic species; migratory birds; federal lands; effects that cross provincial or international boundaries; effects that impact on Aboriginal peoples, such as their use of lands and resources for traditional purposes; changes to the environment that are directly linked to or necessarily incidental to any federal decisions about a project. If there is a Provincial requirement for an environmental assessment or review, the applicant has an exemption form the CEAA.
- **Canadian Environmental Protection Act, 1999** - an Act respecting pollution prevention and the protection of the environment and human health to contribute to sustainable development.
- **Fisheries Act, 1985** - established to manage and protect Canada's fisheries resources. It applies to all fishing zones, territorial seas and inland waters of Canada and is binding to federal, provincial, and territorial governments.
- **Marine Mammal Regulations, 1993** - regulations that govern the fishing and hunting and in effect treatment of marine mammals in Canada[1].
- **Migratory Birds Convention Act, 1994** - protecting and conserving migratory birds.
- **Oceans Act, 1997** - Canada made a legal commitment to conserve, protect, and develop the oceans in a sustainable manner.
- **Species at Risk Act (SARA), 2002** - the purposes of this Act are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered, or threatened because of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.

## *1.2 Canadian Provincial Legislation*

### 1.2.1 New Brunswick

- **Fish and Wildlife Act, 1980** - *policies and programs created under this Act help to maintain diversity of wildlife species in New Brunswick. Among other things, it enables the provincial government to create wildlife refuges and wildlife management areas, it regulates hunting, fishing, possession, and sale of wildlife in the province, and it establishes the provincial Wildlife Fund.*
- **Species at Risk Act (SARA), 2012** - *the purposes of this Act are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered, or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.*

[1] Previously, Nuisance Seal Licences (NSL) were issued by the Department of Fisheries and Oceans (DFO) to aquaculture sites which allowed farmers to intentionally kill a nuisance seal. In March 2019, the Minister of Fisheries, Oceans, and the Coast Guard issued a statement that that the DFO has ceased the issuance of the licence in efforts to meet the requirements of the US Marine Mammal Protection Act, Import Provisions scheduled to come into force on January 1, 2022. The Minister also stated that the "DFO will undertake regulatory amendments to the Marine Mammal Regulations (MMR) to either amend or repeal provisions respecting the issuance of NSLs for aquaculture purposes. https://www.dfo-mpo.gc.ca/fisheries-peches/consultation/mmr-par-rmm-rap-eng.html

### 1.2.2 Nova Scotia

- **Fisheries and Coastal Resources Act**, **1996** - *this Act revises the outstanding fisheries law and promotes programs to encourage the development of a sustainable fishery. It sets standards for aquaculture, harvesting, and fish processing, and expands the recreational fishery. It also outlines the requirements for administration, and enforcement.*
- **Endangered Species Act, 1998** - *the purpose of this Act is to provide for the protection, designation, recovery, and other relevant aspects of conservation of species at risk in the province, including habitat protection.*

### 1.2.3 Newfoundland

- **Endangered Species Act, 2001** - p*rovides special protection for plant and animal species considered to be endangered, threatened, or vulnerable in the province.*
- **Wilderness and Ecological Reserves Act, 1990** - *an act to provide for the natural areas in the province to be set aside for the benefit, education, and enjoyment of the people of the province.*

## *1.3 United States Federal Legislation*

- **Endangered Species Act of 1973** (16 U.S.C 1531 et seq.) - requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the U.S National Oceanic and Atmosphere Administration (NOAA) Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.
- **Clean Water Act of 1972 (Formerly the Federal Water Pollution Control Act of 1948)** (33 U.S.C 1251 et seq.) - under this Act, it is unlawful for any person to discharge any pollutant from a point of source into navigable waters, unless a permit is obtained under its provisions.
- **Migratory Bird Treaty Act of 1918** (16 U.S.C 703-712) - protecting and conserving migratory birds, or the parts, nests, or eggs of such birds.
- **Marine Mammal Protection Act of 1972** - prohibits the hunt, harassment, capture or killing of any marine mammal or attempts to do so. Also prohibits the import and export of marine mammals, in whole or parts. Three federal entities share responsibility for implementation of the Act: NOAA, USFWS and the Marine Mammal Commission.

## *1.4 US State Legislation*

### 1.4.1 Maine

- **Maine Endangered Species Act, 1975** – *the Department of Inland Fisheries and Wildlife administers the Act (MESA) and is responsible for monitoring resident inland fish and wildlife (including invertebrates). The Department, through scientific studies, determines whether a species should be listed as endangered or threatened.*
- **Maine Marine Endangered Species Act, 2003** – *enacted to separate marine species from the inland species, the Act (MMESA) is administered by the Maine department of Marine resources.*
- **Maine Coastal Management Program, 1978** - *led by the Maine Department of Agriculture, Conservation, and Forestry. The coastal management program consists of a network of 19 state laws with four state agencies working in cooperation with local governments, nonprofit organizations, private businesses, and the public to improve management of coastal resources. Maine's coastal zone extends to the inland boundary of all towns bordering tidal waters and includes all coastal islands.*

# SECTION 2 - Operating Permit Considerations for Wildlife Management and Protection

## *2.1 Maine*

### 2.1.1 DMR Lease

The Department of Marine Resources (DMR) Rule Chapter 2.37; Area Resources (Essential Habitats/Endangered Species) – under the Maine Endangered Species Act a state agency or municipal government shall not permit, license, fund or carry out projects occurring partly or wholly within the Essential Habitat, without the approval of the Commissioner of Maine Department of Inland Fisheries and Wildlife (MDIFW). Applicants are required to provide a signed statement to confirm the proposed lease either does not fall within the boundary of an Essential Habitat or that the applicant has contacted MDIFW, and preliminary review will grant approval for the Maine DMR to issue an aquaculture lease within part or the entire boundary of a designated Essential Habitat. No nuisance shall be permitted to exist on the leased premises. Lessee shall not operate in a manner as to be detrimental to public health, personal property or marine resources, or as to create a serious threat to the marine environment.

### 2.1.2 ACOE Permit

Appendix C: Special Conditions which are intended to minimize potential impact to Atlantic salmon, Atlantic salmon critical habitat, other fisheries, benthic habitat, and local water quality.

### 2.1.3 DEP MEPDES Permit

Refer to the Atlantic Salmon Aquaculture General Permit PART II, Section I. Protection of Atlantic Salmon. In summary, only salmon of North American strain are permitted, and fish must be marked to identify their origin.

## *2.2 New Brunswick*

### 2.2.1 Commercial Aquaculture Licence

Schedule A – Operating Terms and Conditions; this licence may be suspended or revoked should the licensee fail to acquire or comply with any approvals, permits or licences which may be required under the *Clean Water Act,* the *Clean Environment Act*, the *Canadian Navigable Waters Act*, the Federal *Fisheries* Act or the *Crown Lands and Forests Act*, the *Public Health Act,* the *Seafood Processing Act*, the *Fish and Wildlife Act,* or any other applicable law.

### 2.2.2 Approval to Operate

Schedule A – Terms and Conditions (E); the Approval Holder operate the Facility in accordance with the most recent version of the *Environmental Management Program for the Marine Finfish Cage Aquaculture Industry in New Brunswick,* issued by the Department of Environment and Local Government. The Approval Holder shall ensure that all chemicals are stored in a manner such that any spill is contained and not released to the environment.

## *2.3 Newfoundland*

### 2.3.1 Lease for Aquaculture

Schedule C; the use of the demised premises will, for its intended purpose, be subject to and in accordance with all provincial acts and regulations respecting the promotion of efficient aquaculture and environmental control. The Lessee agrees that upon cancellation or non-renewal of this Lease, the demised premises shall be restored to a condition satisfactory to the Minister, which restoration shall include the removal of all buoys, mooring lines, anchors, floating structures, and any other items placed or installed in or on the demised premises.

### 2.3.2 Aquaculture Licence

Licence Conditions: Licensees must ensure that all required plans are approved by the department. These plans include but are not limited to: Environmental and Waste Management Plan; Integrated Pest Management Plan; Biosecurity Plan; and Fish Health Management Plan.

### 2.3.3 Marine Aquaculture Water Use Licence

Appendix A – Terms and Conditions: The Licensee/Holder shall not impair, pollute, or cause to be polluted the quality of water. In the event that the site is no longer being used during the term created by this Licence, the Licencee/Holder shall remove the aquaculture gear and other work(s)/system(s) associated with and restore all areas affected by this facility to a state that resembles local natural conditions.

## *2.4 Nova Scotia*

### 2.4.1 Lease

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

### 2.4.2 Licence

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 the licence. The Licencee agrees to comply with any permits, protocols, approvals, licences, or permissions (the “licencing requirements”) which may be required under the laws of the relevant municipality, the Province or Canada. The Lessee is responsible for confirming any licencing requirements and ensuring compliance with them.

# SECTION 3 - Ecologically and Biologically Sensitive and Significant Areas

An Ecologically and Biologically Sensitive Area (EBSA or EBSAs) is an area that has been determined to be of high ecological or biological significance and as such, should receive a higher level of risk aversion when activities are occurring to avoid disruption of the overall ecosystem and structure. It is important that employees are aware of areas that are in proximity to their farm and avoid impacting these areas intentionally and follow company protocols regarding garbage containment, proper fuel and chemical storage, equipment maintenance, among others to reduce the risk of unintentional damage.

## *3.1 Atlantic Canada EBSAs*

Both the DFO and the Convention on Biological Diversity (CBD) have criteria for evaluating areas. These criteria consider biological functions, physical oceanography, structural habitat features and biodiversity. Criteria established by DFO to rank an area are uniqueness; aggregation; fitness consequences, plus 2 additional modifying criteria: resilience and naturalness. Criteria established by the CBD are uniqueness or rarity; special importance for life history stages of species; importance for threatened, endangered or declining species and/or habitats; vulnerability, fragility, sensitivity, or slow recovery; biological diversity and naturalness. Both the DFO and CBD criteria were used to establish the EBSAs.

There are three sub-regions within the DFO Maritimes Region in which EBSAs were identified: the Bay of Fundy, the Atlantic coast of Nova Scotia and the offshore Scotian Shelf.

The Bay of Fundy forms a significant part of the Gulf of Maine. A total of 16 areas (**Fig.1**) were identified (DFO[2]) as EBSAs with the Bay of Fundy, Gulf of Maine. There is no formal list of Ecologically Sensitive Species (ESS) in the Bay of Fundy yet, but there is the presence of potential ESS and the reason that some areas have been established as an EBSA.

In the Atlantic coast sub-region, Cape St. Mary's to Cape North, a total of 38 areas (**Fig. 2**) were identified (DFO[3]) as EBSAs.

[2] 2014. DFO CSAS Research Document 2013/065. Identification and Review of Ecologically and Biologically Significant Areas in the Bay of Fundy.
[3] 2014. DFO Canadian Technical Report of Fisheries and Aquatic Sciences 3107. Ecologically and Biologically Significant Areas in the Atlantic Coastal Region of Nova Scotia.

**Figure 1**. Location of identified Bay of Fundy EBSAs – boundaries represent a best approximation of where a significant feature or features exist.

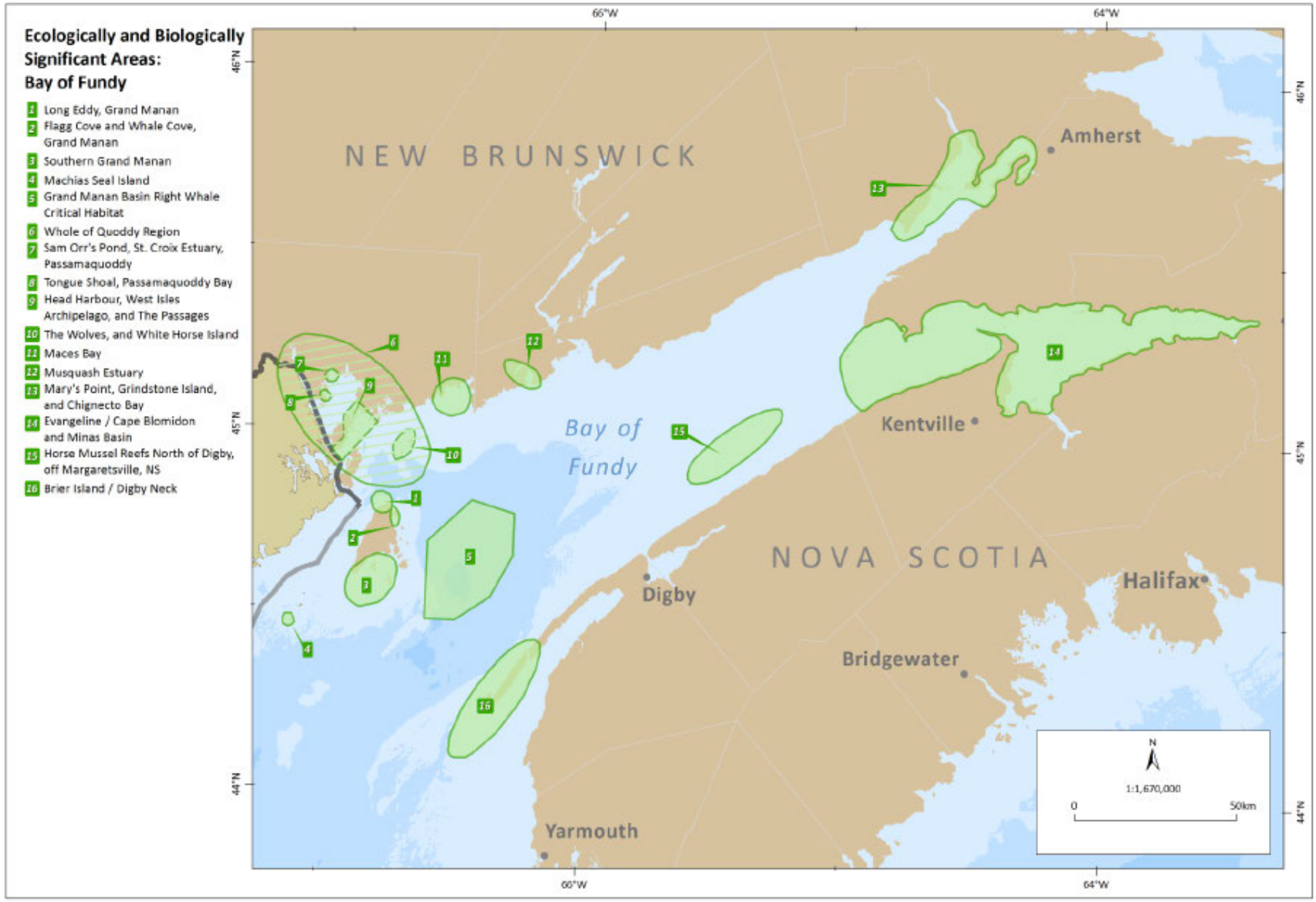
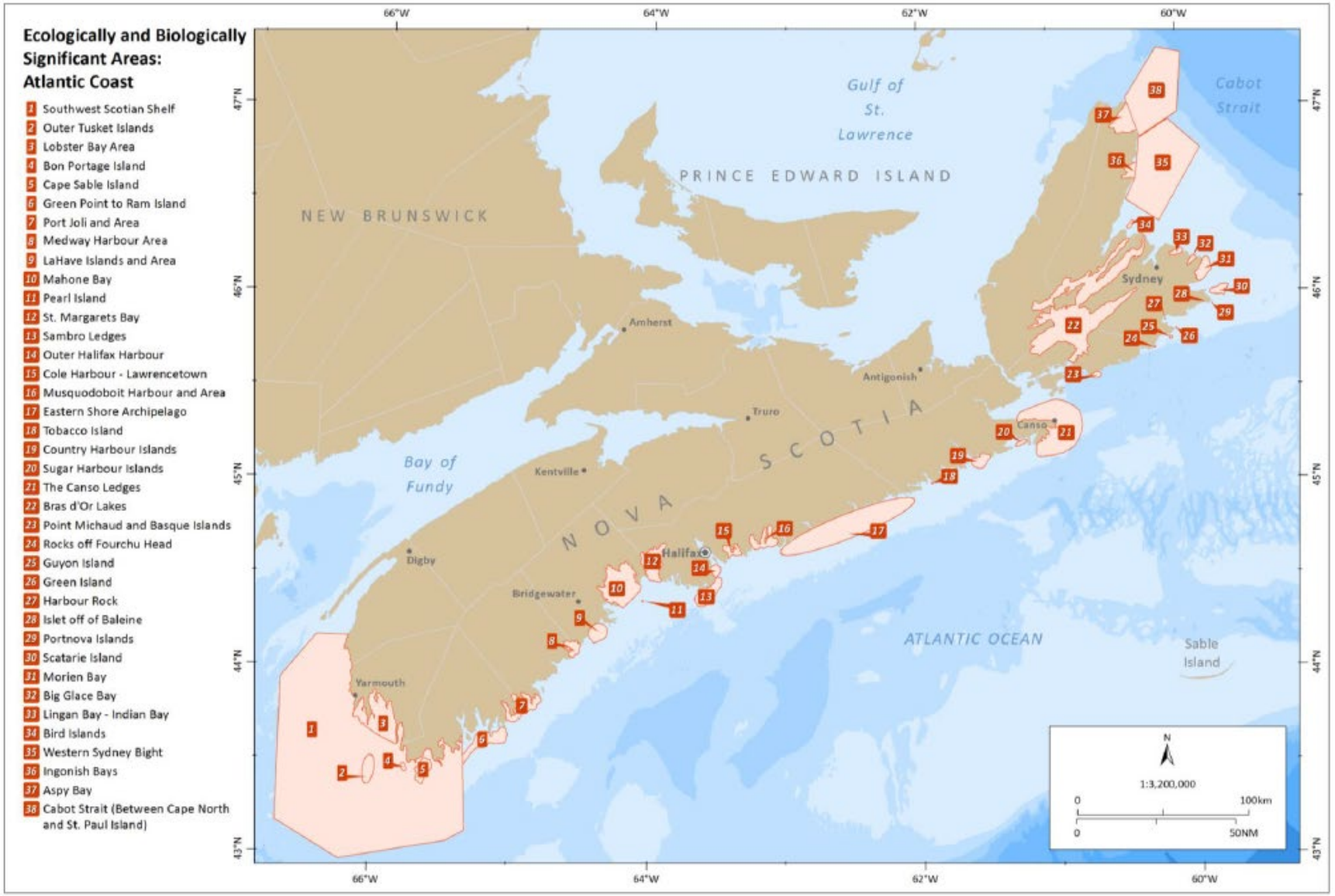
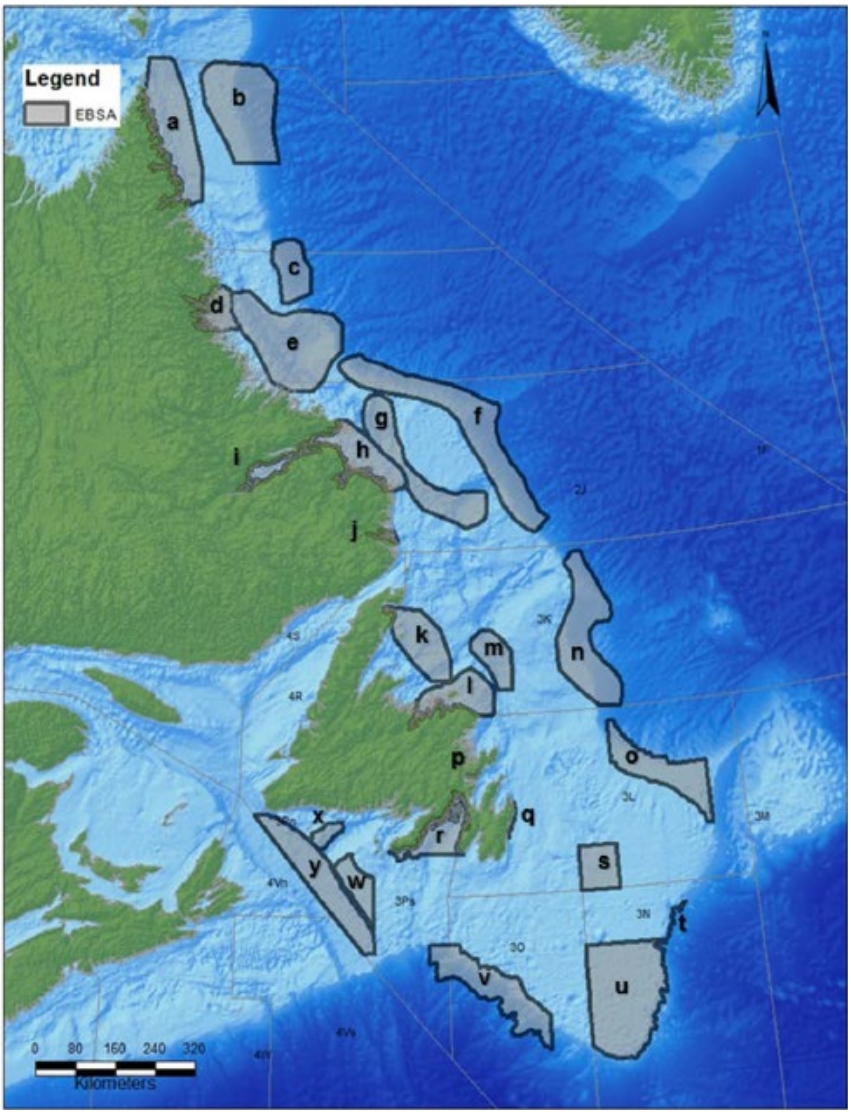


**Figure 2**. Location of identified Atlantic coast sub-region EBSAs – boundaries represent a best approximation of where a significant feature or features exist.



