

Environmental Impact Assessment Proposed Aquaculture Site #1370 West Shoal Bay

4.1.2 Waves

Wave height data were obtained from the La Have Bank station C44142 (N44.4, W63.33)
An eight-day deployment in Halifax Harbour C44258 (N44.57, W63.5)
Northeast Channel, GoMOOS N01 buoy, which is located off the southwest coast of Nova Scotia
(N42° 19' 35" W65° 54'29")

Using these wave data, Halifax Harbour 35miles away, LaHave Bank 63 miles away and the Northeast Channel, GoMOOS N01 buoy 231 miles away does not address the local site environment which is in the lea of the dominant winds.

4.1.3 Temperature

Temperatures near Shoal Bay have been recorded by NSDFA and provided to SIS. During a deployment between the dates of December 21, 2010 and May 2, 2011, the minimum water temperature recorded was -0.4 oC at 5 m deep, which occurred on March 4, 2011 (Fig. 17). Mean temperature data for the Eastern Shore of Nova Scotia (Hydrographic Database Subarea 13) was collected from climatology data of the DFO Maritime Oceans and Ecosystem Science (OES) project (Fisheries and Oceans, 2007). Figures 18 and 19 display the mean monthly water temperature data for the eastern shore. Water temperatures from this data, on average, range between 0.26 and 16.36 oC at the ocean surface. The lowest temperatures of the year are normally experienced in February to March and the highest temperatures in August to September. **The presence of a successful salmon aquaculture farm located at Cable Island would indicate that the temperatures in the area of Shoal Bay will be tolerable for Atlantic salmon.**

Please see notes under 5.4.3 Superchill

5.4.3 Superchill

The effects of superchill can be detrimental to fish health and may result in high mortalities. Superchill is a phenomenon caused by the cooling of seawater below the, sometimes, lethal temperature for Atlantic salmon (*i.e.* -0.75 oC). Although cold temperatures can not be entirely avoided in a northern climate, the effects of superchill may be diminished by fitting the pens with deep nets and locating pen systems in deep enough water that the fish may avoid the surface water layer which, in the winter, can be colder than deeper water. SIS will employ extremely low winter stocking densities, highly trained personnel and appropriate care and monitoring of the stock during these critical periods. Also, SIS will employ the deepest nets possible in the area of the proposed aquaculture farm. Other mitigation strategies include avoiding stress in the fish by ceasing feeding and other activities at the pen farm. These activities excite the fish and bring them up to the surface where the water is colder. SIS does not approach their aquaculture farm or feed stock during time periods when superchill is a potential threat and continuously monitors water temperatures.

Will the proponent, SIS, formerly known as Ocean Legacy, enlighten A.P.E.S. and the local stake holders on the three tractor trailer loads of dead salmon taken from the Owls Head Bay feedlot in the early spring of 2009?

The suggestion was made at the Sheet Harbour Legion meeting that the fish died of "Superchill".

If that was the case, why were the fish in such very poor condition i.e. open sores and bruising when they were pumped from the pens?

For the record, was the provincial veterinarian made aware of the condition of the fish and were they examined by the provincial veterinarian? Finally, what was the ultimate fate of the dead fish?

4.1.4 Salinity

No salinity data has been collected directly at the location of the proposed farm. All salinity data presented in this section has been gathered from the DFO OES climatology data (Fisheries and Oceans, 2007) for Subarea 13, Eastern Shore. According to the monthly mean salinity data, salinity ranges between 30.31 and 31.31 ‰ at the ocean surface, is generally lowest in October and November and highest in March and April

Considering that temperature data had been collected between December 21, 2010 and May 2, 2011, and ADCP data collected between May 19 to June 29, 2011, it is surprising that at least a minimum of four salinity samples were not taken.

How has the seasonal local fresh water input been taken into consideration?

4.1.5 Oxygen

Long term monthly average dissolved oxygen data presented in Figure 22 are from the Halifax Monitoring Station 2 located at 44.27°N 63.23°W (Fisheries and Oceans Canada, 2010c). This was the closest monitoring station to the proposed location and was therefore chosen over alternate monitoring stations as a source of oceanographic data. While the Halifax monitoring station is farther offshore than the proposed aquaculture farm in Shoal Bay, it should provide a reasonable estimation of dissolved oxygen. From this averaged data, the lowest dissolved oxygen appeared in July, while the highest concentrations of dissolved oxygen were present in March - April.

Again, as with salinity, considering that temperature data had been collected between December 21, 2010 and May 2, 2011, and ADCP data collected between May 19 to June 29, 2011, it is surprising that at least a minimum of four dissolved oxygen samples were not taken.

Further, how can oxygen concentrations be inferred from The Halifax Monitoring Station 2 which is 35 miles away and 18 miles off shore, with a water depth of 150m. The proposed feed lot site has an average depth of 15m and is surrounded by islands.

