



**ENVIRONMENTAL IMPACT STATEMENT GUIDELINES**

**for the**

**Placentia Bay Atlantic Salmon Aquaculture Project**

Prepared by:

The Newfoundland and Labrador Department of Municipal Affairs and Environment

December 2017

## Table of Contents

<b>SECTION 1 – BACKGROUND .....</b>	<b>3</b>
<b>Purpose of the Guidelines.....</b>	<b>3</b>
<b>Proposed Project.....</b>	<b>3</b>
<b>SECTION 2 – PREPARATION AND PRESENTATION OF THE EIS .....</b>	<b>4</b>
<b>SECTION 3 - OUTLINE OF THE EIS.....</b>	<b>5</b>
<b>Executive Summary.....</b>	<b>5</b>
<b>1.0 INTRODUCTION .....</b>	<b>5</b>
1.1 Name of the Undertaking.....	5
1.2 The Proponent.....	5
1.3 Overview of the Undertaking.....	6
1.4 Purpose of the EIS.....	6
<b>2.0 THE PROPOSED UNDERTAKING .....</b>	<b>7</b>
2.1 Study Areas.....	7
2.2 Rationale for the Undertaking .....	8
2.3 Project Description.....	8
2.3.1 <i>General Layout .....</i>	<i>8</i>
2.3.2 <i>Construction .....</i>	<i>9</i>
2.3.3 <i>Operation and Maintenance .....</i>	<i>10</i>
2.3.4 <i>Decommissioning and Rehabilitation.....</i>	<i>12</i>
2.3.5 <i>Regulatory Framework and Government Oversight .....</i>	<i>12</i>
<b>3.0 ALTERNATIVES.....</b>	<b>13</b>
3.1 Alternatives to the Undertaking .....	13
3.2 Alternative Methods of Carrying Out the Undertaking .....	13
<b>4.0 ENVIRONMENT.....</b>	<b>14</b>
4.1 Key Issues.....	14
4.2 Existing Environment.....	15
4.2.1 <i>Atmospheric Environment.....</i>	<i>16</i>
4.2.2 <i>Aquatic Environment .....</i>	<i>16</i>
4.2.3 <i>Terrestrial Environment.....</i>	<i>17</i>
4.2.4 <i>Land and Resource Use.....</i>	<i>18</i>
4.2.5 <i>Heritage Resources.....</i>	<i>18</i>

4.2.6	<i>Communities</i> .....	18
4.2.7	<i>Economy, Employment and Business</i> .....	19
4.3	Component Studies .....	19
4.3.1	<i>Wild Atlantic Salmon</i> .....	19
4.3.2	<i>Impacts of the Project on Fish and Fish Habitat</i> .....	20
4.3.3	<i>The Cultural, Recreational and Commercial Importance of the Waters of Placentia Bay</i> 20	
4.3.4	<i>Aqualine Midgard Sea-Cage Study</i> .....	21
<b>5.0</b>	<b>DATA GAPS</b> .....	<b>22</b>
<b>6.0</b>	<b>ENVIRONMENTAL EFFECTS</b> .....	<b>23</b>
6.1	Predicted Future Condition of the Environment if the Undertaking Does Not Proceed .....	22
6.2	Predicted Environmental Effects of the Undertaking.....	23
6.3	Accidents and Malfunctions.....	24
6.4	Cumulative Environmental Effects.....	25
6.5	Effects of the Environment on the Project.....	25
<b>7.0</b>	<b>ENVIRONMENTAL PROTECTION</b> .....	<b>26</b>
7.1	Mitigation .....	26
7.2	Emergency Response/Contingency Plans .....	28
7.3	Waste Management Plan.....	28
7.4	Environmental Effects Monitoring and Follow-up Program (EEMP) .....	29
<b>8.0</b>	<b>RESIDUAL EFFECTS AND DETERMINATION OF SIGNIFICANCE</b> .....	<b>30</b>
<b>9.0</b>	<b>ASSESSMENT SUMMARY AND CONCLUSIONS</b> .....	<b>30</b>
<b>10.0</b>	<b>PUBLIC PARTICIPATION</b> .....	<b>31</b>
<b>11.0</b>	<b>ENVIRONMENTAL PROTECTION PLAN (EPP)</b> .....	<b>31</b>
<b>12.0</b>	<b>REFERENCES</b> .....	<b>32</b>
<b>13.0</b>	<b>PERSONNEL</b> .....	<b>32</b>
<b>14.0</b>	<b>COMMITMENTS MADE IN THE EIS</b> .....	<b>32</b>
<b>15.0</b>	<b>COPIES OF REPORTS</b> .....	<b>32</b>
	<b>APPENDIX A</b> .....	<b>36</b>
	<b>APPENDIX B</b> .....	<b>37</b>