Within the DFO Newfoundland and Labrador Region 26 EBSAs have been identified in the Newfoundland and Labrador Shelves Bioregion since 2007 (**Fig. 3**)[4]. One of the 26 EBSAs is a transitory EBSA that encompasses the southern extent of pack ice. Unlike other EBSAs, the location of the southern pack ice is transitory and varies both within and among years, as it is influenced by winds and currents. However, it is usually located south of Hamilton Inlet, as far south as Notre Dame Bay. Although it cannot be defined by rigid boundaries, the southern pack ice is an area that is highly productive and ecologically important within the Newfoundland shelf ecosystem and the North Atlantic.

**Figure 3**. EBSAs in the Newfoundland and Labrador Bioregion: a) Northern Labrador, b) Outer Shelf Saglek Bank, c) Outer Shelf Nain Bank, d) Nain Area, e) Hopedale Saddle, f) Labrador Slope, g) Labrador Marginal Trough, h) Hamilton Inlet, i) Lake Melville, j) Gilbert Bay, k) Grey Islands, l) Fogo Shelf m) Notre Dame Channel, n) Orphan Spur, o) Northeast Shelf and Slope, p) Smith Sound, q) Eastern Avalon, r) Placentia Bay Extension, s) Virgin Rocks, t) Lilly Canyon-Carson Canyon, u) Southeast Shoal and Tail of the Banks, v) Southwest Shelf Edge and Slope, w) St. Pierre Bank, x) Burgeo Bank, and y) Laurentian Channel.



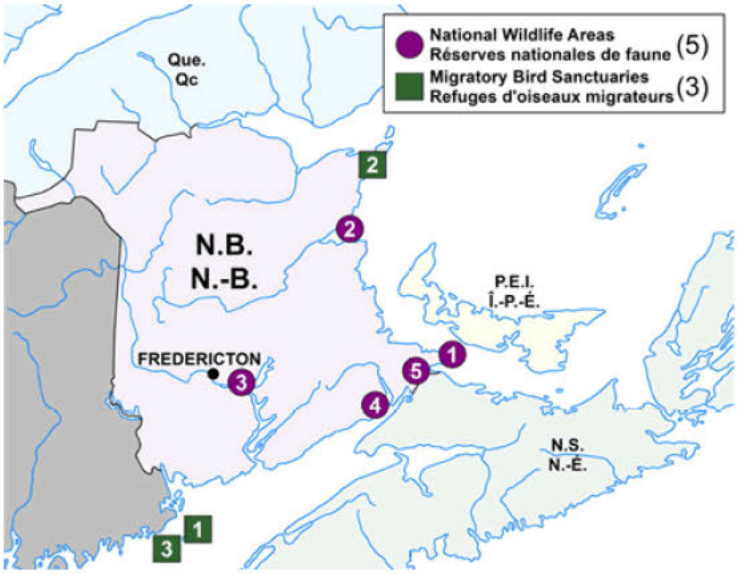

[4] DFO. 2016. Refinement of Information Relating to Ecologically and Biologically Significant Areas (EBSAs) Identified in the Newfoundland and Labrador (NL) Bioregion. DFO Can. Sci. Advis. Sec. Sci. Resp. 2016/032.

### 3.1.1 National Wildlife Areas and Migratory Bird Sanctuaries

According to the Canada Wildlife Act, National Wildlife Areas are created and managed for the purposes of wildlife conservation, research, and interpretation. There are currently 55 National Wildlife Areas across Canada containing nationally significant habitats for animals or plants. The National Wildlife Areas managed by Environment and Climate Change Canada (ECCC) protect over 2.1 million hectares of habitat with over 75% of that area protecting marine habitat[5].

Migratory Bird Sanctuaries (MBS) are listed under the Schedule in the Migratory Bird Sanctuary Regulations, which prescribe rules and prohibitions regarding the taking, injuring, destruction or molestation of migratory birds or their nests or eggs in the sanctuaries. Hunting of listed species under the Act is not permitted in any Migratory Bird Sanctuary. At present, there are 92 MBS across Canada, comprising almost 11.5 million hectares of migratory bird habitat that provides safe refuge for migratory birds in the terrestrial and marine environment. The Canadian Wildlife Service of Environment Canada is the agency responsible for MBS, although the sanctuaries can be located on federal, provincial, or private land[6].

**Figure 4.** National Wildlife Areas and Migratory Bird Sanctuaries in New Brunswick.



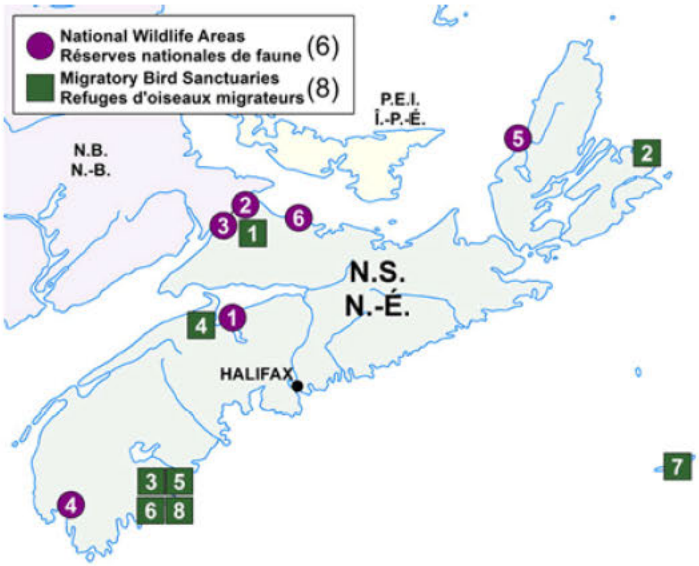

| National Wildlife Areas | | | |
|---|---|---|---|
| **No.** | **Name** | **Year Established** | **Size in Hectares** |
| 1 | Cape Jourimain | 1980 | 654 |
| 2 | Portage Island | 1979 | 349 |
| 3 | Portobello Creek | 1995 | 3,011 |
| 4 | Shepody | 1980 | 1,062 |
| 5 | Tintamarre | 1977 | 1,970 |

| Migratory Bird Sanctuaries | | | |
|---|---|---|---|
| **No.** | **Name** | **Year Established** | **Size in Hectares** |
| 1 | Grand Manan MBS | 1931 | 433 |
| 2 | Inkerman MBS | 1998 | 16 |
| 3 | Machias Seal Island MBS | 1944 | 1,046 |

[5] https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations.html

[6] https://www.canada.ca/en/environment-climate-change/services/migratory-bird-sanctuaries/locations.html

**Figure 5.** National Wildlife Areas and Migratory Bird Sanctuaries in Nova Scotia.




| National Wildlife Areas | | | |
|---|---|---|---|
| **No.** | **Name** | **Year Established** | **Size in Hectares** |
| 1 | Boot Island | 1979 | 107 |
| 2 | Chignecto | 1982 | 409 |
| 3 | John Lusby Marsh | 1978 | 552 |
| 4 | Sand Pond | 1977 | 531 |
| 5 | Sea Wolf Island | 1982 | 76 |
| 6 | Wallace Bay | 1980 | 701 |
| # | Isle Haute | In Progress | 80 |

| Migratory Bird Sanctuaries | | | |
|---|---|---|---|
| **No.** | **Name** | **Year Established** | **Size in Hectares** |
| 1 | Amherst Point | 1947 | 433 |
| 2 | Big Glace Bay Lake | 1939 | 393 |
| 3 | Port Herbert | 1941 | 346 |
| 4 | Kentville | 1939 | 506 |
| 5 | Port Joli | 1941 | 397 |
| 6 | Sable River | 1941 | 313 |
| 7 | Sable Island | 1977 | 3,100 |
| 8 | Haley Lake | 1980 | 95 |

There are no designated National Wildlife Areas in Newfoundland and Labrador, however, there are 3 designated Migratory Bird Sanctuaries. The first two are located near Belle Isle, off the northeast coast of Newfoundland, the third is in the Bonavista Bay region of northeastern Newfoundland, adjacent to Terra Nova Provincial Park.

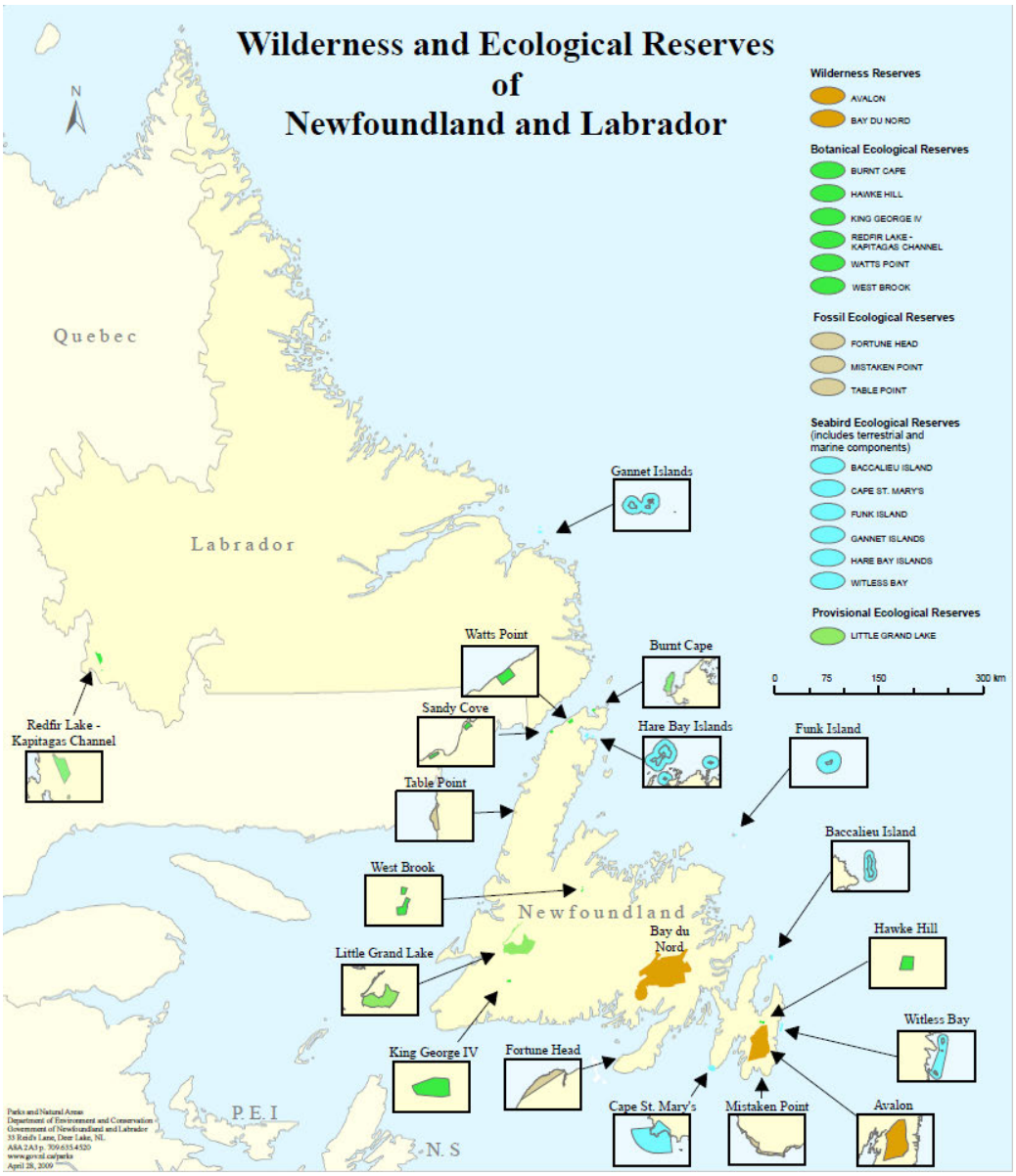
**Table 1.** Migratory Bird Sanctuaries in Newfoundland and Labrador.

| Migratory Bird Sanctuaries | | | |
|---|---|---|---|
| **No.** | **Name** | **Year Established** | **Size in Hectares** |
| 1 | Shepherd Island | 1991 | 18 |
| 2 | Ile aux Canes | 1991 | 162 |
| 3 | Terra Nova | 1967 | 1,178 |

The government of Newfoundland and Labrador has designated 18 wilderness and ecological reserves (**Fig. 6**)[7] which protect wide-ranging caribou herds, diverse seabird colonies, globally important fossil sites, and habitat for endangered or threatened plants and animals. Several protected areas are representative examples of the province's natural regions. Wilderness reserves are large, protected areas (greater than 1,000 km$^2$) that are designed to protect significant natural features and landscapes. There are two wilderness reserves in Newfoundland - the Avalon and the Bay du Nord and none in Labrador which were created primarily to protect the habitat and range of a caribou herd. Ecological reserves are protected areas (less than 1,000 km$^2$) that were created for two main purposes: a) to protect representative examples of ecosystems or ecoregions, or b) to protect unique, rare, or endangered plants, animals, or other elements of our natural heritage.

Most of the reserves in the second category are divided into three general types-botanical, fossil, and seabird ecological reserves.

**Figure 6**. Wilderness and Ecological Reserves of Newfoundland and Labrador.




[7] Department of Environment and Conservation. 2006. A Guide to our Wilderness and Ecological Reserves – Newfoundland and Labrador.

### *3.1.2 Marine Protected Areas*

Marine Protected Areas (MPAs) are defined geographic areas dedicated to and managed for the long-term conservation of nature. The Department of Fisheries and Oceans (DFO) Canada establishes and manages MPAs under the Oceans Act in order to conserve numerous aspects which 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 DFOs mandate of scientific research.

As of February 2022, there are 14 MPAs designated across Canada[8], **8 of these are in the Atlantic Ocean.**

- Anguniaqvia niqiqyuam – located in the Northwest Territories, within the Inuvialuit Settlement Region, as defined by the Western Artic Claim – Inuvialuit Final Agreement, Western Artic Bioregion.
    - To maintain the integrity of the marine environment offshore of the Cape Parry Migratory Bird Sanctuary so that it is productive and allows for higher trophic level feeding.
    - To maintain the habitat to support populations of key species (such as beluga whales, Arctic char, and ringed and bearded seals).
- **Banc-des-Américans** – located off the eastern tip of the Gaspé Peninsula, Estuary, and the Gulf of St. Lawrence bioregion.
    - Conserve and protect benthic (seabed) habitats.
    - Conserve and protect pelagic (water column) habitats and forage species (prey).
    - Promote the recovery of at-risk whales and wolffish.
- **Basin Head** – located off the eastern tip of Prince Edward Island, Estuary and Gulf of St. Lawrence Bioregion.
    - Maintain the quality of the marine environment and the physical structures of the ecosystem supporting the *Chondrus crispus* variety of Irish Moss.
    - Maintain the health (biomass and coverage) of the Basin Head *Chondrus crispus*.
    - Maintain the overall ecological integrity of the Basin Head lagoon and inner channel, including avoidance of excessive Ulva growth, maintenance of adequate oxygen levels, and diversity of indigenous flora and fauna.
- **Eastport** – located off the northeast coast of Newfoundland; Newfoundland-Labrador Shelves Bioregion.
    - Maintain a viable population of American lobster through the conservation, protection, and sustainable use of resources and habitats within the Eastport Peninsula Lobster Management Area (EPLMA); and
    - Ensure the conservation and protection of threatened or endangered species.
- Endeavour Hydrothermal Vents – located on the Juan de Fuca Ridge, British Columbia, Offshore Pacific Bioregion.
    - Conserve the biological diversity, productivity, structural habitat, and ecosystem function of the hydrothermal vents.
- **Gilbert Bay** – located off the southeast coast of Labrador; Newfoundland-Labrador Shelves Bioregion.
    - Conservation and protection of the Gilbert Bay cod and its habitats.
    - Conservation and protection of the Gilbert Bay ecosystem.
    - Facilitation of scientific research opportunities in the Gilbert Bay ecosystem.
    - Promotion of public awareness, education, and support of the Gilbert Bay MPA.
- **The Gully** – located east of Nova Scotia's Sable Island, Scotian Shelf Bioregion.
    - Minimize harmful impacts from human activities on cetacean populations and their habitats.
    - Minimize the disturbance of seafloor habitat and associated benthic communities caused by human activities.
    - Maintain and monitor the quality of water and sediments of the Gully; and
    - Manage human activities to minimize impacts on other commercial and non-commercial living resources.
- Hecate Strait/Queen Charlotte Sound Glass Sponge Reefs – located north and south of the entrance to Douglas Channel, British Columbia, Northern Shelf Bioregion.
    - Conserve the biological diversity, structural habitat, and ecosystem function of the glass sponge reefs.

[8] http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/index-eng.html

- **Laurentian Channel** – located off the southwest coast of Newfoundland and Labrador, Newfoundland, and Labrador Shelves Bioregion.
    - Protect corals, particularly significant concentrations of sea pens, from harm due to human activities (e.g., fishing, oil and gas exploratory drilling, submarine cable installation and anchoring) in the Laurentian Channel.
    - Protect Black Dogfish from human induced mortality (e.g., bycatch in the commercial fishery) in the Laurentian Channel.
    - Protect Smooth Skate from human induced mortality (e.g., bycatch in the commercial fishery) in the Laurentian Channel.
    - Protect Porbeagle sharks from human induced mortality (e.g., bycatch in the commercial fishery, seismic activities) in the Laurentian Channel.
    - Promote the survival and recovery of Northern Wolffish by minimizing risk of harm from human activities (e.g., bycatch in the commercial fishery) in the Laurentian Channel.
    - Promote the survival and recovery of Leatherback Sea Turtles by minimizing risk of harm from human activities (e.g., entanglement in commercial fishing gear, seismic activities) in the Laurentian Channel.
- **Musquash Estuary** – Bay of Fundy, New Brunswick; Scotian Shelf Bioregion.
    - Maintain productivity of harvested species.
    - Maintain biodiversity of individual species, communities, and populations within the different ecotypes.
    - Safeguard habitat, including the physical and chemical properties of the ecosystem, by maintaining water and sediment quality.
- SGaan Kinghlas-Bowie Seamount - located 180 kilometers offshore and to the west of Haida Gwaii (formerly known as Queen Charlotte Islands) in the northeast Pacific, off the coast of British Columbia. The seamount rises from a depth of 3,000 meters to within 24 meters of the surface.
    - Conserve and protect the unique biodiversity and biological productivity of the area's marine ecosystem, which includes the SGaan Kinghlas-Bowie, Hodgkins and Davidson seamounts and the surrounding waters, seabed, and subsoil.
- **St. Anns Bank** – located east of Cape Breton Island, Nova Scotia, Scotian Shelf Bioregion.
    - Conserve and protect all major benthic, demersal (i.e., close to the sea floor) and pelagic (i.e., in the water column) habitats within the MPA, along with their associated physical, chemical, geological, and biological properties and processes.
    - Conserve and protect marine areas of high biodiversity at the community, species, population, and genetic levels within the MPA.
    - Conserve and protect biological productivity across all trophic levels so that they can fulfill their ecological role in the ecosystems of the MPA.
- Tarium Niryutait – located in the Mackenzie River Delta and estuary in the Beaufort Sea, Western Artic Bioregion.
    - To conserve and protect beluga whales and other marine species (anadromous fish, waterfowl, and seabirds), their habitats and their supporting ecosystem.
- Tuvaijuittuq – located off the northwest coast of Ellesmere Island, Nunavut in the Arctic Ocean, encompasses areas within the Artic Basin and Arctic Archipelago Bioregions.
    - To contribute to the conservation, protection and understanding the natural diversity, productivity, and dynamism of the High Arctic Sea ice ecosystem.
        - Tuvaijuittuq is the first MPA to be designated for interim protection by ministerial order under the *Oceans Act*, limiting human activities in the area for up to five years.

## *3.2 Maine Natural Areas Program*

Ecological Reserves are lands specifically set aside to protect and monitor the State of Maine's natural ecosystems. These lands are managed by the Bureau of Parks and Public Lands, and the Maine Natural Areas Program oversees the long-term ecological monitoring plan. As of 2013, Maine has designated more than 90,000 acres of Ecological Reserves on 17 public land units. The purposes of the Reserves are:

1. To maintain one or more natural community types or native ecosystem types in a natural condition and range of variation and contribute to the protection of Maine's biological diversity,
2. To act as a benchmark against which biological and environmental change may be measured, as a site for ongoing scientific research, long-term environmental monitoring, and education, and
3. To protect sufficient habitat for those species whose habitat needs are unlikely to be met on lands managed for other purposes.

Reserves were designated following a multi-year inventory and assessment project coordinated by the Maine Forest Biodiversity Project, with staff assistance from The Nature Conservancy, the Maine Natural Areas Program, and the Bureau of Parks and Public Lands. In total, there are 17 Maine Ecological Reserves as of July 2018 - ranging in size from 775 acres at Wassataquoik Stream to over 11,000 acres at Nahmakanta.

Factsheets on each of the reserves are available through the Maine Department of Agriculture, Conservation and Forestry website[9].