7.6 Management of Mortalities

Generally, fish mortalities (morts) will be removed from the pens once per week by divers. For the first few weeks after smolt entry or during a mortality event, mort dives will take place twice weekly. The divers will collect the morts in designated mort bags (*i.e.* each net pen has its own mort bag) and bring them to the surface where they are placed in designated mort containers. Mort containers will be lined to prevent leakage and will be disinfected between uses. The morts will then be transported to shore and delivered to an approved facility for composting. At no time would dead or moribund fish be released to the environment. Morts from the proposed farms will be unloaded at the wharf and taken to SIS property for storage in a designated, leak-proof container. The holding tank is emptied twice per week and the morts delivered to the **Caldwell Farms composting facility in Penobquis, NB** or other approved facility. The morts will be handled and delivered for composting by SIS personnel.

In the case of a large mortality event, a fish carrier would be used to pump the fish from the pens to fish trucks at the wharf. The morts would then be sent to an approved composting facility for disposal, such as the Lunenburg Regional Recycling and Composting Facility or the Atlantic Country Compost (TE

Boyle Farm & Forestry Limited)facility.

*Addressing the notion that jobs will come along with with this salmon feed lot, it is interesting to note that the Appendices cite a number of commercial hazardous waste services. Of the twenty-one (21) companies cited, only three (3) are from Nova Scotia. The breakdown is as follows:
State of Maine 1, Ontario 1, Nova Scotia 3, Quebec 3, New Brunswick 12*

8.1 Production Description

It is the goal of SIS to stock the proposed farm at Shoal Bay in 2012, which is an alternate year to the Owls Head farm. The two farms would therefore contain separate year classes from one another. In this way, SIS can ensure a more steady supply of market fish.

SIS would like to stock the proposed farm in Shoal Bay in the spring of 2012. The Shoal Bay farm would be stocked with a maximum of 500,000 smolt in thirty-three (33) pens (80 m circumference). See Appendix C for SIS' complete stocking plan for NS. At the proposed farm, Atlantic salmon (*Salmo salar*), of the Saint John River strain, will be reared. They will come from Atlantic Sea Smolt Ltd. in Rollo Bay, PEI.

8.2 Feeding Regime

SIS conducts feeding activities in such a manner as to minimize feed waste. Dry feed only will be used for the entire production cycle. Feed is presented to the fish during daylight hours. Feeding will be done with hand scoops after entry; following this, feed will be delivered by 75 and 500 kg blowers. Feed conversion ratios are estimated to be 1.25:1 to 1.40:1. Underwater cameras are used to monitor the delivery of the feed to the fish and the feeding behaviour of the fish. This helps to reduce wasted feed.

When prescribed by a veterinarian, and only as a final necessary measure to maintain the welfare of the stock, medicated feed is used to treat various ailments. Typically, medicated feed is contained in different coloured bags from regular feed and a copy of the prescription is delivered to the Farm Manager with the medicated feed.

*Using the current data provided, Depth Averaged Current Speed and Direction of **56.01mm/sec.**
this number works out to real world numbers of 0.11 knots or 201m/hour.*

Thus when taking the footprint of the feedlot, 328.5m x 146m, given the speed and direction of the current, this guarantees the deposition of unused feed and fecal matter directly under the feedlot with virtually zero flushing of the area.

Controlled studies conducted by Inka Milewski, Ph.D., marine biologist and science advisor to the Conservation Council of New Brunswick of fallowed sites show that three years after being fallowed, the site was no where near remediated.

This should be cause for the NSDFA to reject this application

9.0 PUBLIC CONSULTATION

Consultations are meant to inform potential stakeholders about the proposed marine finfish farm, to obtain relevant information, and to identify any concerns that may exist.

At the time of submission of this report, not all relevant consultations had been completed, though the process was underway. SIS has had some informal general consultations with NGOs, local businesses and other stakeholders, however, none of the contacts made wish to make their comments public at this time. Formal consultations will take place after the submission of the submission of the final application package (*i.e.* this report).

A number of government representatives and other stakeholders were consulted during the preparation of this report and a list is provided in Table 10. Property owners have been identified for all of the land directly adjacent to the proposed lease location (Fig. 1). These stakeholders will be contacted by NS DFA. The Province will also hold its own public consultations. An electronic copy of this application is also being made available online for public viewing by all potential stakeholders and will be hosted on the SIMCorp web server.

Clarification is crucial with regards to sections 8.1 "Production Description" and 9.0 "PUBLIC CONSULTATION".

Considering that SIS in section 8.1 would like to stock the proposed feed lot in Shoal Bay in the spring of 2012, section 9.0 PUBLIC CONSULTATION, suggests that

*"Consultations are meant to inform potential stakeholders about the proposed marine finfish farm, to obtain relevant information, and to identify any concerns that may exist."
and further,*

"Property owners have been identified for all of the land directly adjacent to the proposed lease location (Fig. 1). These stakeholders will be contacted by NS DFA. The Province will also hold its own public consultations."

To date, timely and adequate public consultation to address the considerable concerns of the stakeholders has not been clearly carried out in a responsible manner by either SIS or the NSDFA. I do not believe that the proponents nor the NSDFA appreciate the history of this industry nor anticipate the potential environmental degradation that follows in its wake.

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