## **SECTION 1 – BACKGROUND**

### **Purpose of the Guidelines**

On November 8, 2017, the Minister of Municipal Affairs and Environment (MAE) informed Grieg NL Nurseries Ltd. and Grieg NL Seafarms Ltd. (“the proponent”) that an environmental impact statement (EIS) is required for the proposed Placentia Bay Atlantic Salmon Aquaculture project. The purpose of this document is to identify for the proponent the nature, scope and extent of the information and analysis required in the preparation of the EIS. The proponent will prepare and submit an EIS that examines the potential environmental effects of the construction, operation, decommissioning, reclamation, and abandonment of the project; identifies mitigation measures; and evaluates the significance of residual effects. Section 3 of these guidelines outlines in detail the content of the EIS to be prepared. The EIS is a statement of the proponent’s environmental conclusions and commitments related to the project, and must be explicitly endorsed by the proponent.

### **Proposed Project**

The proponent is planning to construct and operate a land-based Recirculation Aquaculture System (RAS) Hatchery for Atlantic salmon in the Marystown Marine Industrial Park, and marine-based farms in Placentia Bay. The land-based hatchery would be developed on approximately 10 hectares of serviced land and would produce up to seven million triploid, European-strain Atlantic salmon smolt, annually. Four Bay Management Areas (BMAs) are being proposed for the marine-based component, for evaluation and approval by the Department of Fisheries and Land Resources. The smolt would be transferred to the marine-based component, which would involve the operation of eleven (11) seafarms located in the following proposed BMAs: Rushoon BMA, Merasheen BMA, Red Island BMA, and Long Harbour BMA. Each seafarm would consist of multiple cages with cage collars at the surface and nets extending down to 43 meters. The proposed sea-cage sites would occupy 1,958 hectares, of which 24 hectares would be occupied by the sea cages.

Construction of the hatchery is anticipated to take approximately 18 months, with farming operations commencing part way through the construction period and remaining in continuous operation, including fallow periods. Sea cages would be installed over a three-year period, with the installations taking place approximately one season ahead of stocking the cages with fish. It is anticipated that there would be three

BMAs operating year-round, in Rushoon, Merasheen, and Red Island, and one seasonal operation in Long Harbour. Every production cycle would conclude with a fallow period prior to new stocking.

## **SECTION 2 – PREPARATION AND PRESENTATION OF THE EIS**

The EIS shall be written in terms understandable to the general public, however, where the complexity of the issues addressed requires the use of technical language, a glossary defining technical words and acronyms shall be included.

Where external sources of information or data are used, they shall be referenced within the body of the EIS and listed in a bibliography at the end. Where conclusions that are critical to the assessment of environmental effects are cited from other reports, the proponent shall provide sufficient detail of the original data and analysis to enable a critical review of that material and submit reference material as an appendix to the EIS. All conclusions regarding the receiving environment and predictions of the environmental effects shall be substantiated. The EIS shall reference, rather than repeat, information previously presented in other sections of the document. For clarity and ease of reference, the EIS shall include a Table of Concordance that cross references the EIS guidelines so that points raised in the guidelines are easily located in the EIS. A Table of Contents, providing location of information in the final document by volume (if applicable), section, sub-section and page number, is required.

The EIS shall provide charts, diagrams, and maps wherever useful to clarify the text, including a depiction of how the developed project sites will appear from both an aerial and terrestrial perspective. Where possible, maps shall use common scales to allow for comparison and overlay of mapped features and shall indicate common and accepted local place names. Geographic information shall be provided in standard Geographic Information System (GIS) mapping (digital) format, where feasible. The EIS and all associated reports and studies shall use System International (SI) units of measure and terminology.