- Big Spencer Mountain
- Bigelow Preserve
- Chamberlain Lake/Lock Dam
- Cutler Preserve
- Deboullie
- Duck Lake
- Gero Island
- Great Heath
- Mahoosucs Unit
- Mt. Abraham
- Nahmakanta
- Number Five Bog
- Rocky Lake
- Salmon Brook Lake
- St. John Ponds
- Tunk Lake Area, including Donnell Pond and Spring River Lake
- Wassataquoik Stream

[9] https://www.maine.gov/dacf/mnap/reservesys/index.htm

# SECTION 4 - Risk Assessment

## *4.1 Atlantic Canada Aquaculture Sites and the Species at Risk Act (SARA)*

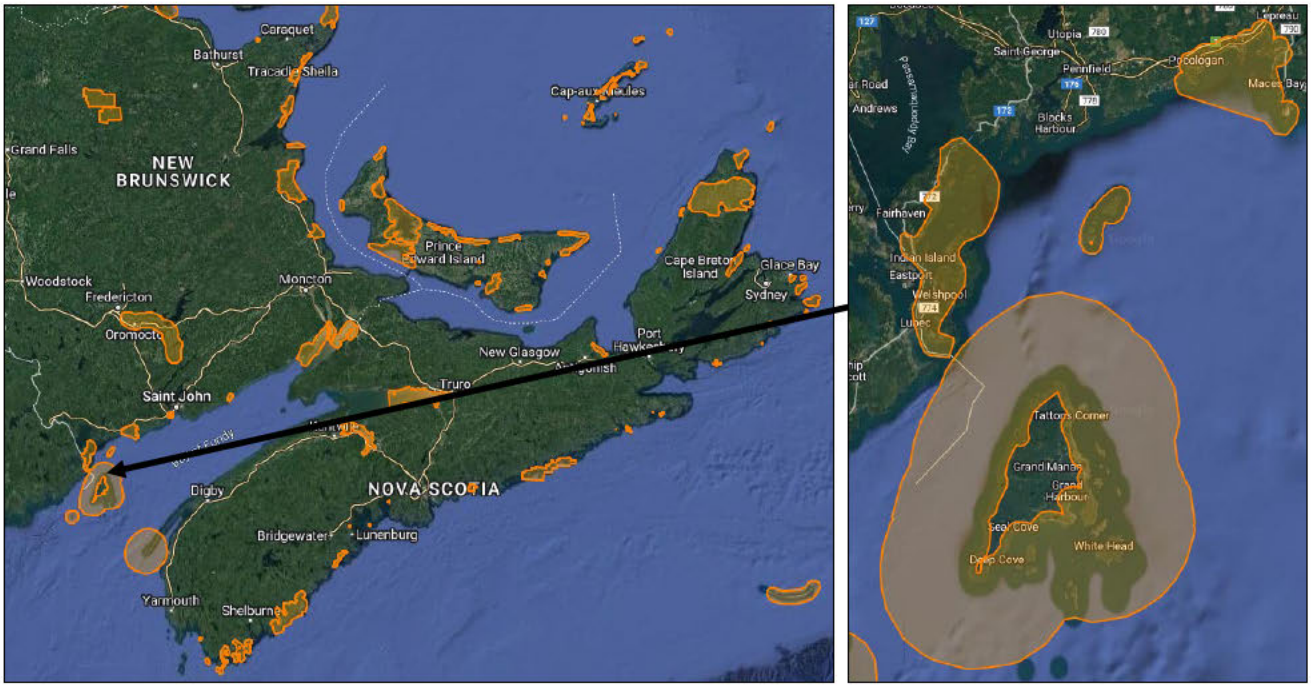
The SARA is a key federal government commitment *"to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened"*. SARA provides for the legal protection of wildlife species and the conservation of their biological diversity.

When scoping new sites or proposing boundary amendments for pre-existing farms, endangered, at risk and threatened species that have been or may be found within the proposed area must be identified. Species identified that are listed under the SARA designation must be protected and considered within the proposal. Applicants must provide mitigation plans for those species regarding how the operation will strive to not impede or otherwise cause harm. Applicants must also consider those species identified by regional conservation strategies, including Provincial Species at Risk Acts or Endangered Species Acts.

### 4.1.1 Important Birds and Biodiversity Areas (IBA)

Important Bird Areas (IBAs)[10] are discrete sites that support specific groups of birds: threatened birds, large groups of birds, and birds restricted by range or by habitat. When bird species occur at a site in sufficient numbers during one or more seasons (winter; migration; breeding), they become known as trigger species, and the site at which they are found is designated as an IBA. IBAs range in size from very tiny patches of habitat to large tracts of land or water. They may encompass private or public land, and they may or may not overlap partially or entirely with legally protected sites, such as EBSAs, National Wildlife Areas, Migratory Bird Sanctuaries and Wilderness and Ecological Reserves mentioned previously. While there are no IBAs located near our marine farms in Newfoundland, there are several identified within New Brunswick and Nova Scotia (**Fig. 7**).

**Figure 7**. IBAs in the Maritimes Region, with focus of Grand Manan Island, Passamaquoddy Bay and Maces Bay, NB.




[10] https://www.ibacanada.org/index.jsp?lang=en

## *4.2 Maine Aquaculture Sites and the Endangered Species Act (ESA)*

The ESA aims to conserve, protect, and recover imperiled species and the ecosystems upon which they depend. The National Oceanic and Atmospheric Administration (NOAA) Fisheries is responsible for the protection, conservation, and recovery of endangered and threatened marine and anadromous species under the ESA.

Generally, NOAA Fisheries manages the marine and anadromous species including whales, corals, sea turtles, and salmon. The US Fish and Wildlife Service (USFWS) manages terrestrial and freshwater species such as polar bears, sea otters, and manatees.

The Maine Endangered Species Act (MESA) provides the Maine Department of Inland Fisheries and Wildlife (MDIFW) with a mandate to conserve all the species of fish and wildlife found in the State, as well as the ecosystems upon which they depend. Under the MESA, as stated in Maine aquaculture site Department of Marine Resources (DMR) Leases, a state agency or municipal government shall not permit, licence, fund or carry out projects occurring partly or wholly within the essential habitat, without the approval of the Commissioner of MDIFW.

Applicants are required to provide a signed statement to confirm the proposed lease either does not fall within the boundary of an essential habitat or that the applicant has contacted MDIFW, and preliminary review will grant approval for the Maine Department of Marine Resources (MDMR) to issue an aquaculture lease within part or all the boundary of a designated Essential Habitat.

# SECTION 5 - Local Endangered or Threatened Species

## *5.1 Atlantic Canada*

The following species are listed as endangered or threatened in Atlantic Canada[11] (excluding Prince Edward Island as well as terrestrial plants and animals) either under the Federal Species at Risk Act (SARA) and/or the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and may be seen in the vicinity of our marine farms:

**E = Endangered** under the SARA and listed by the COSEWIC
**T = Threatened** under the SARA and listed by the COSEWIC
**s = Special Concern** under the SARA and listed by the COSEWIC
**c = COSEWIC Designation**, no SARA Status

**Birds**

1 Bank Swallow (*Riparia riparia*) **T**
2 Barn Swallow (*Hirundo rustica)* **T**
3 Barrow's Goldeneye (*Bucephala islandica*) **s**
4 Bicknell's Thrush (*Catharus bicknelli*) **T**
5 Bobolink (*Dolichonyx oryzivorus*) **T**
6 Canada Warbler (*Wilsonig anadensis*) **T**
7 Chimney Swift (Chaetura pelagica) **T**
8 Common Nighthawk (*Chordeiles minor*) **T**
9 Eastern Meadowlark (*Sturnella magna*) **T**
10 Eastern Whip-poor-will (*Antrostomus vociferus*) **T**
11 Eastern Wood Pewee (*Contopus virens*) **c**
12 Eskimo Curlew (*Numenius borealis*) **E – LIKELY EXTINCT**
13 Evening Grosbeak (*Coccothraustes vespertinus*) **s**
14 Harlequin Duck (*Histrionicus histrionicus*) **s**
15 Horned Grebe – Western population (*Podiceps auratus*) **s**[12]
16 Hudsonian Godwit (*Limosa haemastica*) **c**
17 Ipswich Sparrow (*Passerculus sandwichensis princeps*) **s**
18 Ivory Gull (*Pagophila eburnean*) **E**
19 Leach's Storm-Petrel (*Oceanodroma leucorhoa*) **c**
20 Least Bittern (*Ixobrychus exilis*) **T**
21 Lesser Yellowlegs (*Tringa flavipes*) **c**
22 Olive-sided Flycatcher (*Contopus cooperi*) **T**
23 Peregrine Falcon – Anatum Subspecies (*Falco peregrinus anatum*) **s**
24 Piping Plover (*Charadrius melodus*) **E**
25 Red Crossbill percna (*Loxia curvirostra percna*) **T**
26 Red Knot Rufa (*Calidris canutus rufa*) **E**
27 Red-necked Phalarope (*Phalaropus lobatus*) **s**
28 Roseate Tern (*Sterna dougallii*) **E**
29 Ross's Gull (*Rhodostethia rosea*) **T**
30 Rusty Blackbird (*Euphagus carolinus*) **s**
31 Savannah Sparrow princeps (*Passerculus sandwichensis princeps*) **s**
32 Short-eared Owl (*Asio flammeus*) **s**
33 Wood Thrush (*Hylocichla mustelina*) **T**
34 Yellow Rail (*Coturnicops noveboracensis*) **s**

[11] https://species-registry.canada.ca/index-en.html#/species?ranges=15,9,7,8&taxonomyId=4,5,2&sortBy=commonNameSort&sortDirection=asc&pageSize=10 (Filtered by NB, NL, NS, Atlantic Ocean; Birds, Fishes (Marine), Mammals)
[12] The Western population is recognized by the Province of New Brunswick under the provincial Species at Risk Act, though the SARA Registry does not consider New Brunswick as a range of the species. Due to its listing on the provincial list, it is included here.

**Fish**

1 Acadian Redfish (*Sebastes fasciatus*) **c**
2 American Eel (*Anguilla rostrata*) **T**
3 American Plaice (*Hippoglossoides platessoides*) **c**
4 Atlantic Bluefin Tuna (*Thunnus thynnus*) **c**
5 Atlantic Cod – Newfoundland and Labrador, Laurentian North and South, Southern populations (*Gadus morhua*) **c**
6 Atlantic Salmon – Eastern Cape Breton, Gaspe-Southern Gulf of St. Lawrence, Outer Bay of Fundy, Nova Scotia Southern Upland, South Newfoundland populations (*Salmo salar*) **c**
7 Atlantic Salmon – Inner Bay of Fundy (*Salmo salar*) **E**
8 Atlantic Sturgeon – Maritime population (*Acipenser oxyrinchus*) **c**
9 Atlantic Whitefish (*Coregonus huntsman*) **E**
10 Atlantic Wolffish (*Anarhichas lupus*) **s**
11 Basking Shark (*Cetorhinus maximus*) **c**
12 Cusk (*Brosme brosme*) **c**
13 Lumpfish (*Cyclopterus lumpus*) **c**
14 Northern Wolffish (*Anarhichas denticulatus*) **T**
15 Porbeagle (*Lamna nasus)* **c**
16 Shortfin Mako – Atlantic population (*Isurus oxyrinchus*) **c**
17 Shortnose Sturgeon (*Acipenser brevirostrum*) **s**
18 Smooth Skate – Lauranian-Scotian population (*Malacoraja senta*) **c**
19 Spiny Dogfish (*Squalus acanthias*) **c**
20 Spotted Wolffish (*Anarhichas minor*) **T**
21 Striped Bass – Bay of Fundy, Southern Gulf of St. Lawrence Population (*Morone saxitilis*) **c**
22 Thorny Skate (*Amblyraja radiata*) **c**
23 White Shark (*Carcharodon Carcharias*) **E**
24 White Hake (*Urophycis tenuis*) **c**
25 Winter Skate – Georges Bank, Western Scotian Shelf, Bay of Fundy populations (*Leucoraja ocellate*) **c**

**Mammals**

26 Beluga Whale (*Delphinapterus leucas*) **c**
27 Blue Whale (*Balaenoptera musculus*) **E**
28 Fin Whale (*Balaenoptera physalus*) **s**
29 Harbour Porpoise - Northwest Atlantic Population (*Phocoena phocoena*) **c**
30 Killer Whale – Northwest Atlantic population (*Orcinus orca*) **c**
31 North Atlantic Right Whale (*Eubalaena glacialis*) **E**
32 Northern Bottlenose Whale – Scotian Shell population (*Hyperoodon ampullatus*) **E**
33 Polar Bear (*Ursus maritimus*) **s**
34 Ringed Seal (*Pusa hispida*) **c**
35 Sowerby's Beaked Whale (*Mesoplodon bidens*) **s**

**Turtles**

36 Leatherback Sea Turtle – Atlantic population (*Dermochelys coriacea*) **E**
29 Loggerhead Sea Turtle (*Caretta caretta*) **E**

### 5.1.1. New Brunswick

In addition to the Federal SARA Registry, the following species are listed under Schedule A of the New Brunswick *List of Species at Risk Regulations - Species at Risk Act*[13] and may be seen within the vicinity of our marine farms:

**E** = **Endangered Species**
**T** = **Threatened Species**
**S** = **Species of Special Concern**

**Birds**

1 Bald Eagle (*Haliaeetus leucocephalus*) **E**

**Fish**

2 Blue Shark – Atlantic population (*Prionace glauca*) **S**
3 Rainbow Smelt – Lake Utopia Large-Bodied, Small-Bodied populations (*Osmerus mordax*) **T**
4 Winter Skate – Southern Gulf of St. Lawrence population (*Leucoraja ocellata*) **E**

### 5.1.2 Newfoundland

Newfoundland and Labrador's Endangered Species Act provides special protection for plant and animal species considered to be endangered, threatened, or vulnerable in the province. The Act considers species and populations that are native to the province but does not include marine fish. The following species are additional species relevant to those listed under the Federal SARA Registry and are listed under the Newfoundland and Labrador Endangered Species Act[14]:

**E = Endangered**
**T = Threatened**
**V = Vulnerable**

**Birds**

1 Newfoundland Gray-cheeked Thrush (*Catharus minimus minimus*) **T**

## *5.2 Maine*

Endangered and threatened marine species in the state of Maine are listed under the Marine Endangered Species Act[15]. Endangered and threatened inland fish and wildlife species in Maine are listed either under Maine's Endangered Species Act[16], the US Endangered Species Act[17], or both. The following species are listed as endangered or threatened in Maine and may be seen in the vicinity of our marine farms:

**F = Federally Endangered** under the U.S. Endangered Species Act
**f = Federally Threatened** under the U.S. Endangered Species Act
**S = State Endangered** under the Maine Endangered Species Act
**s = State Threatened** under the Maine Endangered Species Act
**M = State Endangered** under the Maine Marine Endangered Species Act
**m = State Threatened** under the Maine Marine Endangered Species Act

[13] https://laws.gnb.ca/en/showdoc/cr/2013-38
[14] https://www.gov.nl.ca/ffa/wildlife/endangeredspecies/
[15] http://www.mainelegislature.org/legis/statutes/12/title12sec6975.html
[16] https://www.maine.gov/ifw/fish-wildlife/wildlife/endangered-threatened-species/listed-species.html
[17] https://www.fisheries.noaa.gov/species-directory/threatened-endangered?title=&species_category=any&species_status=any&regions=1000001111&items_per_page=25&sort=#

**Birds**

1 American Pipit (*Anthus rubescens*) (Breeding population only) **S**
2 Arctic Tern (*Sterna paradisaea*) **s**
3 Atlantic Puffin (*Fratercula arctica*) **s**
4 Barrow's Goldeneye (*Buchephala islandica*) **s**
5 Black-crowned Night Heron (*Nycticorax nycticorax*) **S**
6 Black Tern (*Chlidonias niger*) **S**
7 Common Gallinule (*Gallinula chloropus*) **s**
8 Giant Manta Ray (*Manta birostris*) **f**
9 Golden Eagle (*Aquila chrysaetos*) **S**
10 Grasshopper Sparrow (*Ammodramus savannarum*) **S**
11 Great Cormorant – Breeding population (*Phalacrocorax carbo*) **s**
12 Harlequin Duck (*Histrionicus histrionicus*) **s**
13 Least Bittern (*Lxobrychus exilis*) **S**
14 Least Tern (*Sterna antillarum)* **S**
15 Peregrine Falcon – Breeding population (*Falco peregrinus*) **S**
16 Piping Plover (*Charadrius melodus*) **S f**
17 Razorbill (*Alca torda*) **s**
18 Red Knot (*Calidris canutus rufa*) **f**
19 Roseate Tern (*Sterna dougallii*) **S F**
20 Sedge Wren (*Cistothorus platensis*) **S**
21 Short-eared Owl (*Asio flammeus*) (Breeding population only) **s**
22 Upland Sandpiper (*Bartramia longicauda*) **s**

**Fish**

23 Atlantic Salmon (*Salmo salar*) **F**
24 Atlantic Sturgeon (*Acipenser oxyrinchus*) **f**
25 Shortnose Sturgeon (*Acipenser brevirostrum*) **F M**
26 Oceanic Whitetip Shark (*Carcharhinus longimanus*) **f**

**Mammals**

27 Blue Whale *(Balaenoptera musculs)* **F**
28 Fin Whale (*Balaenoptera physalus*) **F M**
29 Humpback Whale (*Megaptera novaeangliae*) **M**
30 North Atlantic Right Whale (*Eubalaena glacialis*) **F M**
31 Sei Whale (*Balaenoptera borealis*) **F M**
32 Sperm Whale (*Physeter catodon*) **F M**

**Turtles**

33 Atlantic (Kemp's) Ridley Turtle (*Lepidochelys kempi*) **F M**
34 Green Turtle (*Chelonia mydas*) **f**
35 Leatherback (*Dermochelys coriacea*) **F M**
36 Loggerhead (*Caretta caretta*) **f m**

# SECTION 6 - Control Measures

From the careful selection of farm sites and investment in the best technology in everything from cage and net construction to feeding systems, to regular monitoring and sampling of sediment under cage sites, we ensure that all the necessary steps to safeguard the health of our salmon and of the surrounding areas are taken. Any measures taken to protect fish from predators are always carried out in a manner that considers predator welfare and does not endanger the predator population; however, if a predator cannot be deterred and is threatening human safety or the security of the containment, it may be dispatched with Saltwater Management consent AND in accordance with Provincial, State or Federal Regulations.

## *6.1 Passive Control Measures*

The primary containment net will be protected from predators using a predator net as needed. The predator net mesh size will be consistent with that utilized in the area for controlling access by predators. Bird nets shall be present over top of each containment net when fish are present and only pulled back to allow access to the cage. During daily inspections, bird nets are checked for damage and pulled tight. 150m cages may require additional support lines to reduce sagging. In winter months, bird nets should be simmed to main nets.

## *6.2 Active Control Measures*

Non-lethal, visual, or audible surface deterrent devices may be used on sites to discourage birds from landing on the cages. Use of audible deterrents must take into effect proximity to other users and abide by noise regulations in the respective area and as described in the operational licences and permits.

Visual active controls include the use of handheld lasers, specifically the Agrilaser® Handheld 200/500 developed by Bird Control Group. The beam produced is classified as a 3B Laser with an effective range of 2,500m. Birds see the laser beam differently than humans and see the beam as a physical danger. The goal is that after consistent use, the birds will perceive the farm as unsafe and will not return. Range of the laser is highly dependent upon weather conditions, with the longest range seen on dark or cloudy days. Sites designated to use this deterrent require specific training and must completed a Safe Use Agreement prior to being assigned a laser.

For predatory marine mammals, Acoustic Deterrent Devices (ADDs) may deployed underneath the water to deter the animals away from our cages. The use of ADDs has drastically reduced in recent years largely due in part to the advances in passive control systems, such as the use of the steel-core nets, redesign of our grid systems and other technologies. ADDs may only be used if:

- The use of an ADD has been first communicated with and approved by the respective Area and/or Production Manager to ensure that all other preventative measures have been taken.
- Other factors such as the legality to use such devices or the requirements of certification programs need to be referred to prior to deployment and your Compliance Manager (or similar) and/or Production Manager are your best resources to answer these questions.
- To ensure that non-target species are not negatively impacted, the use of any ADDs is limited during periods of high population densities. As such, the use of ADDs will NOT BE PERMITTED during the months of June through September – any ADDs must be physically removed from the water during this time.

For smaller marine predators, such as the mink. active measures to control or remove these predators is the use of traps. Traps are only permitted to be used under permit, such as the Nuisance Animal Control Permit in New Brunswick or through those who hold a valid licence, such as the Nuisance Wildlife Control Operator Licence or utilizing the services of local Wildlife Control Officers.

## 6.3 Lethal Control Measures

Lethal control measures for predators are prohibited unless there is a permit in place and actions are carried out according to said permit under the instructions and guidance of Senior Management. In most instances, marine mammals, primarily seals, found inside cages can be removed by lowering the net to allow the animal to remove themselves. Birds should never require the use of lethal control measures and only require intervention if entangled, entrapped or to aid, refer to *General Predator Interactions*.

## 6.4 Daily Inspections

Each day crews are to inspect the farm to check water quality, inspect cages and netting and to make general observations of the fish and fish activity from the surface. Any debris that could cause harm to the fish and/or damage netting should be removed from around or in the cages including garbage, large sticks, and excessive amounts of kelp or rockweed. Any garbage shall be removed from the water and placed in site garbage to be disposed properly.

Inspections on the cages and netting should include infrastructure inspections, such as:

- Checking for waterlines or handrail ties that are untied, missing, broken, or chaffed. Any lines that are untied must be retied; all others shall be replaced as soon as possible.
- Inspecting netting and the water surface inside of the cage for any entangled or entrapped wildlife. When possible, to do so without handling the wildlife, all attempts shall be made to release the wildlife without additional harm. Any species found deceased should be removed from the structure.
- Inspecting netting and cage for any damage. For larger repairs, such as broken, chaffed, or missing bridals, weight ring ropes or camera lines should be reported to the Site Manager as these types of repairs may require the use of divers, maintenance vessels, or plastic welders. Any holes discovered in the netting should immediately be repaired, if able, or reported to the Site Manager so that divers can be called in to assess and check for signs of fish escapement.

# SECTION 7 - Special Requirements

## *7.1 Newfoundland Species at Risk; Bald Eagles and Miawpukek First Nation*

Interactions between wildlife and aquaculture facilities are bound to occur from time to time. Therefore, our activities should be conducted with respect and care for the local wildlife, ensuring that harmful encounters are minimized. In cases where we do encounter entangled birds, other wildlife, and marine mammals on our sites, whether alive or dead, we are obligated to contact the following authorities for their information and action.

- Report any sightings of species listed on the Newfoundland and Labrador Species at Risk to the Department of Environment and Conservation – Endangered Species and Biodiversity, Wildlife Division at (709) 637-2026.
- Birds and other wildlife: notify the local Conservation Officer, Department of Environment and Conservation (in the Bay D'Espoir area the phone number is (709) 882-2200). If the animal in question is an eagle, we will also contact the Miawpukek First Nation Council, located in Conne River, at (709) 882-2470.
- Marine mammals and fish (tuna, etc.): contact the local Department of Fisheries and Oceans Canada Conservation and Protection Officer in your community.

In the case of wild animals that are alive, the province's Department of Environment and Conservation has a "Wildlife Care and Rehabilitation Program" at Salmonier Nature Park. The local Conservation Officer will be able to determine if the animal in question should be sent to the Salmonier Park.

If a dead animal is encountered, it should be retrieved where possible, treated respectfully, and turned over to the appropriate authority when directed to do so. In the case of deceased bald eagles, the Conservations Officer will make properly permitted arrangements to turn them over to the Miawpukek First Nation Council for respectful burial at Conne River.

## *7.2 Maine Coastal Islands National Wildlife Refuge Complex*

Established between 1972 and 1980, the US Fish and Wildlife Service (USFWS) oversees the Maine Coastal Islands National Wildlife Refuge Complex, which were established for the protection of migratory birds, principally colonial nesting seabirds, The Complex, containing more than 73 offshore islands and 4 coastal parcels, is comprised of five individual refuges which span the coast of Maine and support an incredible diversity of habitats including coastal islands, forested headlands, estuaries, and freshwater wetlands. **Refer to APPENDIX USFWS: Maine Coastal Islands National Wildlife Refuge Complex**[18]

The Cross Island marine farm (MACH CI2), located just inside Northwest Harbour off Cross Island in Machias Bay, is positioned near the Cross Island National Wildlife Refuge. A "line of impasse" is described within the Army Corp of Engineers Permit for MACH CI2 (1989) in which the permit states that no aquaculture gear can be placed south of this line.

## *7.3 National (US) Bald Eagle Management Guidelines*

Bald Eagles were removed from the US endangered species list in August 2007 due to sufficient population recovery, however both bald eagles and golden eagles are still protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act. The National Bald Eagle Management Guidelines[19] were developed by the USFWS to advise individuals who share public and private lands with bald eagles about when and under what circumstances the protective provisions of the Eagle Act may apply to their activities.
The Guidelines are intended to help people minimize such impacts to bald eagles, particularly where they may constitute "disturbance" which is prohibited by the Eagle Act.

[18] fws.gov/refuge/maine-coastal-islands-complex
[19] https://www.fws.gov/media/national-bald-eagle-management-guidelines-0

Due to the farms proximity to Stone Island, the Stone Island marine farm (MACH ST), located in Machias Bay, must comply with the Guidelines to minimize disturbance of nesting eagles on Stone Island. Such guidelines include sensitive periods (**Table 1**) within various ranges across the US, such as the Northern US which includes Maine.

**Table 1.** Chronology of typical reproductive activities of Bald Eagles for the Northern U.S., including Maine.

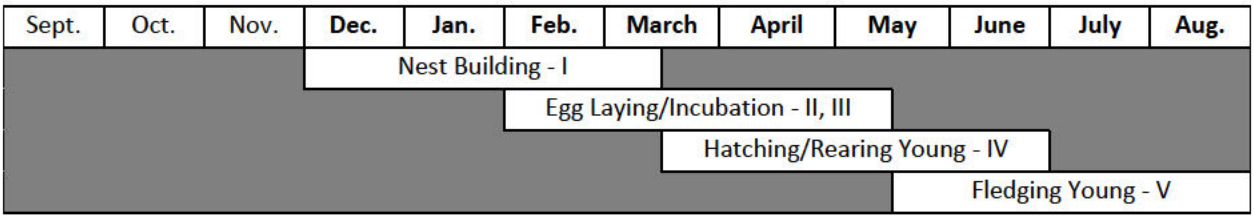



**Table 2.** Nesting Bald Eagle sensitivity to human activities.

| Phase | Activity | Sensitivity to Human Activity | Comments |
|---|---|---|---|
| I | Courtship and Nest Building | Most Sensitive | Most critical time period. Disturbance is manifested in nest abandonment. Bald eagles in newly established territories are more prone to abandon nest sites. |
| II | Egg Laying | Very Sensitive | Human activity of even limited duration may cause nest desertion and abandonment of territory for the breeding season. |
| III | Incubation and Early Nestling Period (up to 4 weeks) | Very Sensitive | Adults are less likely to abandon the nest near and after hatching. However, flushed adults leave eggs and young unattended; eggs are susceptible to cooling, loss of moisture, overheating, and predation; young are vulnerable to elements. |
| IV | Nestling period, 4 to 8 weeks | Moderately Sensitive | Likelihood of nest abandonment and vulnerability of the nestlings to elements somewhat decreases. However, nestlings may miss feedings, affecting their survival. |
| V | Nestlings 8 weeks through fledging | Very Sensitive | Gaining flight capacity, nestlings 8 weeks and older may flush from the nest prematurely due to disruption and die. |

## *7.4 Coffin Island, Nova Scotia*

Coffin Island is used for nesting by colonial birds, including the Roseate Tern, which are particularly vulnerable to the effects of human disturbance. The period spent at the colony prior to egg-laying is very important for seabirds, disturbance prior to egg-laying may cause birds to abandon historical colony locations. Meanwhile, disturbances during the breeding season can cause these birds to abandon their nests or young, or to use valuable energy reserves for defense, instead of incubating eggs and feeding their young. The presence of humans in close proximity to nests may prevent parent birds from returning to protect and feed their young, and expose eggs or chicks to predation, and to the lethal effects of heat, cold and rain.

The Liverpool marine farm (NS-1205) is located in close proximity to Coffin Island, which is pending designation as a 50-hectare Nature Reserve in Nova Scotia[20]. Although not officially designated under the IBAs program, the surrounding beaches and flats at East Berlin, West Berlin, Eagle Head, Beach Meadows, and Western Head all host

[20] https://novascotia.ca/parksandprotectedareas/plan/interactive-map/

small populations of migrant shorebirds as well in late summer and early fall. Given the distance from the marine farm to the surrounding beaches and flats, there is no anticipated interaction with these areas.

There is concern for potential negative interactions with sensitive species, therefore it is important that mitigation measures, such as the following, be implemented to avoid/minimize adverse effects on migratory birds in the vicinity of Coffin Island:

- Marine travel should take place at steady speeds, moving parallel to the shore, rather than approaching Coffin Island directly.
- Vessels and equipment should be well muffled, and should avoid any sharp or loud noises, should not blow horns or whistles, and should maintain constant engine noise levels.
- Radio communications should be the primary source of communication, as opposed to whistle blasts and horns.
- Marine vessels should not pursue seabirds/waterbirds swimming on the water surface and avoid concentrations of birds on the water.
- There should be no access to Coffin Island, including the intertidal zone, by employees and/or equipment. Beaches and wetlands are sensitive habitats, and these habitats shall not be used for construction, operational or decommissioning activities, with the exception of beach clean-up activities, which should be timed to not coincide with sensitive periods for breeding birds.
- Beach clean-ups should be conducted in outer Liverpool Bay (Western Head to West Berlin) but avoid the mid-March to September 30$^{th}$ period.
- Should equipment wash up at these sites during the courtship, nesting, and/or chick rearing seasons of colonial nesters (spring and summer), the Canadian Wildlife Service will be contacted prior to retrieval of equipment.

Farms are expected to comply with the requirements as included in the Materials, Storage Handling and Waste Disposal Plan regarding fuel and chemical storage, household, and hazardous waste as well as feed storage that may affect wildlife through contamination or through the artificial enhanced presence of avian and mammalian predators.

# SECTION 8 - Reporting and Training

Farm staff have available to them a copy of this plan. All site staff, as well as management, are responsible for both implementation and compliance of this plan.

Annually all marine farm employees participate in CREW Training which is an in-house developed and delivered session that discusses the day-to-day practices and responsibilities of all employees. Topics covered include Fish Health, Waste Management, Wildlife Interactions, Spill Prevention and Reporting, Escape Prevention and Reporting. Farm staff will be trained in recognizing endangered, threatened, and protected species they may see from their farm and a system for recording and reporting such observations to farm management. A Standard Operating Procedure for Predator Interaction is also included in the Fish Health Management Plan available on each site.

An IMS Incident Record is part of the Cooke Aquaculture Integrated Management System and is to be used to report various incident types, including wildlife interactions. The form is available electronically through Pronto Forms and is also available on SharePoint and hard copy if necessary.

All records of training are recorded in Intelex.

## *8.1 General Predator Interactions*

Due to the environment in which we operate, wildlife interactions will be unavoidable – both neutral and negative. Neutral interactions are those where no wildlife is harmed but may be sighted by employees and been seen as a positive or rewarding experience. Though there is no direct contact, some species may require management notification if the species is listed on a Species at Risk list or other similar list. Negative interactions can be further divided into two subcategories – those that affect the marine farm populations (predators) and those where the wildlife has been impacted (entangled, entrapped, death). Based on historical knowledge, negative interactions will generally identify instances of predator activity and should be noted to determine if there is an increase or decrease in activity. If a predator is persistent or there is the potential for endangerment of employees, deterrence methods may be required. Any negative interaction, including those involving non-predatory species whether intentional or accidental, in addition to those neutral interactions with at risk species, must be reported.

## *8.2 General Wildlife Interactions*

Marine birds and mammals have the greatest likelihood for interactions with marine farms given that they share the same waters and migrate through areas where farms are located. Wildlife may become entangled, entrapped, contaminated, or oiled from gear or chemicals on an aquaculture site. The first step to preventing such emergencies is prevention. Proper installed containment and predator exclusion netting, continually checking nets for integrity and avoiding oil, gas and chemical spills is important.

### 8.2.1 Entanglement, Entrapment

Birds, mainly gulls, will stand atop the bird stands and bird netting, both as a form of rest and in an attempt to access feed. Occasionally other birds such as crows, herons, among other may be seen but this is generally limited to smolt entry when the fish are small. Birds interested in fish generally loose interest once the fish are larger and as long as the bird nets remain taught. Other birds may be seen as they are passing through to other destinations.

Birds may become entrapped under the bird netting if there are holes in the net or if it is not properly secured. Should a bird become entrapped, employees must roll back the bird net and allow the bird to exit. The bird net must be gathered in a manner that prevents entanglement by neither the bird nor fish while it is pulled back. Once released, the bird net must be repaired, if applicable, and/or properly secured.

Marine mammals and large fishes may enter or entangle themselves within netting or anchor lines, either through forceful entry or accidental entanglement. Should a marine mammal such as a seal enter a cage, the seal should be immediately released by lowering the net to the height of the float pipe to allow the seal to swim out. The seal should be encouraged to leave the cage from the opposite side of the cage from where the net has been dropped. Once removed, the net is to be retied and divers should immediately be contacted to perform a net inspection.

These types of interactions require the submission of a Wildlife Interaction on the IMS Incident Record.

### 8.2.2 Oiled Birds

If a fuel, chemical or oil spill does occur or is discovered, immediately contact the Coast Guard, and activate the Spill Prevention and Response Plan (Canada) or Spill Prevention, Control and Countermeasure Plan (Maine). If wildlife is not initially affected, efforts should be made to keep wildlife out of the affected area, if possible.

Birds that have come into contact with oil may have exhibit obvious indicators of being oiled, such as oil coating, discolored feathers, or feathers having a wet or ragged appearance. Heavily oiled birds or individuals oiled below the waterline may also appear as though they are sitting low on the water, perhaps struggling to maintain above water. As such, oiled birds are also likely to be intently focused on preening in an attempt to remove the oil, so much so that they may not exhibit a strong flight reaction upon approach. They may also stand or rest on wharves, barges, or vessels with a more solid structure than those that might usually rest on the cages or netting.

DO NOT attempt to capture the bird without first seeking advice as their handling may require the issuance of permits, depending on species. Injured and oiled birds, especially those washed ashore are extremely weak, dehydrated, and often near death. The added stress of attempted capture could cause more harm than good, perhaps even fatality. Should an oiled bird be found, alive or deceased, contact the regional Compliance Manager, or designate and complete an IMS Incident Record. If further actions are required, the regional Compliance Manager or designate will communicate any advice or recommendations provided by the appropriate authorities.

## *8.3 Canadian Wildlife Service Permit*

Migratory birds are protected under the Migratory Birds Convention Act and some species are also protected under the Species at Risk Act (SARA); this protection can extend to the point where evening handling these species is not allowed without a Canadian Wildlife Service Permit.

Common sense must prevail in all circumstances and caution must be exercised when dealing with birds. In stressful situations, birds may react with more force to protect themselves. As well, birds can carry diseases and parasites which may be transmitted to humans. If a bird can be easily released from entrapment without handling, this may be attempted by site workers. Employees should not touch birds, regardless of the situation. If an incident cannot be resolved, employees must contact the Compliance Manager or designate and provide information regarding the incident such as the cause of the incident (entanglement, oil spill, etc.), wildlife involved and the location of the incident - good directions and/or coordinates are essential to help experts arrive in time. Canadian Wildlife Services should be contacted, (506)-364-5068 or ec.scfatlpermis-cwsatlpermits.ec@canada.ca, for further direction. A permit may become necessary to handle and transport the bird to a rehabilitation facility. If a bird must be handled, clean work gloves must be worn, and the bird handled with care.

**An exception to paragraph 6(b) of the Migratory Birds Regulations is currently in place and the variance will remain in effect until August 20, 2022[21].** Normally a person is not allowed to have in their possession any migratory birds, even if found dead. Under this temporary variance, a person may possess such birds if (and only if) they are in the process of delivering them to authorities for testing. This exception was granted to allow CWS to

[21] https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/public-notice-allowing-temporary-possession.html

monitor bird viruses. Once captured, keep the bird in a dark, quiet, warm location and transport to designated location as per the Regulator. DO NOT attempt to feed or clean the bird.

If crews find a dead migratory bird, the Site Manager must be informed and the Compliance Manager or designate contacted. The Compliance Manager or designated will contact the Canadian Wildlife Health Cooperative at 1-800-567-2033.

## *8.4 SARA Reporting*

Species identified on the Provincial Protected Wildlife factsheets are protected under SARA (Species at Risk Act) and COSEWIC (Committee on the status of Endangered Wildlife in Canada) and have been or could be found in the area of aquaculture sites in Atlantic Canada.

Should you observe wildlife around aquaculture facilities identified under SARA/COSEWIC, special care should be taken to not disturb or harm the species. If able, collect a photograph and submit the details of the sighting on the IMS Incident Record, including location of the sighting. The Compliance Manager or designate will report sighting of these listed species to the species at risk hotline at 1-866-727-3467 or emailed to sightings@speciesatrisk.ca. Should the animal be found in distress, the Compliance Manager or designate will contact the Canadian Coast Guard at 1-800-565-1633.

The IMS Incident Record can be used to report both neutral and negative interactions.

## *8.5 Endangered Species – Federal and State*

If you see a sick, injured, stranded, or dead marine mammal or sea turtle, immediately contact Northeast Marine Mammal and Sea Turtle Stranding and Entanglement Hotline at 1-866-755-NOAA (866-755-6622), or the Maine Marine Animal Reporting Hotline at 1-800-532-9551. A stranded animal is one that is dead on the beach or in the water, one that is alive on land and unable to return to the water and/or in need of medical attention, or a live animal in the water that is unable to return to its natural habitat under its own power or without assistance.

For Federally listed species, the National Oceanic and Atmospheric Administration (NOAA) – National Marine Fisheries Service (NMFS) should be contacted through David Bean, Consultation Biologist/Atlantic Salmon Team via email david.bean@noaa.gov and/or phone 1-207-866-4172.

Allied Whale is authorized by NOAA Fisheries to respond to marine mammal emergencies and strandings, covering the area from Rockland, Maine north to the Canadian border.[22] To report a marine mammal stranding contact Allied Whale at 1-207-288-5644 (office) or 1-207-266-1326 (cell).

Endangered and threatened marine species are listed under Maine's Marine Endangered Species Act or ESA. The Maine Department of Marine Resources (MDMR) has responsibility for these species. For State listed species, the MDMR, Aquaculture Division should be contacted through Marcy Nelson, Aquaculture Program Director via phone (207) 441-4681.

[22] https://www.coa.edu/allied-whale/marine-mammal-strandings/

# APPENDICES

All Included in Master or Online Version Only
Applicable Regional Documents are Included in Site Reference Binders

Agrilaser® Handheld User Manual
CAF Safe Operation Agreement: Bird Control Group Agrilaser® Handheld 200/500

**Maine**
USFWS: Maine Coastal Islands National Wildlife Refuge Complex

**New Brunswick**
NB Protected Wildlife ID Chart

**Newfoundland**
NL Protected Wildlife ID Chart

**Nova Scotia**
NS Protected Wildlife ID Chart

**END OF DOCUMENT**

APPENDIX B
NPP Approval

Transport Canada / Transports Canada

Navigation Protection Program
P.O. Box 42
Moncton, N.B. E1C 8K6

Your file

Our file
8200-95-3029

January 10, 2017

Kelly Cove Salmon Ltd.
Box 1546
Shelburne, NS B0T 1W0

[redacted]

**RE: Notice to the Minister under the *Navigation Protection Act* for Approval of the Aquaculture Facility, located at 44° 40' 06.00" N x 065° 43' 17.00" W, Annapolis Basin, Annapolis County, in the Province of Nova Scotia**

The Minister of Transport has determined under section 5 of the *Navigation Protection Act* (NPA) that your work is likely to substantially interfere with navigation.

Enclosed please find the Approval for the above-noted work issued by the Minister of Transport in accordance with subsection s.6(1) Placement of the NPA.

This permission relates only to the effect of your work on navigation under the NPA and does not grant any rights related to the ownership of the bed of the waterway.

You are reminded that all buoys must conform to the Federal Private Buoy Regulations.

Please note that the NPA, amongst other obligations, requires the owner to immediately notify the Minister if your work causes or is likely to cause serious or imminent danger to navigation and take reasonable measures to remediate the danger to navigation (section 12 of the NPA).

**Should you have any questions, please do not hesitate to contact our office in Moncton by phone at (506) 851-3113, by fax at (506) 851-7542 or by e-mail at NPPATL-PPNATL@tc.gc.ca.**

Respectfully,

[redacted]

Officer, Navigation Protection Program
Programs Group
Transport Canada
Atlantic Region

Attachments

cc: [redacted] – SIMCorp
[redacted] – SIMCorp
[redacted] – Nova Scotia Department of Fisheries and Aquaculture
[redacted] – CHS

Canada

Transport Canada Transports Canada

*NAVIGATION PROTECTION ACT*
Subsection 6(1) (8200-95-3029)

**Approval**

**OWNER:** Kelly Cove Salmon Ltd.
Box 1546
Shelburne, NS B0T 1W0

**WORK:** **Aquaculture Facility**

**SITE LOCATION:** Located at Approximately 44° 40' 06.00" N x 065° 43' 17.00" W, Annapolis Basin, Annapolis County, in the Province of Nova Scotia

Regarding the notice and application to the Minister of Transport, submitted pursuant to the *Navigation Protection Act*, for an approval of a work, the Minister hereby approves the **placement** of the above-described work and the attached plans pursuant to subsection 6(1) in accordance with the following terms and conditions:

1. At all times, all anchorage systems, gear and associated work(s), including anchors, are to be contained within the limits of the marked area and not to extend beyond these boundaries.

2. Buoy markings to be installed and maintained as per Transport Canada conditions outlined on the enclosed Site-specific Marking Plan and Aquaculture Buoy Standard Sheets, at all times aquaculture gear is in the water.

3. In the event that any material or equipment drifts for any reason, it is to be marked immediately with a flashing cautionary light and radar reflector and removed from the waterway or returned to its original location as soon as possible. The Canadian Coast Guard, Marine Communications and Traffic Services (MCTS) Sydney at (902) 564-7751 or toll-free 1-800-686-8676 is to be advised in order to allow for appropriate Notices to Shipping/Mariners action.

**SIGNED in two copies on** JAN 10 2017 **in Moncton, N.B.**

[redacted]

Mélanie LeBlanc
Navigation Protection Program Officer
Programs Group
Transport Canada
Atlantic Region
For the Minister of Transport

Canada

| # | P.I.D. # | OWNER / ADDRESS |
|---|---|---|
| 1 | [redacted] | |
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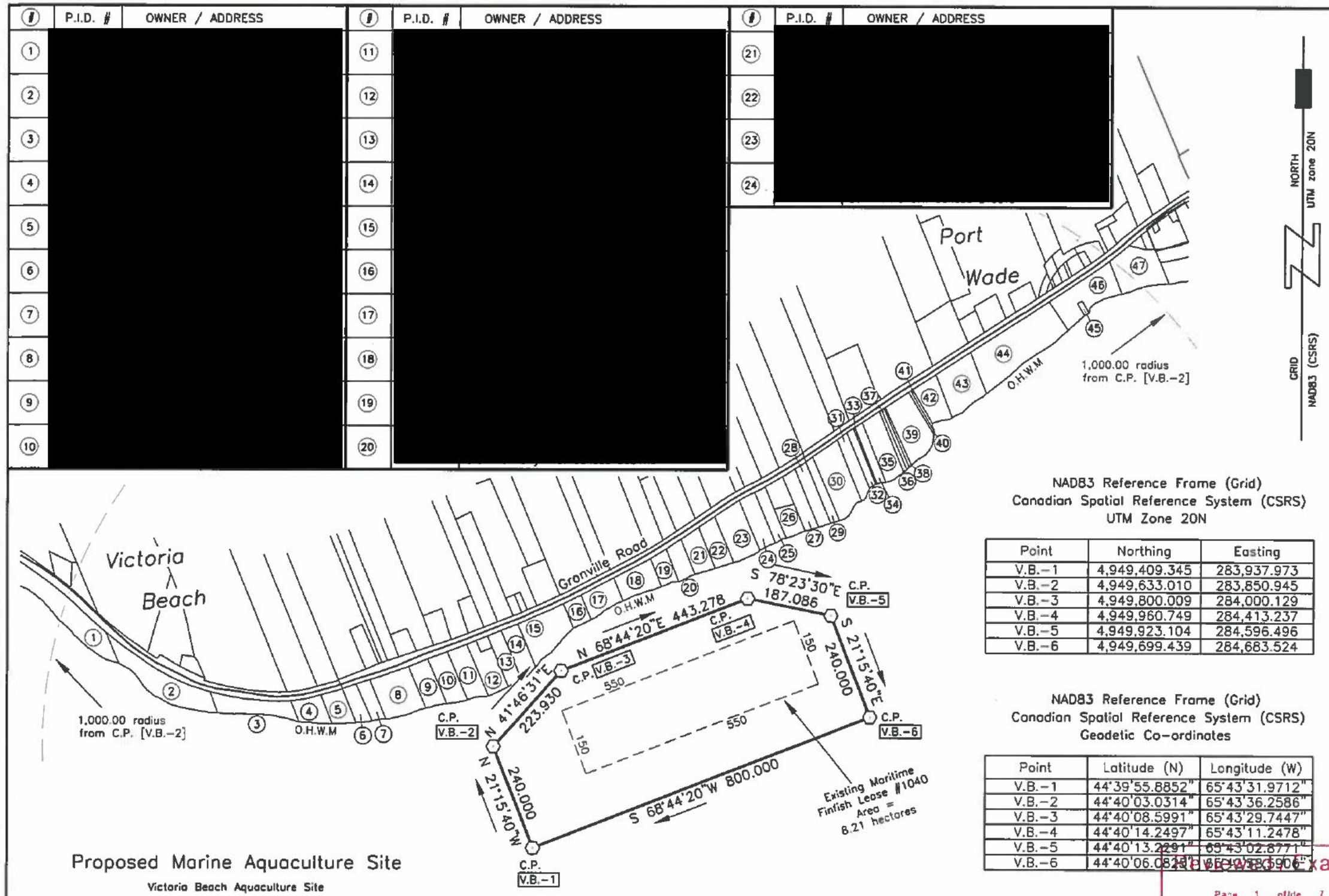



Proposed Marine Aquaculture Site

Victoria Beach Aquaculture Site

Kelly Cove Salmon Ltd.