The EIS shall be a stand-alone document upon which a critical review can be undertaken. The proponent shall explain and justify all methods used in the preparation of the EIS, including the use of scientific, engineering, local, and other knowledge. All hypotheses and assumptions shall be clearly identified and justified. All data collection methods, models, and studies shall be documented so that the analyses are transparent and reproducible. The degree of uncertainty, reliability, and sensitivity of models used to reach conclusions shall be indicated.

The information included in this document is not intended to be exhaustive -- additional detail, studies, and/or examination of components may be required. The content of the EIS should be organized according to the format described in Section 3.

## **SECTION 3 - OUTLINE OF THE EIS**

### **Executive Summary**

The executive summary shall contain the following information: identification of the proponent; a brief project description; predicted biophysical environmental effects (including cumulative effects associated with the project, and all other existing and reasonably expected future projects in the vicinity of the project site); socio-economic factors; alternatives; mitigative measures; residual effects; follow up and monitoring programs; an outline of the component studies; and a summary of the fundamental conclusions of the EIS. The Table of Concordance may be included in the executive summary.

### **1.0 INTRODUCTION**

#### **1.1 Name of the Undertaking**

The undertaking has been assigned the name “Placentia Bay Atlantic Salmon Aquaculture Project.”

#### **1.2 The Proponent**

This section shall introduce the proponent by providing the following pertinent information:

- name of corporate body and mailing address;
- name of chief executive officer (name, address, telephone number, and e-mail);
- principle contact person for the purpose of environmental assessment (name, address, telephone number, and e-mail); and

- key personnel, contractors, and/or sub-contractors responsible for preparing the EIS.

This section shall include a description of the proponent's history of aquaculture, identifying any previous and current aquaculture projects and their associated successes, failures and lessons learned.

### 1.3 Overview of the Undertaking

The intent of the overview is to identify the key project components, rather than a detailed description of the project, which will follow under section 2.0. The proponent shall briefly summarize the project by presenting the project components (hatchery, transfer to seafarms, seafarms, and transport to processing plant), associated activities, scheduling details, timing of each phase of the project and other key features. If development of the project will follow a phased approach, information about the incremental and phased development of the project, including the timing of each phase of the project, shall be described. Any restrictions that will be imposed by regulatory agencies regarding the maximum quantity of eggs to be imported to hatchery and the maximum quantity of smolt to be transferred to sea cages at the start-up of operations and at specific intervals throughout the project, shall be defined.

### 1.4 Purpose of the EIS

The purpose of the EIS is to identify the important environmental effects associated with the project, to identify measures to mitigate against any adverse effects, to determine the significance of residual environmental effects, and to consult with the public and respond to public concerns. The environmental effects and mitigations associated with the project are subject to a comprehensive evaluation through the licensing and permitting processes and regulatory oversight of federal and provincial government agencies, including Fisheries and Oceans Canada, the Canadian Food Inspection Agency, and the Department of Fisheries and Land Resources. Information provided in the EIS shall not be considered as redundant, but rather shall be used to inform other regulatory processes.

## **2.0 THE PROPOSED UNDERTAKING**

### **2.1 Study Areas**

The EIS shall contain a description of the geographical setting in which the project will take place. Aerial images of all proposed project sites shall be provided, including the land-based hatchery and sea cages. A precise description of the boundary of the project shall be presented in relation to the study area for each valued ecosystem component (VEC), accompanied by maps of appropriate scale showing the entire project area with principle structures and appurtenant works. Maps shall be of a scale of 1:30,000 or larger (e.g. 1:20,000). The delineation of the study areas is crucial to scope the extent of the environmental assessment. The rationale used to delineate the boundaries of the study area shall be provided. This description shall focus on those aspects of the project and its setting that are important in order to understand the potential environmental effects of the project, including the following information:

- a) current land and marine use in the area including the locations of the nearest temporary and permanent dwellings, commercial and industrial sites, scheduled salmon rivers, commercial and recreational fishing areas, and navigation routes;
- b) the environmental significance and value of the geographical setting in which the project will take place, and the surrounding area;
- c) environmentally sensitive areas, such as national, provincial, and regional parks and reserves; ecologically and biologically significant areas (EBSA); estuaries, rivers, and habitats of federally or provincially listed species at risk; and other sensitive areas;
- d) a description of local communities, including any sewage effluent and/or other water discharges that may adversely affect the project;
- e) a description of the hatchery site and landing site for transferring smolt to the well boat;
- f) a description of the sea-cage sites and navigation routes: from the hatchery to the sea-cage sites; between the sea-cage sites; and from the sea-cage sites to the fish processing facility; and
- g) delineation of the four proposed BMAs and a description of the process that leads to the approval and designation of BMAs by the Department of Fisheries and Land Resources.

An overview map/ image shall be provided clearly depicting the proximity of the study area in relation to the above-noted features.



## 2.2 Rationale for the Undertaking

The EIS shall describe the need, purpose, and rationale for the undertaking, including but not limited to opportunities that the project is intended to satisfy, as well as the potential markets for farmed salmon. If the objectives of the project are related to broader private or public sector policies, plans or programs, this information shall also be included.

The need for the project refers to a problem or opportunity that the proposed project is intending to solve or satisfy, and establishes the fundamental justification or rationale for the project. The purpose of the project is defined as what is to be achieved by carrying out the project. The need for and purpose of the project should be established from the perspective of the proponent and provide the context for the consideration of alternatives.

## 2.3 Project Description

The proponent shall describe the scope of the project for which the EIS is being conducted including: the construction, operation, maintenance, and foreseeable modifications of all project-related facilities; and the closure, decommissioning and rehabilitation of project sites.

### 2.3.1 *General Layout*

The EIS shall provide a written and graphic description (e.g. maps and drawings) of the following physical features of the undertaking:

- a) the land-based hatchery facility and associated buildings, outdoor structures, and landing-site infrastructure;
- b) infrastructure for the water supply, waste management, and energy supply for hatchery;
- c) construction sites and storage areas for the hatchery and seafarms;
- d) roads to access the coastline for each seafarm;
- e) infrastructure associated with the well-boat landing site at the hatchery; and
- f) layout of each cage site depicting and describing infrastructure and equipment within each seafarm, including sea cages, moorings, ropes, floating platforms, and transportation equipment.

### 2.3.2 Construction

Details of materials, methods, schedule, and locations of all on-land and in-water construction activities (including permanent and temporary infrastructure related to physical features) shall be described, including, but not limited to, the following:

- a) construction schedule, including time-frames for site clearing and preparation, construction of hatchery, and construction of seafarms;
- b) details of site preparation, driveway/access road construction, and/or culvert installation at hatchery and seafarms (should road access to adjacent coastal areas for BMAs be required);
- c) identification of excavation and borrow pits ( if required) and planned rehabilitation;
- d) erosion and sediment control;
- e) details of sea-cage installation, placement of moorings, ropes and collars, installation equipment and vessels, work in water and the presence of temporary and permanent structures;
- f) in-filling and dredging activities and infrastructure to be built and/or upgraded in association with the project;
- g) any intention to dispose of dredged material at sea shall be described and may require a permit under the Canadian Environmental Protection Act;
- h) all heavy equipment to be used in the hatchery and seafarm construction and an estimate of all emissions during construction;
- i) personnel requirements for each phase and component of construction, including projected workforce by month, employment equity, hiring practices, journeypersons, apprentices, students, local preference, etc. The previously approved Workforce Employment Plan and Women's Employment Plan may be referenced here and included as appendices;
- j) transport, storage, and use of all hazardous materials, fuels and lubricants;
- k) all liquid and solid waste expected to be generated by construction of the hatchery, seafarms, and any other project-related construction, and methods to reduce, reuse, recycle, recover, and/ or manage residual wastes through disposal; and
- l) measures that will be undertaken to rehabilitate and stabilize construction sites.