*Area = 25.51 hectares*

Annapolis Basin

(Atlantic Ocean)

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
UTM Zone 20N

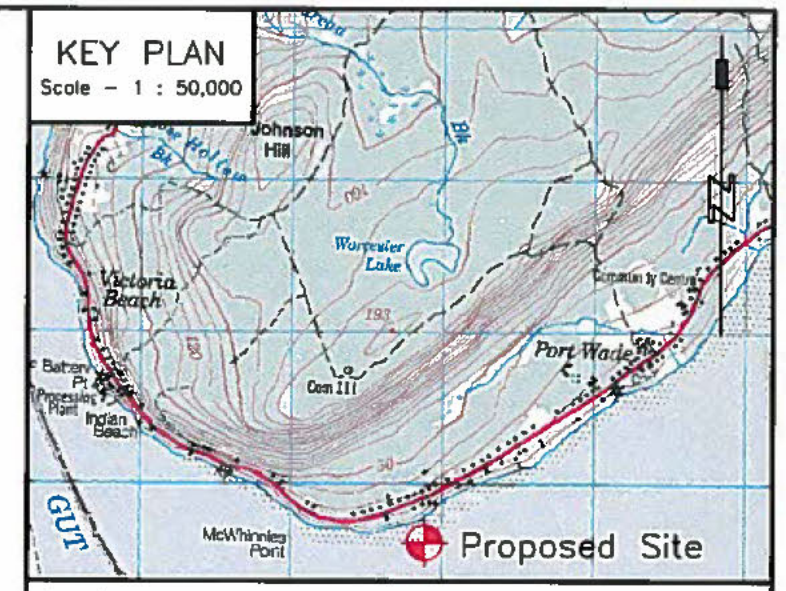
| Point | Northing | Easting |
|---|---|---|
| V.B.–1 | 4,949,409.345 | 283,937.973 |
| V.B.–2 | 4,949,633.010 | 283,850.945 |
| V.B.–3 | 4,949,800.009 | 284,000.129 |
| V.B.–4 | 4,949,960.749 | 284,413.237 |
| V.B.–5 | 4,949,923.104 | 284,596.496 |
| V.B.–6 | 4,949,699.439 | 284,683.524 |

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
Geodetic Co-ordinates

| Point | Latitude (N) | Longitude (W) |
|---|---|---|
| V.B.–1 | 44°39'55.8852" | 65°43'31.9712" |
| V.B.–2 | 44°40'03.0314" | 65°43'36.2586" |
| V.B.–3 | 44°40'08.5991" | 65°43'29.7447" |
| V.B.–4 | 44°40'14.2497" | 65°43'11.2478" |
| V.B.–5 | 44°40'13.2291" | 65°43'02.8771" |
| V.B.–6 | 44°40'06.0818" | 65°43'05.3906" |

Reviewed / Examiné
Page 1 of/de 7
[redacted]
Melanie L. LeBlanc
Navigation Protection Program /
Programme de protection de la navigation

## KEY PLAN
Scale – 1 : 50,000




**Legend:**

| | |
|---|---|
| CALCULATED POINT | C.P. ○ |
| CALCULATED | (c.) |
| N.S. PROPERTY IDENTIFICATION NUMBER | P.I.D. #00000000 |
| NORTHING / EASTING | N. / E. |
| LOCAL REGISTRY NUMBER | Book: / Page: |
| ORDINARY HIGH WATER MARK | O.H.W.M. |
| BOUNDARY DEALT WITH BY THIS PLAN | ——— |
| OTHER BOUNDARY | ——— |
| TIE LINES | – – – |
| NOT TO SCALE | – – –∿– – – |
| MAJOR CONTOURS | ——— |
| MINOR CONTOURS | ——— |
| DEPTH SOUNDINGS | + 00.0 |
| CONCRETE MOORING | □ |
| ANCHOR | ⚓ |

# AQUACULTURE SITE DEVELOPMENT PLANS

SHOWING

PROPOSED BOUNDARY AMENDMENT TO LEASE #1040

KELLY COVE SALMON LTD. / VICTORIA BEACH

LOCATED AT:

VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

## Client's Statement

I, Jeff Nickerson of Kelly Cove Salmon Ltd. acknowledge and confirm that Acker & Doucette Surveying Inc., make no representations or warranties with respect to the adequacy or the integrity of the proposed cage and mooring design of system depicted.

Doted this 24th day of October, 2016

[redacted]

Jeff Nickerson

A&D JOB #149–16–1040

SHEET 1 OF 7 | DATE: October 24, 2016

**NOTES:**

(1.) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
(2.) THIS PLAN IS A COMPILATION OF THIRD PARTY DATA. DATA WAS PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. ACKER & DOUCETTE SURVEYING INC. HAS COMPLETED THIS PLAN IN ACCORDANCE WITH THE "GUIDE TO MARINE FINFISH AQUACULTURE SITE REQUIREMENTS", DATED NOVEMBER 2007.
(3.) ALL DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).
(4.) DEPTH CONTOUR DATA IS BASED ON GARMIN MARINE MAPSOURCE DATA AND BATHYMETRIC SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP.
(5.) SPOT SOUNDINGS ARE BASED ON SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. SAID SOUNDINGS WERE CORRECTED TO CHART DATUM FROM C.H.S.S. OBSERVATIONS.
(6.) NATURAL FEATURES WERE DETERMINED BY NOVA SCOTIA PROPERTY ONLINE MAPPING AND GEONOVA DATA LOCATOR GEOGRAPHIC INFORMATION.
(7.) ONSHORE PROPERTY DATA IS BASED ON NOVA SCOTIA PROPERTY ONLINE MAPPING.
(8.) ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83 CSRS) USING THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 20 NORTH (UTM ZZON).

KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
N.S.L.S. 639
MEMBER

PURPOSE OF PLAN (SHEET 1 OF 7)

THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE THE EXTENTS OF THE PROPOSED MARINE AQUACULTURE SITE AND AS WELL AS ADJACENT PARCELS OF LAND, FOR ADDITIONAL SITE INFORMATION, REFER TO SHEETS 2–7.

200 0 200 400 600

SCALE – 1 : 10,000 (METRIC)


Acker & Doucette Surveying Inc.
Nova Scotia Land Surveyors

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Nova Scotia, Canada
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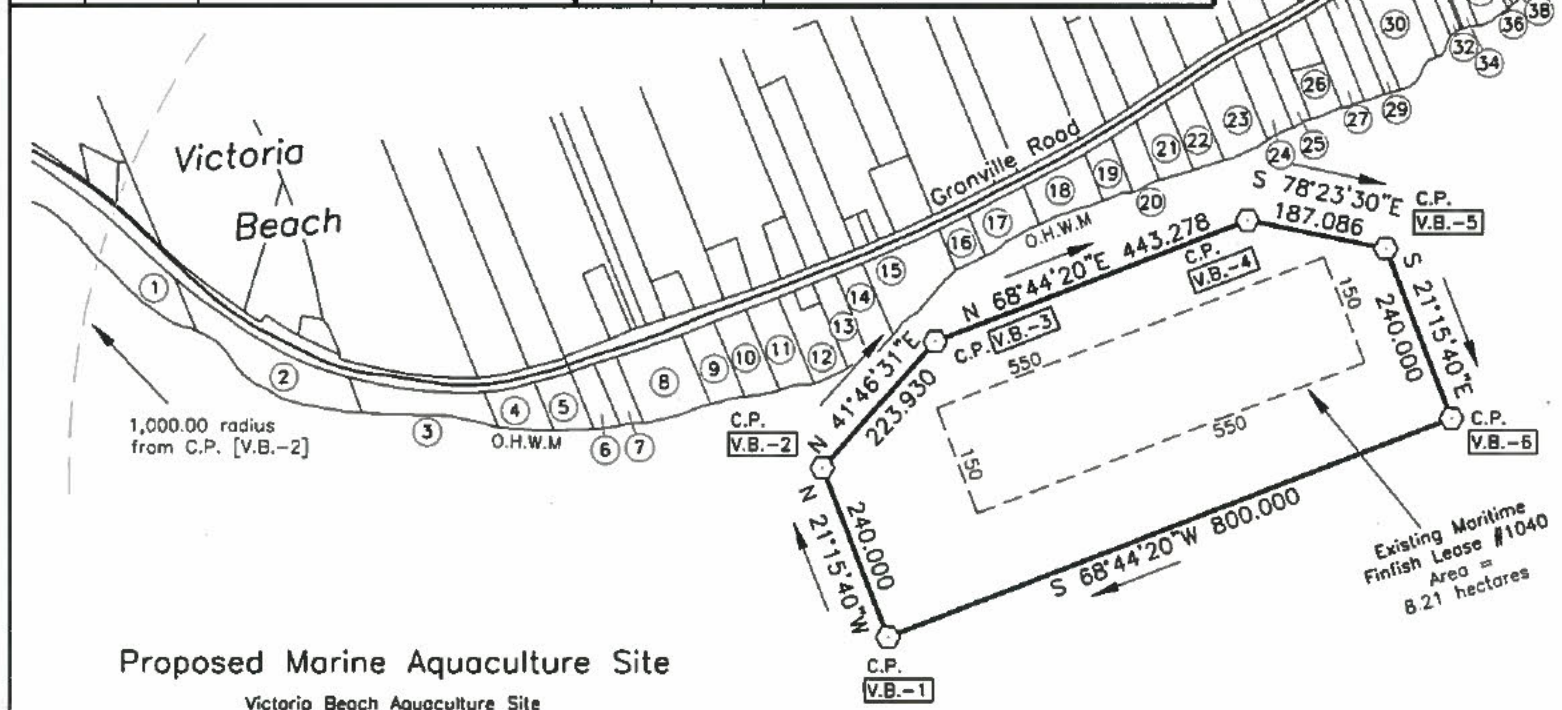
www.adsurveying.ca

180 Mowatt Street, P.O. Box 154
Shelburne, Shelburne County
Nova Scotia, Canada
B0T 1W0

Fax: (902) 648-0185
info@adsurveying.ca

| # | P.I.D. # | OWNER / ADDRESS |
|---|---|---|
| 25 | [redacted] | |
| 26 | | |
| 27 | | |
| 28 | | |
| 29 | | |
| 30 | | |
| 31 | | |
| 32 | | |
| 33 | | |
| 34 | | |

| # | P.I.D. # | OWNER / ADDRESS |
|---|---|---|
| 45 | [redacted] | |
| 46 | | |
| 47 | | |




Proposed Marine Aquaculture Site

Victoria Beach Aquaculture Site

Kelly Cove Salmon Ltd.

*Area = 25.51 hectares*

A n n a p o l i s  B a s i n

(Atlantic Ocean)

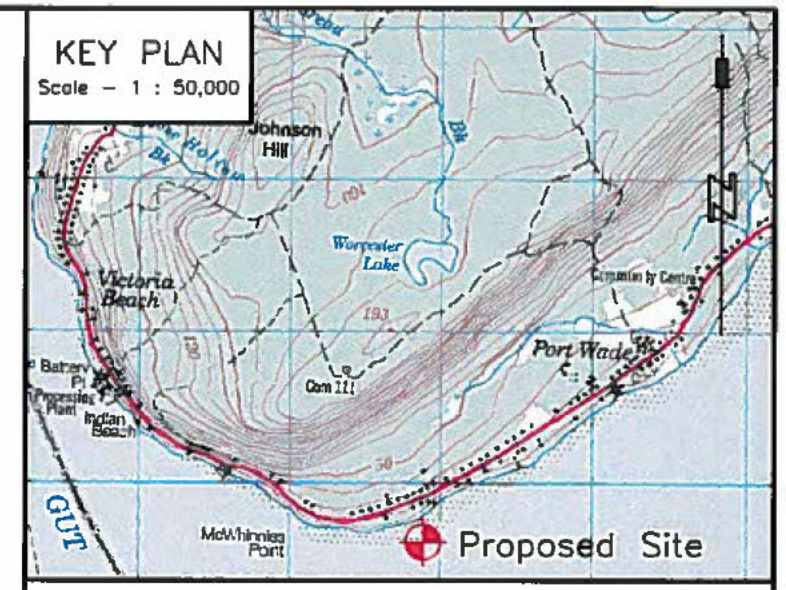
NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
UTM Zone 20N

| Point | Northing | Easting |
|---|---|---|
| V.B.-1 | 4,949,409.345 | 283,937.973 |
| V.B.-2 | 4,949,633.010 | 283,850.945 |
| V.B.-3 | 4,949,800.009 | 284,000.129 |
| V.B.-4 | 4,949,960.749 | 284,413.237 |
| V.B.-5 | 4,949,923.104 | 284,596.496 |
| V.B.-6 | 4,949,699.439 | 284,683.524 |

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
Geodetic Co-ordinates

| Point | Latitude (N) | Longitude (W) |
|---|---|---|
| V.B.-1 | 44°39'55.8852" | 65°43'31.9712" |
| V.B.-2 | 44°40'03.0314" | 65°43'36.2586" |
| V.B.-3 | 44°40'08.5991" | 65°43'29.7447" |
| V.B.-4 | 44°40'14.2497" | 65°43'01.2478" |
| V.B.-5 | 44°40'13.2291" | 65°43'02.8771" |
| V.B.-6 | 44°40'06.0825" | 65°42'58.6906" |

Reviewed / Examiné
3:56 pm, Jan 10, 2017
By/par [redacted]
Mélanie L. LeBlanc
Navigation Protection Program / Programme de protection de la navigation




Legend:

- CALCULATED POINT . . . C.P.
- CALCULATED . . . (c.)
- N.S. PROPERTY IDENTIFICATION NUMBER . . . P.I.D. #00000000
- NORTHING / EASTING . . . N. / E.
- LOCAL REGISTRY NUMBER . . . Book: / Page:
- ORDINARY HIGH WATER MARK . . . O.H.W.M.
- BOUNDARY DEALT WITH BY THIS PLAN
- OTHER BOUNDARY
- TIE LINES
- NOT TO SCALE
- MAJOR CONTOURS
- MINOR CONTOURS
- DEPTH SOUNDINGS . . . + 00.0
- CONCRETE MOORING
- ANCHOR

# AQUACULTURE SITE DEVELOPMENT PLANS

SHOWING

PROPOSED BOUNDARY AMENDMENT TO LEASE #1040

KELLY COVE SALMON LTD. / VICTORIA BEACH

LOCATED AT:

VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

## Client's Statement

I, [redacted] of Kelly Cove Salmon Ltd. acknowledge and confirm that Acker & Doucette Surveying Inc., make no representations or warranties with respect to the adequacy or the integrity of the proposed cage and mooring design of system depicted.

Dated this 24th day of October, 2016.

[redacted]

Jeff Nickerson

A&D JOB #149-16-1040

SHEET 2 OF 7 | DATE: October 24, 2016

NOTES:

(1.) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
(2.) THIS PLAN IS A COMPILATION OF THIRD PARTY DATA. DATA WAS PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. ACKER & DOUCETTE SURVEYING INC. HAS COMPLETED THIS PLAN IN ACCORDANCE WITH THE "GUIDE TO MARINE FINFISH AQUACULTURE SITE REQUIREMENTS", DATED NOVEMBER 2007.
(3.) ALL DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).
(4.) DEPTH CONTOUR DATA IS BASED ON GARMIN MARINE MAPSOURCE DATA AND BATHYMETRIC SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP.
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(7.) ONSHORE PROPERTY DATA IS BASED ON NOVA SCOTIA PROPERTY ONLINE MAPPING.
(8.) ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83 CSRS) USING THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 20 NORTH (UTM Z20N).

KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
Stephen D.F. Acker
N.S.L.S.
639
MEMBER

PURPOSE OF PLAN (SHEET 2 OF 7)

THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE THE EXTENTS OF THE PROPOSED MARINE AQUACULTURE SITE AND AS WELL AS ADJACENT PARCELS OF LAND. FOR ADDITIONAL SITE INFORMATION, REFER TO SHEETS 1, 3-7.

200 0 200 400 600

SCALE - 1 : 10,000 (METRIC)


Acker & Doucette Surveying Inc.
Nova Scotia Land Surveyors

240 Belleville Road, P.O. Box 64
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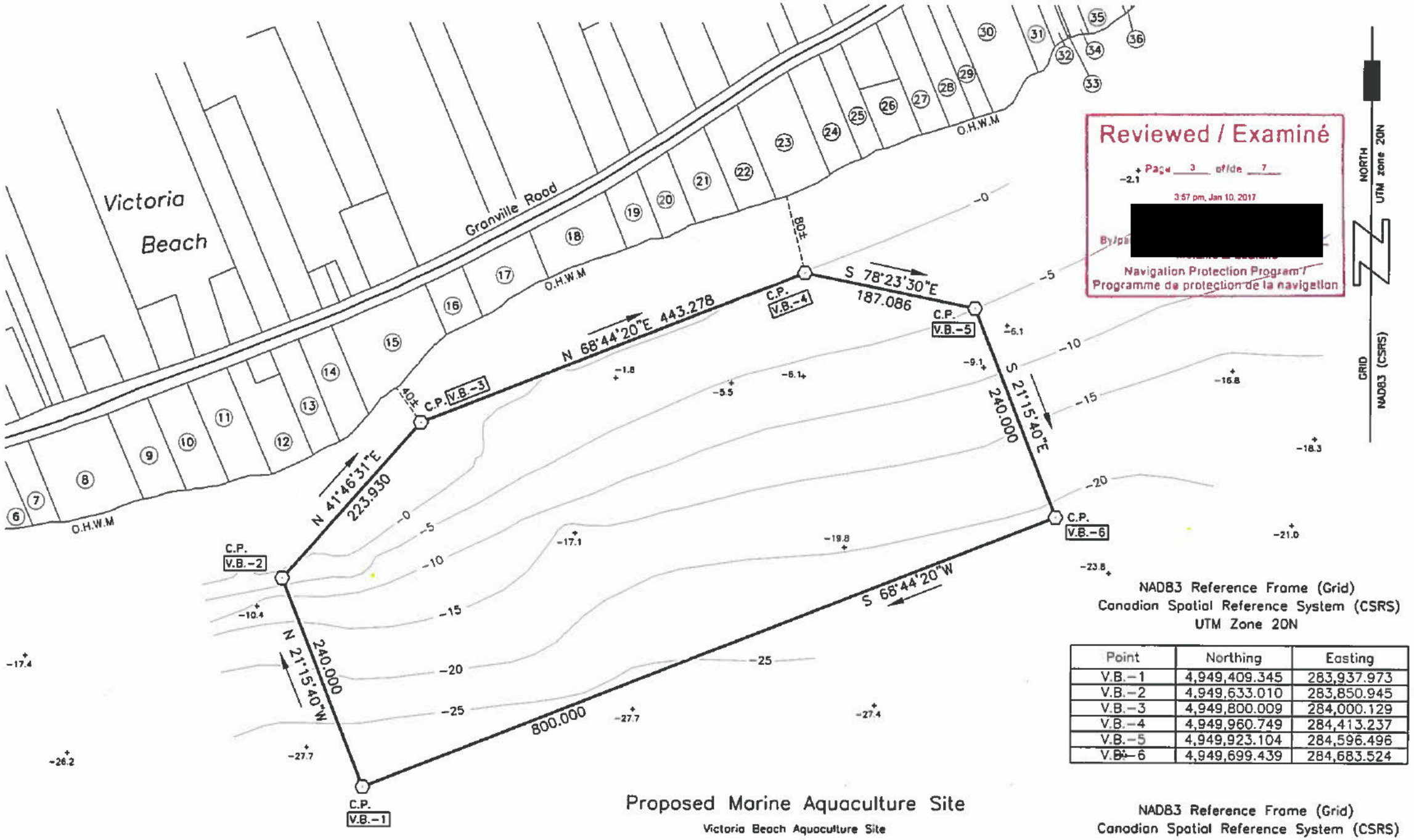


Reviewed / Examiné

Page 3 of/de 7

3:57 pm, Jan 10, 2017

[redacted]

Navigation Protection Program / Programme de protection de la navigation

Proposed Marine Aquaculture Site

Victoria Beach Aquaculture Site

Kelly Cove Salmon Ltd.