### 2.3.3 *Operation and Maintenance*

All aspects of the operation and maintenance of the undertaking shall be detailed in this section of the EIS, including but not limited to the following:

- a) a description of the operating procedures and equipment associated with the hatchery, including identification of the eggs source, transport of the eggs from the source to the hatchery, and activities associated with rearing the smolt;
- b) description and details of each phase of the development (if the project will be developed in phases);
- c) description of any regulatory restrictions related to the incremental development of the project, requiring the proponent to demonstrate that the project is being conducted in an environmentally acceptable manner prior to increasing production;
- d) number of eggs to be imported annually, schedule of importations, and estimated annual mortalities at hatchery;
- e) standard operating procedures for triploid induction and verification from the egg-supplying facility (as recommended in DFO 2016);
- f) standard operating procedures for verification of health and sex of eggs from the egg-supplying facility (e.g. disease free, no passengers, all-female);
- g) identification of cleaner fish supplier, standard operating procedures for verification of health of cleaner fish, and transport of cleaner fish to seafarms;
- h) proposed hatchery water source and use for all potable and non-potable purposes, including the required water quality for the desired use and any treatment needed to meet the required water quality;
- i) operational water withdrawal from groundwater and any other sources;
- j) planned stocking densities for the hatchery and sea cages, including maximum densities at peak production and estimated mortalities at seafarms per production cycle;
- k) procedures and equipment associated with the operation of the seafarms;
- l) procedures and equipment associated with escape management and recapture;
- m) procedures and methods for the transfer of smolt from the hatchery to the sea cages;
- n) procedures and methods for the transport of personnel and equipment to the sea-cage sites;
- o) procedures and equipment associated with the grow-out of smolt at the seafarms;
- p) procedures and equipment for administering, and/or disposing of food, antibiotics, anesthetics, vaccines, pesticides, and disinfectants at the hatchery and seafarms;

- q) type of feed and feed schedule for entire growth cycle including annual totals for production tonnage and projected economic feed conversion ratio (eFCR) for all production sites;
- r) procedures and methods for the transfer of farmed salmon and cleaner fish to the fish processing facility;
- s) procedures for cleaning, disinfecting, and maintaining all equipment and infrastructure associated with the hatchery, seafarms, and navigation equipment, including cleaning, disinfection and maintenance schedule, and disposal of cleaning and disinfection products or materials;
- t) description of all liquid and solid waste expected to be generated by the hatchery, seafarms, and transfer operations and waste management methods;
- u) method(s) for collection and transfer of any mortalities from sea cages;
- v) procedure for fish euthanasia, should it be required (all chemicals/anesthetics used for this purpose shall be included in the list of substances, agents or chemicals described in x, below);
- w) a list of all substances, agents or chemicals to be used, including those that will be used regularly and routinely and those that will be required less frequently, the purpose of each chemical, agent or substance, the specific project stage in which it will be used, how it will be administered, the estimated quantity or rate of use, and final disposal of the chemical, agent or substance. This list shall include, but not be limited to the use of antibiotics, vaccines, anesthetics, disinfectants, pesticides and chemicals at the hatchery facility or the seafarms. The list of substances, agents and chemicals previously submitted to and approved by Health Canada can be referenced here and provided as an appendix; however, additional information must be included to describe rates and methods of application;
- x) a commitment to consult with the Department of Municipal Affairs and Environment, the Department of Fisheries and Land Resources, Health Canada, Environment and Climate Change Canada and Fisheries and Oceans Canada prior to using any pesticide or drug that is not included in the list of substances, agents or chemicals provided in the EIS, for confirmation that the substance, agent, or chemical has been approved for use in Canada;
- y) procedures for the authorization, use, and reporting of pesticides and therapeutants;
- z) storage and management of all hazardous materials associated with the undertaking, including estimated maximum quantities of each chemical on-site;
- aa) estimation of all significant emissions during operation, including but not limited to the hatchery exhaust emissions;
- bb) a description of health and safety, fire-fighting, emergency response and site security equipment and procedures at the hatchery, on transport vessels and at the seafarms;

- cc) description of policies, controlled activities and biosecurity protocols associated with the hatchery and sea cages; and
- dd) personnel requirements for each phase and component of operations, including projected workforce by month, employment equity, hiring practices, journeypersons, apprentices, students, local preference, etc. The previously approved Workforce Employment Plan and Women's Employment Plan may be referenced here and included as appendices.

#### *2.3.4 Decommissioning and Rehabilitation*

The EIS shall predict the lifespan of the undertaking and present an approach for decommissioning, which sets out a commitment from the proponent to address:

- a) removal of all fish and fish product, waste and waste water, hazardous chemicals, equipment and infrastructure associated with the hatchery and seafarms, for treatment, reuse, recycling, recovery, and/or management of residual waste in an approved manner;
- b) restoration of aquatic habitat in the study area to its natural, pre-project state;
- c) cleaning of the hatchery facility and equipment, navigation vessels, floating platforms, and equipment associated with the seafarms; and
- d) plans for selling, demolishing, or converting the hatchery facility to another use.