*Area = 25.51 hectares*

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
UTM Zone 20N

| Point | Northing | Easting |
|---|---|---|
| V.B.-1 | 4,949,409.345 | 283,937.973 |
| V.B.-2 | 4,949,633.010 | 283,850.945 |
| V.B.-3 | 4,949,800.009 | 284,000.129 |
| V.B.-4 | 4,949,960.749 | 284,413.237 |
| V.B.-5 | 4,949,923.104 | 284,596.496 |
| V.B.-6 | 4,949,699.439 | 284,683.524 |

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Canadian Spatial Reference System (CSRS)
Geodetic Co-ordinates

| Point | Latitude (N) | Longitude (W) |
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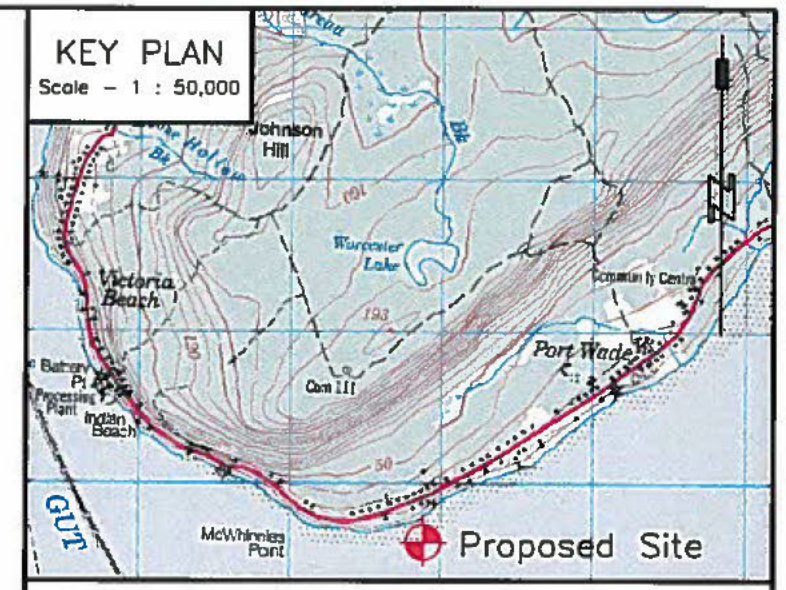
| V.B.-3 | 44°40'08.5991" | 65°43'29.7447" |
| V.B.-4 | 44°40'14.2497" | 65°43'11.2478" |
| V.B.-5 | 44°40'13.2291" | 65°42'58.8771" |
| V.B.-6 | 44°40'06.0825" | 65°42'58.5906" |

KEY PLAN
Scale - 1 : 50,000




Legend:

| | |
|---|---|
| CALCULATED POINT | C.P. ○ |
| CALCULATED | (c.) |
| N.S. PROPERTY IDENTIFICATION NUMBER | P.I.D. #00000000 |
| NORTHING / EASTING | N. / E. |
| LOCAL REGISTRY NUMBER | Book: / Page: |
| ORDINARY HIGH WATER MARK | O.H.W.M. |
| BOUNDARY DEALT WITH BY THIS PLAN | ——— |
| OTHER BOUNDARY | ——— |
| TIE LINES | - - - - |
| NOT TO SCALE | - - -∿- - - |
| MAJOR CONTOURS | ——— |
| MINOR CONTOURS | ——— |
| DEPTH SOUNDINGS | + 00.0 |
| CONCRETE MOORING | □ |
| ANCHOR | ⚓ |

# AQUACULTURE SITE DEVELOPMENT PLANS

SHOWING

BASIC SEAFLOOR TOPOGRAPHY

## KELLY COVE SALMON LTD. / VICTORIA BEACH

LOCATED AT:

VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

Client's Statement

I, [redacted] of Kelly Cove Salmon Ltd. acknowledge and confirm that Acker & Doucette Surveying Inc., make no representations or warranties with respect to the adequacy or the integrity of the proposed cage and mooring design of system depicted.

Dated this 24th day of October, 2016

[redacted]

Jeff Nickerson

A&D JOB #149-16-1040

SHEET 3 OF 7 | DATE: October 24, 2016

NOTES:

(1.) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
(2.) THIS PLAN IS A COMPILATION OF THIRD PARTY DATA. DATA WAS PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. ACKER & DOUCETTE SURVEYING INC. HAS COMPLETED THIS PLAN IN ACCORDANCE WITH THE "GUIDE TO MARINE FINFISH AQUACULTURE SITE REQUIREMENTS", DATED NOVEMBER 2007.
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KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
Stephen D.F. Acker
N.S.L.S.
639
MEMBER

PURPOSE OF PLAN (SHEET 3 OF 7)

THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE THE EXTENTS OF THE PROPOSED MARINE AQUACULTURE SITE AND BASIC SEAFLOOR TOPOGRAPHY, FOR ADDITIONAL ADDITIONAL SITE INFORMATION, REFER TO SHEETS 1-2 & 4-7.

100 0 100 200 300

SCALE - 1 : 5,000 (METRIC)


Acker & Doucette Surveying Inc.
Nova Scotia Land Surveyors

240 Belleville Road, P.O. Box 64
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www.adsurveying.ca

180 Mowatt Street, P.O. Box 154
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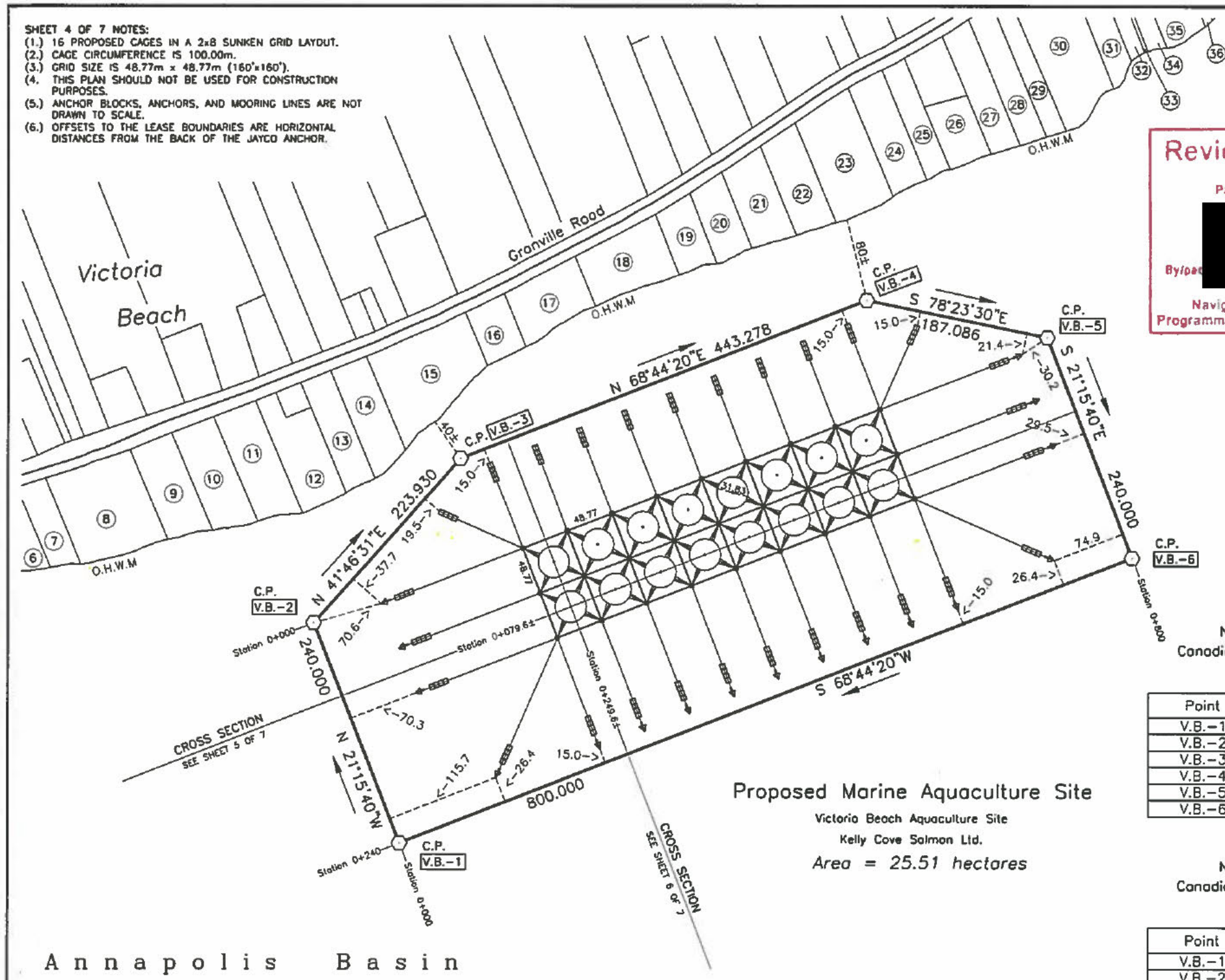
Nova Scotia, Canada
B0T 1W0

Fax: (902) 648-0185
info@adsurveying.ca

SHEET 4 OF 7 NOTES:
(1.) 16 PROPOSED CAGES IN A 2x8 SUNKEN GRID LAYOUT.
(2.) CAGE CIRCUMFERENCE IS 100.00m.
(3.) GRID SIZE IS 48.77m x 48.77m (160'x160').
(4. THIS PLAN SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.
(5.) ANCHOR BLOCKS, ANCHORS, AND MOORING LINES ARE NOT DRAWN TO SCALE.
(6.) OFFSETS TO THE LEASE BOUNDARIES ARE HORIZONTAL DISTANCES FROM THE BACK OF THE JAYCO ANCHOR.




Proposed Marine Aquaculture Site
Victoria Beach Aquaculture Site
Kelly Cove Salmon Ltd.
*Area = 25.51 hectares*

Annapolis Basin
(Atlantic Ocean)

Reviewed / Examiné
Page 4 of/de 7
By/par [redacted]
Navigation Protection Program / Programme de protection de la navigation

GRID NAD83 (CSRS) UTM zone 20N NORTH

NAD83 Reference Frome (Grid)
Canadian Spatial Reference System (CSRS)
UTM Zone 20N

| Point | Northing | Easting |
|---|---|---|
| V.B.-1 | 4,949,409.345 | 283,937.973 |
| V.B.-2 | 4,949,633.010 | 283,850.945 |
| V.B.-3 | 4,949,800.009 | 284,000.129 |
| V.B.-4 | 4,949,960.749 | 284,413.237 |
| V.B.-5 | 4,949,923.104 | 284,596.496 |
| V.B.-6 | 4,949,699.439 | 284,683.524 |

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
Geodetic Co-ordinates

| Point | Latitude (N) | Longitude (W) |
|---|---|---|
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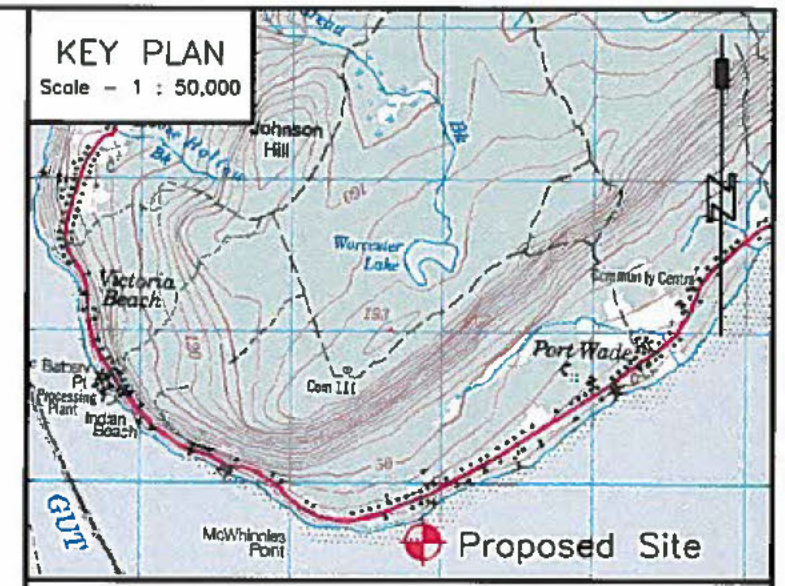
| V.B.-3 | 44°40'08.5991" | 65°43'29.7447" |
| V.B.-4 | 44°40'14.2497" | 65°43'11.2478" |
| V.B.-5 | 44°40'13.2291" | 65°43'02.8771" |
| V.B.-6 | 44°40'06.0825" | 65°42'58.5906" |

KEY PLAN
Scale - 1 : 50,000




Legend:
CALCULATED POINT ..... C.P.
CALCULATED ..... (c.)
N.S. PROPERTY IDENTIFICATION NUMBER ..... P.I.D. #00000000
NORTHING / EASTING ..... N. / E.
LOCAL REGISTRY NUMBER ..... Book: / Page:
ORDINARY HIGH WATER MARK ..... O.H.W.M.
BOUNDARY DEALT WITH BY THIS PLAN
OTHER BOUNDARY
TIE LINES
NOT TO SCALE
MAJOR CONTOURS
MINOR CONTOURS
DEPTH SOUNDINGS ..... + 00.0
CONCRETE MOORING
ANCHOR

# AQUACULTURE SITE DEVELOPMENT PLANS

SHOWING
AQUACULTURE CAGE CONFIGURATION
KELLY COVE SALMON LTD. / VICTORIA BEACH
LOCATED AT:
VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

## Client's Statement

I, [redacted] of Kelly Cove Salmon Ltd. acknowledge and confirm that Acker & Doucette Surveying Inc., make no representations or warranties with respect to the adequacy or the integrity of the proposed cage and mooring design of system depicted.

Dated this 24th day of October, 2016.

[redacted]
Jeff Nickerson

A&D JOB #149-16-1040

SHEET 4 OF 7 | DATE: October 24, 2016

NOTES:
(1.) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
(2.) THIS PLAN IS A COMPILATION OF THIRD PARTY DATA. DATA WAS PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. ACKER & DOUCETTE SURVEYING INC. HAS COMPLETED THIS PLAN IN ACCORDANCE WITH THE "GUIDE TO MARINE FINFISH AQUACULTURE SITE REQUIREMENTS", DATED NOVEMBER 2007.
(3.) ALL DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).
(4.) DEPTH CONTOUR DATA IS BASED ON GARMIN MARINE MAPSOURCE DATA AND BATHYMETRIC SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP.
(5.) SPOT SOUNDINGS ARE BASED ON SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. SAID SOUNDINGS WERE CORRECTED TO CHART DATUM FROM G.N.S.S. OBSERVATIONS.
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(7.) ONSHORE PROPERTY DATA IS BASED ON NOVA SCOTIA PROPERTY ONLINE MAPPING.
(8.) ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83 CSRS) USING THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 20 NORTH (UTM Z20N).

KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
Stephen D.F. Acker
N.S.L.S.
639
MEMBER

PURPOSE OF PLAN (SHEET 4 OF 7)
THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE THE LOCATIONS OF ALL ANCHORS, CAGES, AND THE GRID/MOORING CONFIGURATION RELATIVE TO THE LEASE BOUNDARIES.

100 0 100 200 300
SCALE - 1 : 5,000 (METRIC)


Acker & Doucette Surveying Inc.
Nova Scotia Land Surveyors

240 Belleville Road, P.O. Box 64
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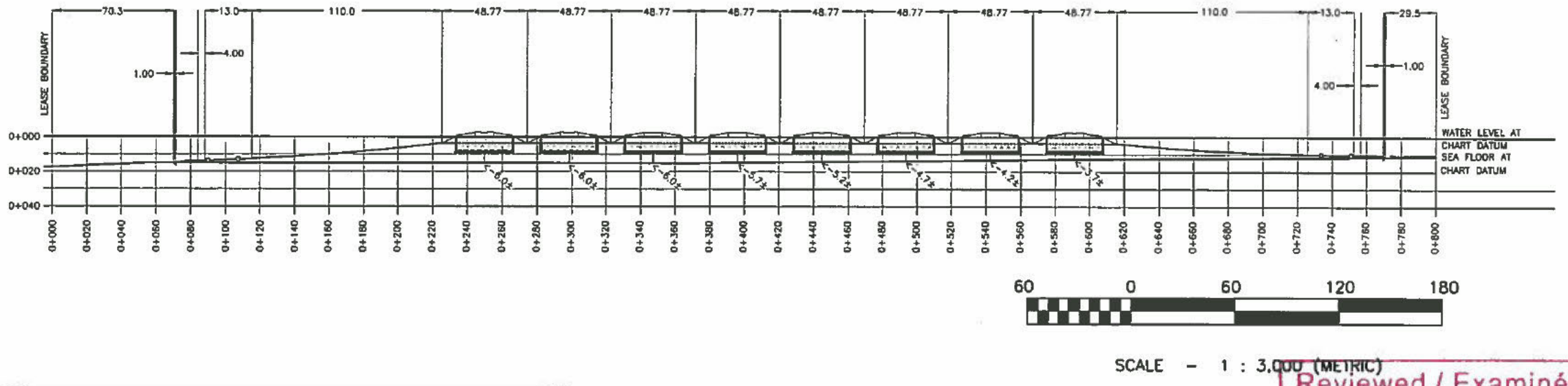
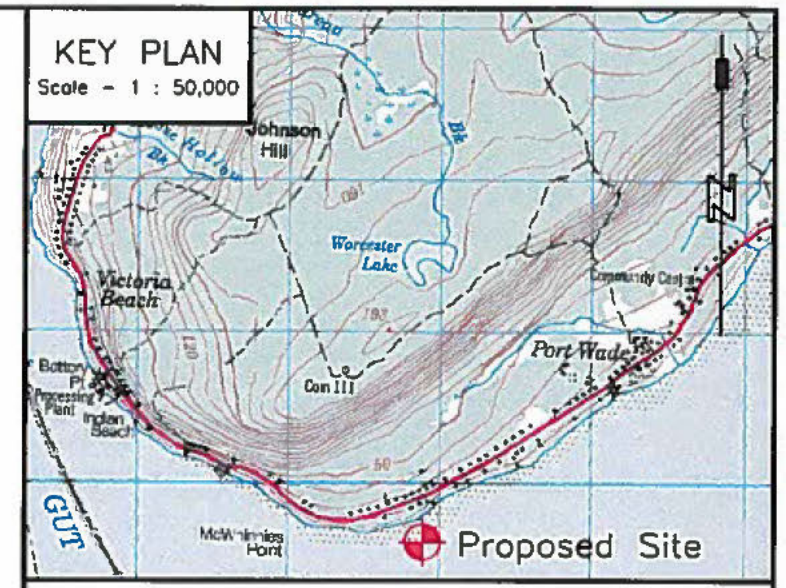
Nova Scotia, Canada
B0T 1W0
Fax: (902) 648-0185
info@adsurveying.ca

## CROSS SECTION
HORIZONTAL SCALE – 1 : 3,000 (METRIC)
VERTICAL SCALE – 1 : 3,000 (METRIC)




SCALE – 1 : 3,000 (METRIC)

## KEY PLAN
Scale – 1 : 50,000

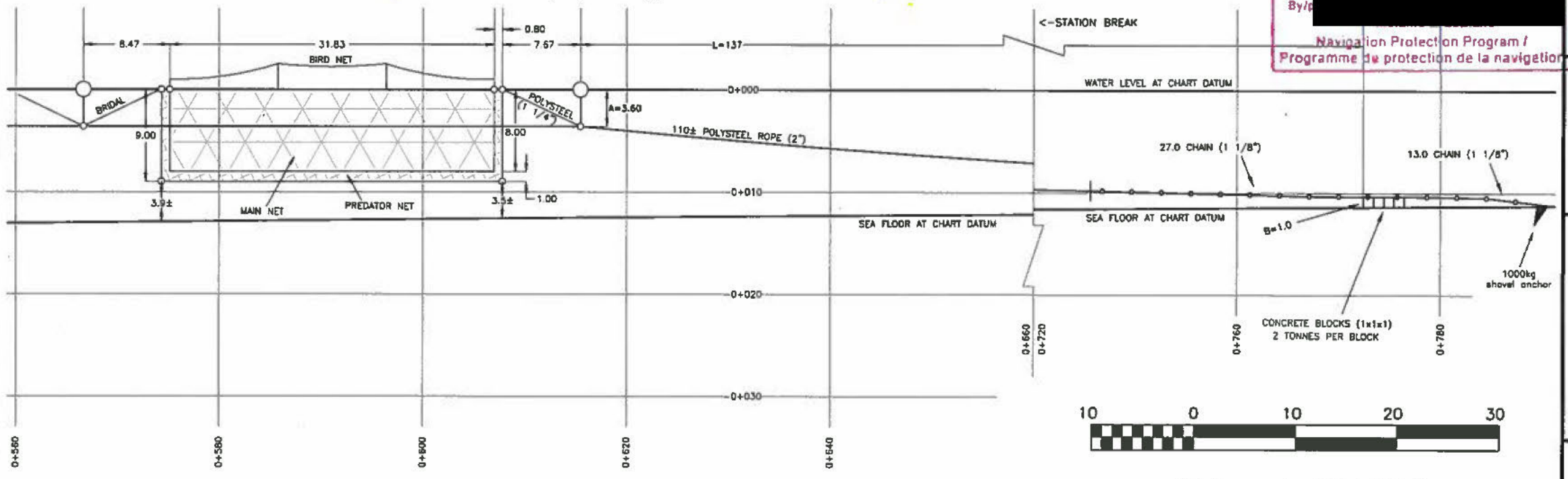



Legend:

| | |
|---|---|
| CALCULATED POINT | C.P. ○ |
| CALCULATED | (c.) |
| N.S. PROPERTY IDENTIFICATION NUMBER | P.I.D. #00000000 |
| NORTHING / EASTING | N. / E. |
| LOCAL REGISTRY NUMBER | Book: / Page: |
| ORDINARY HIGH WATER MARK | O.H.W.M. |
| BOUNDARY DEALT WITH BY THIS PLAN | ——— |
| OTHER BOUNDARY | ——— |
| TIE LINES | – – – – |
| NOT TO SCALE | – – –\/– – – |
| MAJOR CONTOURS | ——— |
| MINOR CONTOURS | ——— |
| DEPTH SOUNDINGS | + 00.0 |
| CONCRETE MOORING | □ |
| ANCHOR | ⚓ |

## DETAILED CROSS SECTION
HORIZONTAL SCALE – 1 : 500 (METRIC)
VERTICAL SCALE – 1 : 500 (METRIC)

5:1 Mooring Scope Calculation
L = [(max depth + max tide range) – A – B] x 5
L = [(25± + 9.4±) – 3.6 – 1.0] x 5
L = 149.0 (calculated)
L = 137± (as by client design)




SCALE – 1 : 500 (METRIC)



## AQUACULTURE SITE DEVELOPMENT PLANS
SHOWING
LATERAL CROSS-SECTION
KELLY COVE SALMON LTD. / VICTORIA BEACH
LOCATED AT:
VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

### Client's Statement

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Dated this 24th day of October, 2016.

[redacted]
Jeff Nickerson

A&D JOB #149-16-1040

SHEET 5 OF 7 | DATE: October 24, 2016

NOTES:
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(7.) ONSHORE PROPERTY DATA IS BASED ON NOVA SCOTIA PROPERTY ONLINE MAPPING.
(8.) ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83 CSRS) USING THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 20 NORTH (UTM Z20N).

KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
Stephen D.F. Acker
N.S.L.S. 639
MEMBER

PURPOSE OF PLAN (SHEET 5 OF 7)
THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE A LATERAL CROSS SECTION AS SHOWN ON SHEET 3 OF 6, TO DEMONSTRATE DETAILS ASSOCIATED WITH THE CAGE INFRASTRUCTURE, ANCHOR AND MOORING LINES, AND SEAFLOOR PROFILE.

CROSS SECTION NOTES:
(1.) THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
(2.) FOR HORIZONTAL LOCATION OF EACH CROSS SECTION SEE SHEET 4 OF 7.
(3.) DISTANCES FROM SEA FLOOR MAY VARY DEPENDING ON TIDE AND CURRENT.
(4.) DISTANCES FROM SEA FLOOR ARE APPROXIMATE ONLY.
(5.) DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).

Acker & Doucette Surveying Inc.
Nova Scotia Land Surveyors

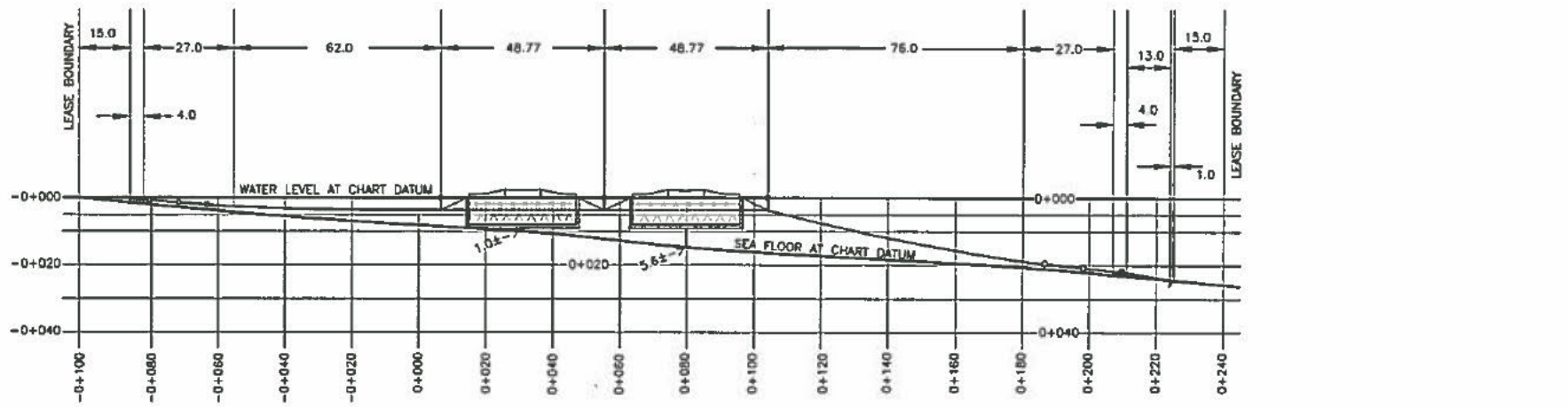
240 Belleville Road, P.O. Box 64
Tusket, Yarmouth County
Nova Scotia, Canada
B0W 3M0

180 Mowatt Street, P.O. Box 154
Shelburne, Shelburne County
Nova Scotia, Canada
B0T 1W0

Phone: (902) 648-2186
www.adsurveying.ca

Fax: (902) 648-0185
info@adsurveying.ca

## CROSS SECTION
HORIZONTAL SCALE – 1 : 2,000 (METRIC)
VERTICAL SCALE – 1 : 2,000 (METRIC)

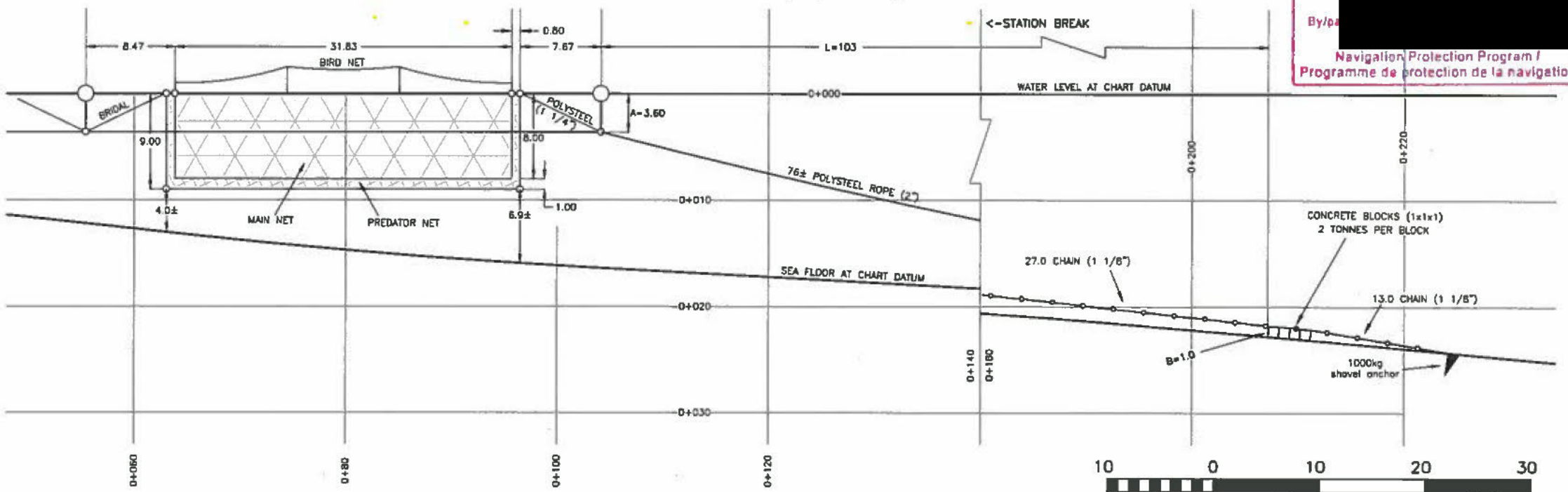




SCALE – 1 : 2,000 (METRIC)

## DETAILED CROSS SECTION
HORIZONTAL SCALE – 1 : 500 (METRIC)
VERTICAL SCALE – 1 : 500 (METRIC)

5:1 Mooring Scope Calculation
L = [(max depth + max tide range) – A – B] x 5
L = [(25± + 9.4±) – 3.6 – 1.0] x 5
L = 149.0 (calculated)
L = 103± (as by client design)



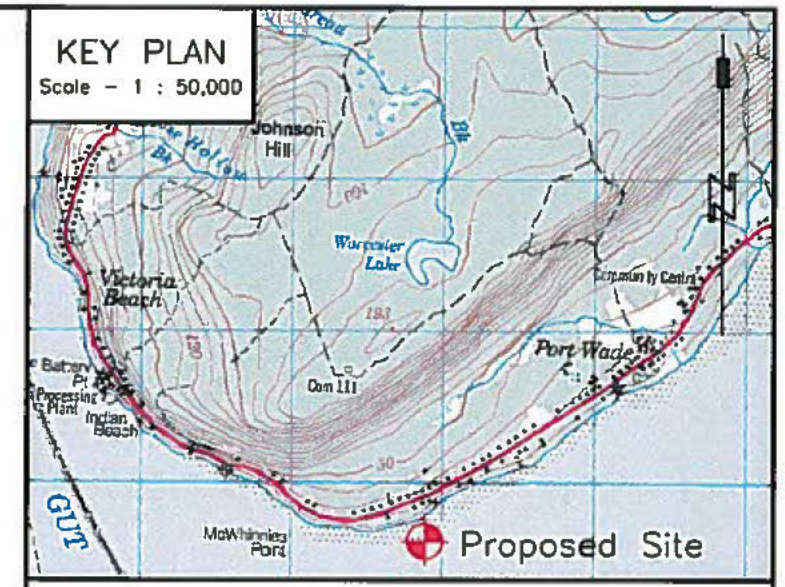




SCALE – 1 : 500 (METRIC)

Reviewed / Examiné
Page 6 of/de 7
By/par [redacted]
Navigation Protection Program / Programme de protection de la navigation

## KEY PLAN
Scale – 1 : 50,000




Legend:

| | |
|---|---|
| CALCULATED POINT | C.P. ○ |
| CALCULATED | (c.) |
| N.S. PROPERTY IDENTIFICATION NUMBER | P.I.D. #00000000 |
| NORTHING / EASTING | N. / E. |
| LOCAL REGISTRY NUMBER | Book: / Page: |
| ORDINARY HIGH WATER MARK | O.H.W.M. |
| BOUNDARY DEALT WITH BY THIS PLAN | ——— |
| OTHER BOUNDARY | ——— |
| TIE LINES | – – – – |
| NOT TO SCALE | – – –\/– – – |
| MAJOR CONTOURS | ——— |
| MINOR CONTOURS | ——— |
| DEPTH SOUNDINGS | + 00.0 |
| CONCRETE MOORING | □ |
| ANCHOR | ⚓ |

# AQUACULTURE SITE DEVELOPMENT PLANS
SHOWING
LONGITUDINAL CROSS-SECTION
KELLY COVE SALMON LTD. / VICTORIA BEACH
LOCATED AT:
VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

Client's Statement

I, [redacted] of Kelly Cove Salmon Ltd. acknowledge and confirm that Acker & Doucette Surveying Inc., make no representations or warranties with respect to the adequacy or the integrity of the proposed cage and mooring design of system depicted.

Dated this 24th day of October, 2016.

[redacted]
Jeff Nickerson

A&D JOB #149-16-1040

SHEET 6 OF 7 | DATE: October 24, 2016

NOTES:
(1.) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
(2.) THIS PLAN IS A COMPILATION OF THIRD PARTY DATA. DATA WAS PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. ACKER & DOUCETTE SURVEYING INC. HAS COMPLETED THIS PLAN IN ACCORDANCE WITH THE "GUIDE TO MARINE FINFISH AQUACULTURE SITE REQUIREMENTS", DATED NOVEMBER 2007.
(3.) ALL DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).
(4.) DEPTH CONTOUR DATA IS BASED ON GARMIN MARINE MAPSOURCE DATA AND BATHYMETRIC SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP.
(5.) SPOT SOUNDINGS ARE BASED ON SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. SAID SOUNDINGS WERE CORRECTED TO CHART DATUM FROM G.N.S.S. OBSERVATIONS.
(6.) NATURAL FEATURES WERE DETERMINED BY NOVA SCOTIA PROPERTY ONLINE MAPPING AND GEONOVA DATA LOCATOR GEOGRAPHIC INFORMATION.
(7.) ONSHORE PROPERTY DATA IS BASED ON NOVA SCOTIA PROPERTY ONLINE MAPPING.
(8.) ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83 CSRS) USING THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 20 NORTH (UTM Z20N).

KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
Stephen D.F. Acker
N.S.L.S.
639
MEMBER

PURPOSE OF PLAN (SHEET 6 OF 7)
THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE A LONGITUDINAL CROSS SECTION AS SHOWN ON SHEET 4 OF 7, TO DEMONSTRATE DETAILS ASSOCIATED WITH THE CAGE INFRASTRUCTURE, ANCHOR AND MOORING LINES, AND SEAFLOOR PROFILE.

CROSS SECTION NOTES:
(1.) THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
(2.) FOR HORIZONTAL LOCATION OF EACH CROSS SECTION SEE SHEET 4 OF 6.
(3.) DISTANCES FROM SEA FLOOR MAY VARY DEPENDING ON TIDE AND CURRENT.
(4.) DISTANCES FROM SEA FLOOR ARE APPROXIMATE ONLY.
(5.) DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).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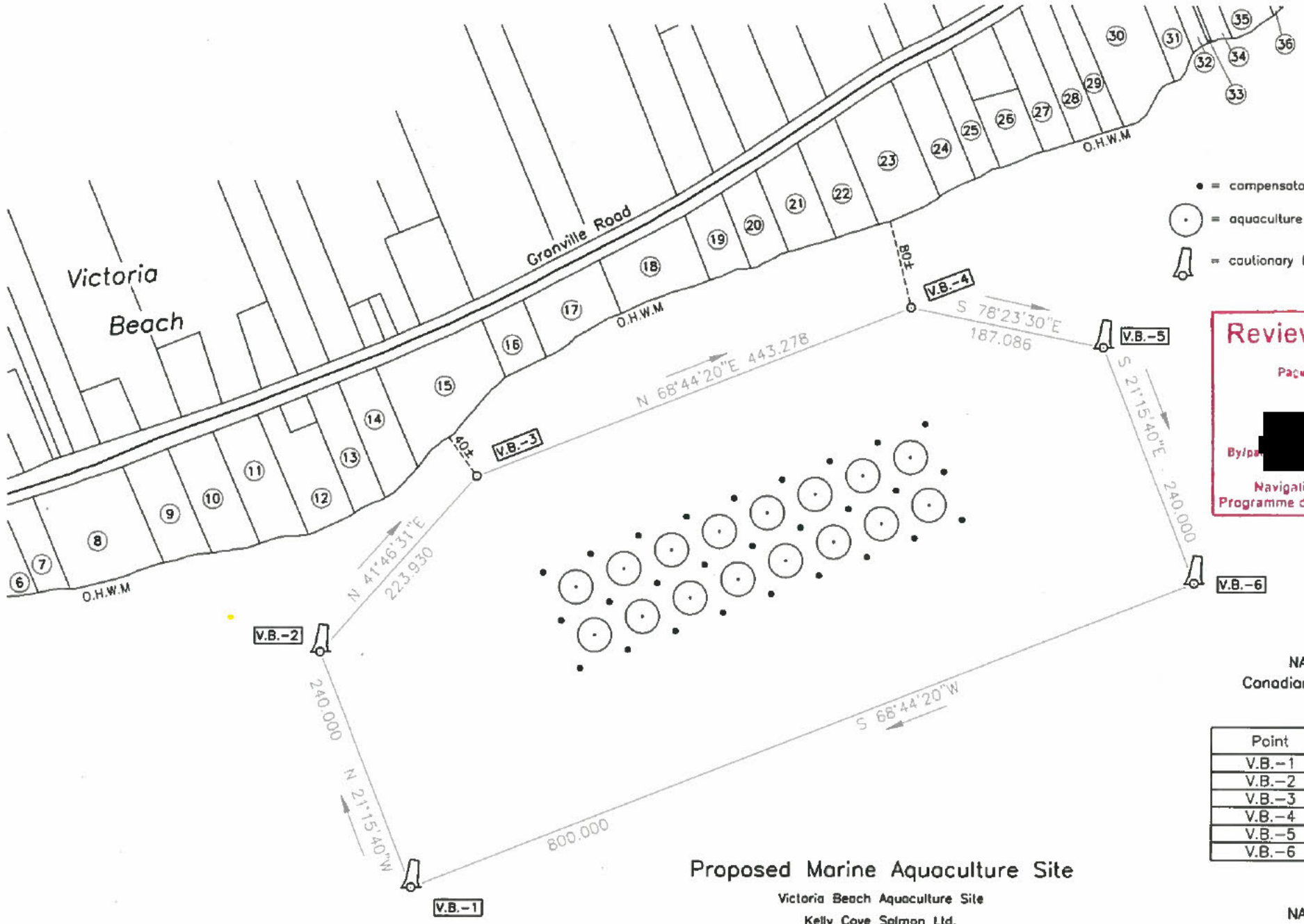



● = compensator buoys (yellow)

⊙ = aquaculture cages (30.48m diameter)

= cautionary buoy (yellow)

NORTH
UTM zone 20N
GRID
NAD83 (CSRS)

Reviewed / Examiné
Page 7 of/de 7
4:04 pm, Jan 10, 2017
By/par [redacted]
Navigation Protection Program /
Programme de protection de la navigation

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
UTM Zone 20N

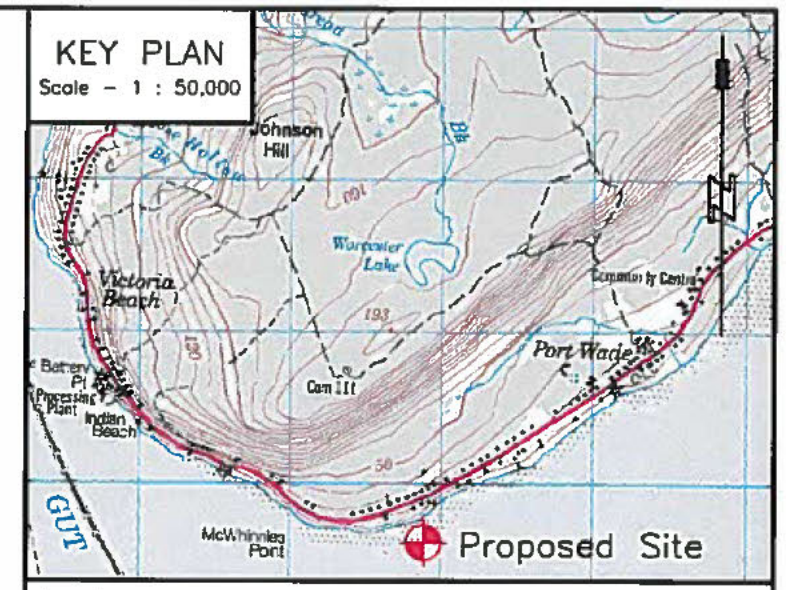
| Point | Northing | Easting |
|---|---|---|
| V.B.–1 | 4,949,409.345 | 283,937.973 |
| V.B.–2 | 4,949,633.010 | 283,850.945 |
| V.B.–3 | 4,949,800.009 | 284,000.129 |
| V.B.–4 | 4,949,960.749 | 284,413.237 |
| V.B.–5 | 4,949,923.104 | 284,596.496 |
| V.B.–6 | 4,949,699.439 | 284,683.524 |

Proposed Marine Aquaculture Site
Victoria Beach Aquaculture Site
Kelly Cove Salmon Ltd.
*Area = 25.51 hectares*

NAD83 Reference Frame (Grid)
Canadian Spatial Reference System (CSRS)
Geodetic Co–ordinates

| Point | Latitude (N) | Longitude (W) |
|---|---|---|
| V.B.–1 | 44°39'55.8852" | 65°43'31.9712" |
| V.B.–2 | 44°40'03.0314" | 65°43'36.2586" |
| V.B.–3 | 44°40'08.5991" | 65°43'29.7447" |
| V.B.–4 | 44°40'14.2497" | 65°43'11.2478" |
| V.B.–5 | 44°40'13.2291" | 65°43'02.8771" |
| V.B.–6 | 44°40'06.0825" | 65°42'58.5906" |

KEY PLAN
Scale – 1 : 50,000




Legend:

| | |
|---|---|
| CALCULATED POINT | C.P. |
| CALCULATED | (c.) |
| N.S. PROPERTY IDENTIFICATION NUMBER | P.I.D. #00000000 |
| NORTHING / EASTING | N. / E. |
| LOCAL REGISTRY NUMBER | Book: / Page: |
| ORDINARY HIGH WATER MARK | O.H.W.M. |
| BOUNDARY DEALT WITH BY THIS PLAN | |
| OTHER BOUNDARY | |
| TIE LINES | |
| NOT TO SCALE | |
| MAJOR CONTOURS | |
| MINOR CONTOURS | |
| DEPTH SOUNDINGS | + 00.0 |
| CONCRETE MOORING | □ |
| ANCHOR | |

# AQUACULTURE SITE DEVELOPMENT PLANS

SHOWING

PROPOSED NAVIGATIONAL AIDS MARKING PLAN

KELLY COVE SALMON LTD. / VICTORIA BEACH

LOCATED AT:

VICTORIA BEACH, ANNAPOLIS BASIN (ATLANTIC OCEAN), DIGBY COUNTY, NOVA SCOTIA

## Client's Statement

I, [redacted] of Kelly Cove Salmon Ltd. acknowledge and confirm that Acker & Doucette Surveying Inc., make no representations or warranties with respect to the adequacy or the integrity of the proposed cage and mooring design of system depicted.