#### *2.3.5 Regulatory Framework and Government Oversight*

The proponent shall provide a comprehensive list of permits and regulatory approvals (municipal, provincial, and federal) required for the undertaking. The list shall include the following details:

- activity requiring regulatory approval;
- name of permit, license or regulatory approval;
- name of legislation applicable in each case; and
- regulatory agency responsible for each permit, license, and approval.

The EIS shall identify:

- a) government policies, resource management plans, and planning or study initiatives pertinent to the project and/or the environmental assessment;
- b) any relevant land use plans, land zoning, or community plans; and

- c) regional, provincial, and/or national objectives, standards, codes and/or guidelines that have been used by the proponent to assist in the development of the EIS.

### **3.0 ALTERNATIVES**

#### **3.1 Alternatives to the Undertaking**

The EIS shall include a detailed analysis of the advantages and disadvantages to the environment of the undertaking as proposed; an analysis of the alternatives to the undertaking; and a summary with clearly described methods and sufficient information to justify the selection of the preferred alternative, as well as an explanation for rejecting other alternatives. This section shall include a comparative analysis of the environmental effects and technical and economic feasibility of alternatives that led to the selected project alternative. The proponent shall consider describing:

- a) functionally different methods of meeting the project need and achieving the project purpose; and
- b) market and regulatory circumstances that may have influenced the preferred alternative.

#### **3.2 Alternative Methods of Carrying Out the Undertaking**

The EIS shall identify and consider the environmental effects of alternative methods of carrying out the undertaking that satisfy the need for the undertaking. The preferred alternatives shall be identified, with the selection based on clearly described methods. An explanation shall be included of how environmental factors affect the design and consideration of alternatives.

The proponent shall provide the rationale for selecting project components and shall discuss the state of the art of the various technologies being proposed. The proponent shall indicate known experience with, and effectiveness and reliability of the equipment, techniques, procedures, and policies, for each alternative, particularly under arctic or subarctic conditions in Canada and elsewhere, and their relation to best practice in Newfoundland and Labrador.

The EIS shall analyze and compare the design alternatives for the project in relation to their environmental and social costs and benefits, including those alternatives which cost more to build and/or

operate but which cause less harmful environmental effects. The range of alternatives considered for the annual production and scale of the operation shall be discussed, and the chosen alternative justified.

In describing alternative means of carrying out the project, the proponent may consider, but not be limited to, a discussion of the following:

- a) the selection of the province of Newfoundland and Labrador, and Placentia Bay for the project location;
- b) selection of eggs for hatchery (native/ non-native, diploid, triploid, all female, mixed sex triploid);
- c) hatchery operation (recirculation versus flow- through);
- d) seafarm operation (land-based versus marine-based);
- e) cage design;
- f) methods of cleaning and disinfecting sea cages, marine equipment, and marine transportation vessels;
- g) use of pesticide and drugs;
- h) method(s) of euthanasia, if required;
- i) solid and effluent waste management methods;
- j) routes and means for fish transport to sea cages and processing facility;
- k) routes and means for transport of employees, equipment, and supplies to seafarms; and
- l) means of administering food, anesthetics, vaccines, antibiotics, and pesticides to smolts and grow- outs.

It is not intended that the proponent should describe all of the alternatives listed above, but to select those that have greater importance for the environmental assessment of the project.

## **4.0 ENVIRONMENT**

### **4.1 Key Issues**

To better focus the EIS, the proponent shall identify the key issues related to the project. The issues can be revised and adjusted in relation to the information acquired in the field and during consultations held by the proponent in the preparation of the EIS.

The following factors shall be considered in the selection of key issues:

- preserving the genetic integrity and biological fitness level of wild Atlantic salmon;
- preserving aquatic animals and their habitat in the study area;
- mitigating the release of deposits from seafarms to BMAs and navigation corridors, including chemicals, disinfectants, therapeutants, pathogens, parasites, and fuels;
- mitigating environmental effects on farmed salmon, such as the transfer of parasites and pathogens from wild to farmed salmon; and
- the economic, cultural, and social significance of the wild Atlantic salmon.