Dated this 24th day of October, 2016

[redacted]

Jeff Nickerson

A&D JOB #149–16–1040

SHEET 7 OF 7 | DATE: October 24, 2016

NOTES:

(1.) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
(2.) THIS PLAN IS A COMPILATION OF THIRD PARTY DATA. DATA WAS PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. ACKER & DOUCETTE SURVEYING INC. HAS COMPLETED THIS PLAN IN ACCORDANCE WITH THE "GUIDE TO MARINE FINFISH AQUACULTURE SITE REQUIREMENTS". DATED NOVEMBER 2007.
(3.) ALL DEPTHS ARE REFERENCED TO CHART DATUM (LOWER LOW WATER, LARGE TIDE).
(4.) DEPTH CONTOUR DATA IS BASED ON GARMIN MARINE MAPSOURCE DATA AND BATHYMETRIC SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP.
(5.) SPOT SOUNDINGS ARE BASED ON SOUNDING DATA PROVIDED BY SWEENEY INTERNATIONAL MARINE CORP. SAID SOUNDINGS WERE CORRECTED TO CHART DATUM FROM C.H.S.S. OBSERVATIONS.
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KELLY COVE SALMON LTD.

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
[redacted]
Stephen D.F. Acker
N.S.L.S.
639
MEMBER

PURPOSE OF PLAN (SHEET 7 OF 7)
THE PURPOSE OF THIS PLAN IS TO DEMONSTRATE THE LOCATION AND TYPES OF ALL NAVIGATIONAL AIDS RELATIVE TO THE PROPOSED LEASE BOUNDARIES.

100 0 100 200 300

SCALE – 1 : 5,000 (METRIC)


Acker & Doucette Surveying Inc.
Nova Scotia Land Surveyors

240 Belleville Road, P.O. Box 64
Tusket, Yarmouth County
Nova Scotia, Canada
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180 Mowatt Street, P.O. Box 154
Shelburne, Shelburne County
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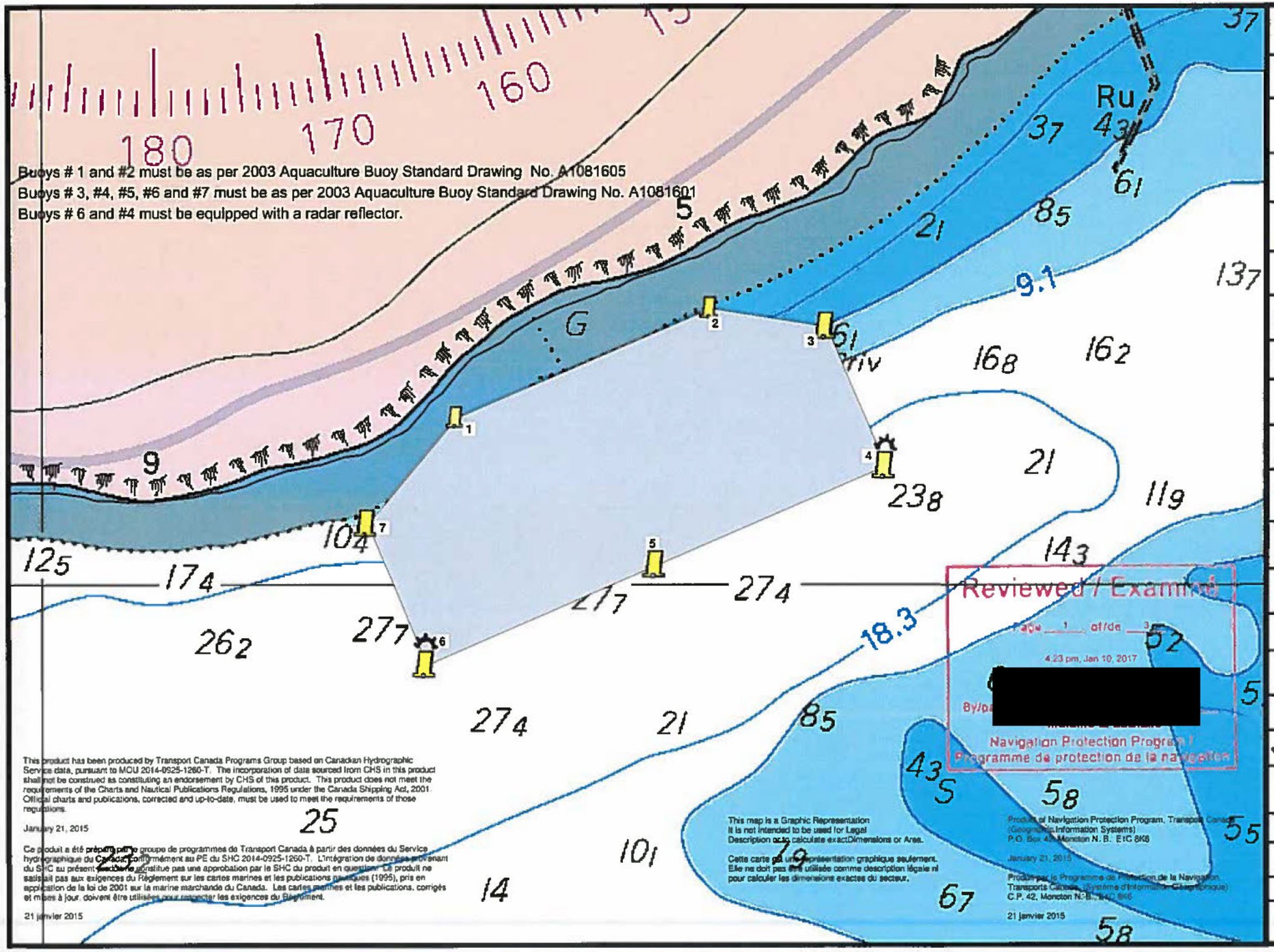



**Aquaculture Gear and Buoy Types**
**Types de bouées et de matériel d'aquaculture**

| Aquaculture Gear / Matériel d'aquaculture | No Gear / Sans matériel |
|---|---|

| Buoy/Bouée | see drawing/ voir dessin |
|---|---|
| Lighted Yellow Cautionary Spar/ Espar d'avertissement jaune lumineux | |
| Yellow Cautionary Spar/ Espar d'avertissement jaune | |
| Yellow Cautionary Intermediate/ Bouée intermédaire d'advertissement | |
| Port Hand Intermediate/ Bouée de bâbord intermédaire | |
| Starboard Hand Intermediate/ Bouée de tribord intermédaire | |
| Lighted Port Hand Spar/ Bouée de bâbord lumineuse | |
| Port Hand Spar/ Bouée de bâbord | |
| Lighted Port Bifurcation/ Bouée de bifurcation de bâbord lumineuse | |
| Port Bifurcation/ Bouée de bifurcation de bâbord | |
| Lighted Starboard Hand Spar/ Espar de tribord lumineux | |
| Starboard Hand Spar/ Espar de tribord | |
| Lighted Starboard Bifurcation/ Bouée de bifurcation de tribord lumineuse | |
| Starboard Bifurcation/ Bouée de bifurcation de tribord | |
| Radar Reflector/ Réflecteur radar (when indicated/ ou indicatif) | |

Navigation Protection/Protection de la Navigation
**Site Specific Marking Plan/**
**Plan de Marque Spécifique du Site** 1040

**NPP/PPN #: 8200-95-3029**

**Annapolis Basin, Nova Scotia**

If you have any questions contact your nearest NP Officer
Si vous avez des questions, contactez l'Agent de PN pour votre région

Transport Canada / Transports Canada

NOTES:

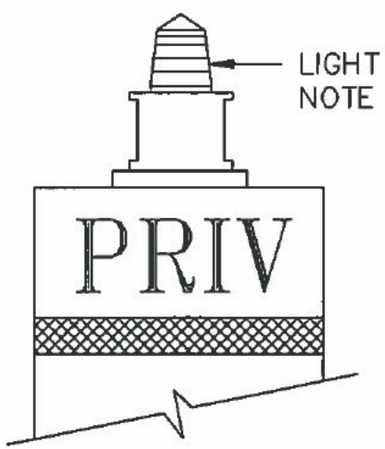
THE BUOY CAN BE MADE OF ANY MATERIAL. ei STYROFOAM, PLASTIC ETC. THE DIMENSIONS OF THE BUOY ARE THE MINIMUM SIZE REQUIRED THERE IS NO MAXIMUM SIZE.

THE SPACING BETWEEN THE BUOYS IS THE MAXIMUM, THEY CAN BE SPACED AT CLOSER INTERVALS IF REQUIRED BY THE PROPONENT.

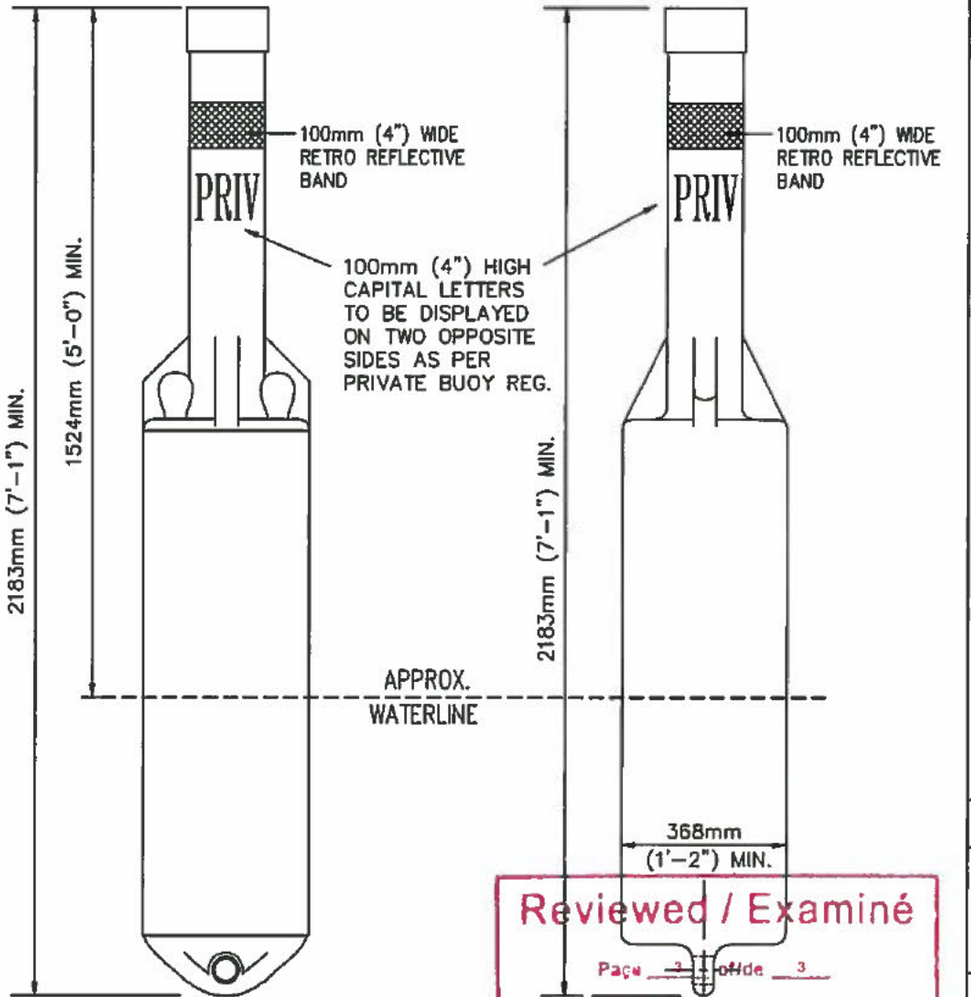
☑ YELLOW BUOY

☐ WITH LIGHT (SEE NOTES/DETAILS)
( ) 1 N.M.
( ) 2 N.M.

☐ RADAR REFLECTOR




LIGHT DETAIL






NOTE:
AS PER THE FEDERAL PRIVATE BUOY REGULATIONS THE BUOY & ITS MOORING SHALL BE CONSTRUCTED & MAINTAINED IN SUCH A MANNER & WITH SUCH MATERIALS AS WILL REASONABLY ENSURE THAT IT WILL RELIABLY REMAIN IN POSITION & DISPLAY ITS INTENDED COLOR.

**- REFER TO SITE SPECIFIC MARKING PLAN**

NOTES:

SPAR AQUACULTURE BUOY

1. BUOY COLOR TO BE AS PER CGSB SPECIFICATIONS INDICATED.
2. RETROREFLECTIVE MATERIAL TO CGSB-62-GP-11M (3M SCOTCHLITE SERIES #5800 OR EQUIVALENT PRODUCT)
   STRIPES TO BE AROUND THE ENTIRE DIAMETER AND SAME COLOR AS BUOY.
3. SPAR BUOYS TO BE SPACED A MAX. OF 400m (1300') APART. NAME, ADDRESS, TELEPHONE# AND LEASE# OF OWNER IN A CONSPICUOUS PLACE AND IN CONTRASTING COLOUR ON THE BUOY.
4. BUOYS MUST FLOAT IN UPRIGHT POSITION SHOWN UNDER NORMAL CONDITIONS.
5. IT WILL BE THE OWNERS RESPONSIBILITY TO ENSURE THE LIGHT IS MAINTAINED AND OPERATING AS REQUIRED.
   WHERE REQUIRED, ALL LIGHTS SHALL BE THE SAME COLOUR AS THE BUOYS.
   -FL 0.5S Ec 3.5S, OR _____
   -NOMINAL RANGE AS INDICATED.
   -DISPLAYED CONTINUOUS FROM DUSK TO DAWN.

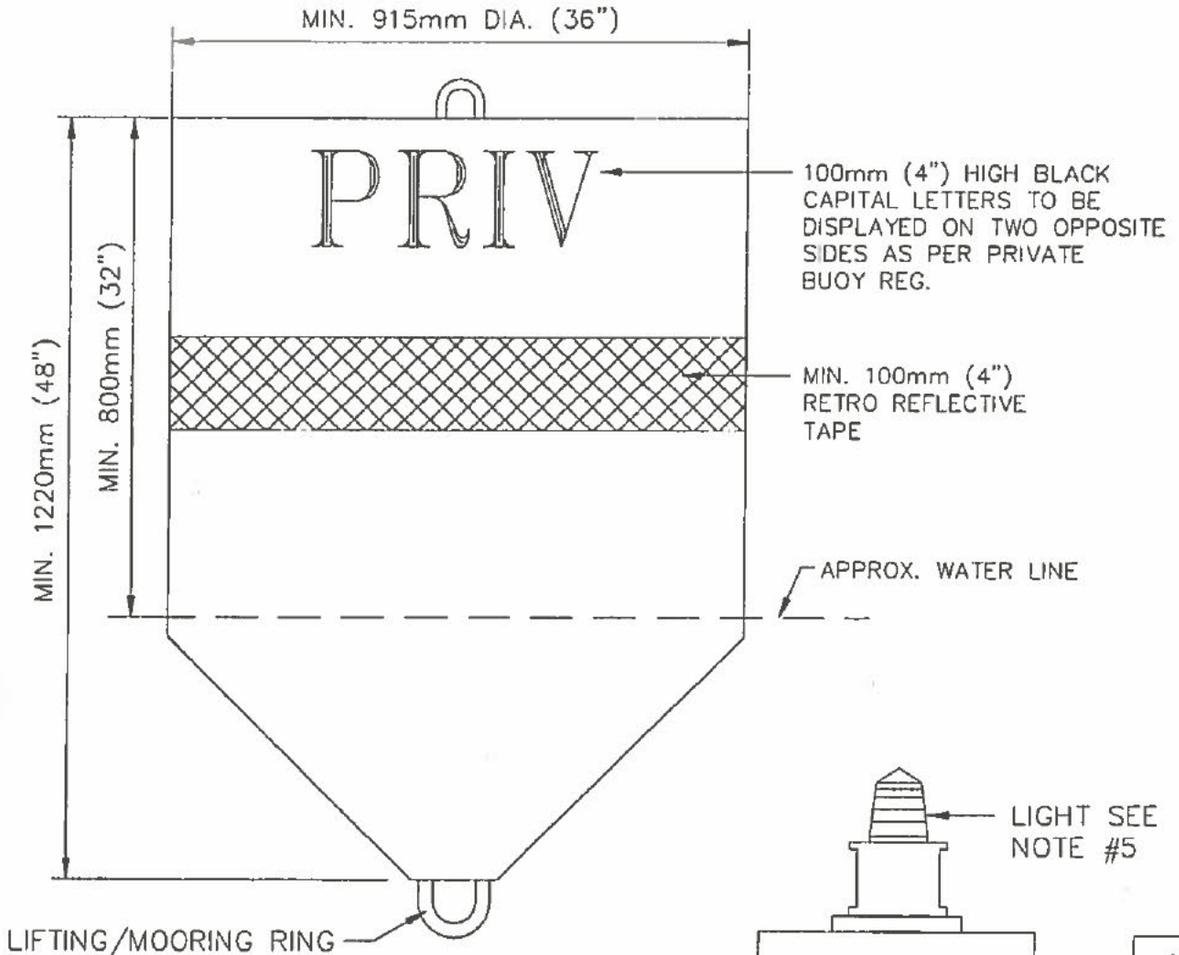
NAVIGABLE WATERS PROTECTION

TRANSPORT CANADA

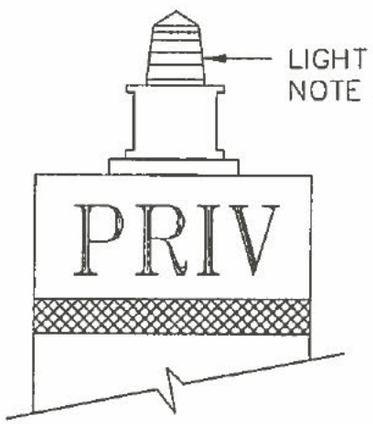
**2003 AQUACULTURE BUOY STANDARD**

# YELLOW NAVIGATION AQUACULTURE BUOYS

| DATE | DRAWN | CHECKED | APPR. |
|---|---|---|---|
| 05/09/03 | DAN MacNEIL | | |
| SCALE N.T.S. | REFERENCE | DRAWING NO. A1081605 | SHT. ___of___ |




TYPICAL AQUACULTURE BUOY




LIGHT DETAIL

- [x] YELLOW BUOYS #CGSB 505-108
- [ ] WITH LIGHT (SEE NOTES/DETAILS)
  - ( ) 1 N.M.
  - ( ) 2 N.M.
- [x] RADAR REFLECTOR only buoy #4 and #6

- [ ] RED BUOY WITH CONICAL TOP MARK #CGSB 509-102
- [ ] WITH LIGHT (SEE NOTES/DETAILS)
  - ( ) 1 N.M.
  - ( ) 2 N.M.
- [ ] RADAR REFLECTOR

- [ ] GREEN BUOY #CGSB-503-107
- [ ] WITH LIGHT (SEE NOTES/DETAILS)
  - ( ) 1 N.M.
  - ( ) 2 N.M.
- [ ] RADAR REFLECTOR

Reviewed / Examiné
Page 2 of/de 3
4:24 pm, Jan 10, 2017
By/par [redacted]
Mélanie L. LeBlanc
Navigation Protection Program / Programme de protection de la navigation

NOTES:
THE BUOY CAN BE MADE OF ANY MATERIAL. ei STYROFOAM, PLASTIC ETC. THE DIMENSIONS OF THE BUOY ARE THE MINIMUM SIZE REQUIRED THERE IS NO MAXIMUM SIZE.

THE SPACING BETWEEN THE BUOYS IS THE MAXIMUM. THEY CAN BE SPACED AT CLOSER INTERVALS IF REQUIRED BY THE PROPONENT.

NOTE:
AS PER THE FEDERAL PRIVATE BUOY REGULATIONS THE BUOY & ITS MOORING SHALL BE CONSTRUCTED & MAINTAINED IN SUCH A MANNER & WITH SUCH MATERIALS AS WILL REASONABLY ENSURE THAT IT WILL RELIABLY REMAIN IN POSITION & DISPLAY ITS INTENDED COLOR.

**- REFER TO SITE SPECIFIC MARKING PLAN**

NOTES:
AQUACULTURE BUOY

1. BUOY COLOR TO BE AS PER CGSB SPECIFICATIONS INDICATED.
2. RETROREFLECTIVE MATERIAL TO CGSB-62-GP-11M (3M SCOTCHLITE SERIES #5800 OR EQUIVALENT PRODUCT)
   STRIPES TO BE AROUND THE ENTIRE DIAMETER AND SAME COLOR AS BUOY.
3. BUOYS TO BE SPACED A MAX. OF 400m (1300') APART. NAME, ADDRESS, TELEPHONE# AND LEASE# OF OWNER IN A CONSPICUOUS PLACE AND IN CONTRASTING COLOUR ON THE BUOY.
4. BUOYS MUST FLOAT IN UPRIGHT POSITION SHOWN UNDER NORMAL CONDITIONS.
5. IT WILL BE THE OWNERS RESPONSIBILITY TO ENSURE THE LIGHT IS MAINTAINED AND OPERATING AS REQUIRED.
   CONICAL TOP MARK NOT REQUIRED IF LIGHT INSTALLED.
   WHERE REQUIRED, ALL LIGHTS SHALL BE THE SAME COLOUR AS THE BUOYS
   - FL 0.5S Ec 3.5S, OR
   - NOMINAL RANGE AS INDICATED.
   - DISPLAYED CONTINUOUS FROM DUSK TO DAWN.

NAVIGABLE WATERS PROTECTION

**TRANSPORT CANADA**

**2003 AQUACULTURE BUOY STANDARD**

# 36" LEASE CORNER AQUACULTURE BUOY

| DATE | DRAWN | CHECKED | APPR. |
|---|---|---|---|
| 28/01/02 | DAN MacNEIL | | |
| SCALE N.T.S. | REFERENCE | DRAWING NO. A1081601 | SHT. ___of___ |

***Sweeney International Marine Corp***.
46 Milltown Blvd.
St. Stephen, NB
E3L 1G3

**SIMCorp Environmental Sciences Lab**
120 Milltown Blvd.
St. Stephen, NB
E3L 1G6