The ensuing sections focus on the components relevant to the key issues and effects of the project.

#### 4.2 Existing Environment

The EIS shall describe relevant aspects of the existing environment prior to implementation of the project, which constitute the reference state of the environment. Using qualitative and quantitative surveys, this section shall include a description of the existing bio-physical and socio-economic environment that will be affected or might reasonably be expected to be affected, directly or indirectly, by the undertaking with emphasis on the valued ecosystem components (VECs). If the information available from government or other agencies is insufficient or no longer representative, the proponent shall complete the description of the environment by conducting original surveys and research according to generally accepted practices. The EIS shall provide all of the information required to understand or interpret collected data (methods, survey dates and times, weather conditions, location of sampling stations, etc.). The methods used should be sufficient for the purposes of identifying and assessing the environmental effects (e.g. the Aquaculture Activities Regulations for baseline assessment).

Where appropriate and possible to do so, the proponent shall present a time series of data and sufficient information to establish the averages, trends, and extremes of the data that are necessary for the evaluation of potential environmental effects. For key environmental and social components, the proponent should consider how far back in time and how far into the future the study should be conducted. Rationale for the temporal boundaries chosen should be provided.

The proponent shall describe environmental interrelationships and sensitivity to disturbance. If the study results or data has been extrapolated or otherwise manipulated to depict environmental conditions in the



study area, modeling methods and equations shall be described with calculations of margins of error and/or confidence limits or degree of uncertainty clearly identified.

A description of the existing environment shall be developed for each alternative, drawing specific reference to the VECs. Detailed descriptions shall be developed for the following environmental components:

- Atmospheric environment;
- Aquatic environment;
- Terrestrial environment;
- Land and resource use;
- Heritage resources;
- Communities; and
- Economy, employment, and business.

VECs for each environmental component shall be described.

#### *4.2.1 Atmospheric Environment*

The proponent shall describe the relevant components of the atmospheric environment within the study area of the VECs, including the following:

- a) Climate and meteorology, including monthly and annual minimum, maximum and mean values for precipitation, temperature and wind speed, prevailing wind direction, and storm events;
- b) Indications of recent climate change observations and trends;
- c) Existing sources of greenhouse gas emissions near the proposed project area including emissions from marine vessels and platforms, and the hatchery operations; and
- d) Existing ambient noise level.

#### *4.2.2 Aquatic Environment*

The proponent shall describe the relevant components of the aquatic environment within the study area of the VECs, including the following:

- a) Hydrological features such as the location of rivers and river inputs in Placentia Bay;
- b) Ocean currents, wind and wave action, flood and tidal zones, ice dynamics, and storm patterns;

- c) Bathymetry and substrate characterization;
- d) Biological diversity, composition, abundance, distribution, population dynamics, and habitat utilization of aquatic species, including fish, semi-aquatic species and marine mammals;
- e) Species of special interest (including invasive species) or conservation concern (including Atlantic salmon) and their habitat, with an emphasis on rare, vulnerable, or threatened species (e.g. species listed in the *Endangered Species Act* or the *Species at Risk Act*);
- f) Description of the features that led to the designation of Placentia Bay as an EBSA within the Placentia Bay Grand Bank Large Ocean Management Area, including details of the biodiversity, composition, abundance, and distribution of ichthyoplankton, marine mammals, corals, and spawning and nursery habitat areas important for fish, avifauna within important bird areas, and any other features that may have been considered in this designation; and
- g) Water quality and benthic characteristics in the study area, including a description of sampling locations, sampling frequency, sampling parameters, and regulatory thresholds consistent with the baseline monitoring requirements of the provincial aquaculture licensing process and Aquaculture Activities Regulations under the Fisheries Act.

#### 4.2.3 *Terrestrial Environment*

The proponent shall describe the relevant components of wetlands and the terrestrial environment within the study area of the VECs, including the following:

- a) Wetlands and wetland values including a characterization of wetlands (fens, marshes, peatlands, etc.), including the location and extent of wetlands likely to be affected by project activities according to their size, type (class and form), a description of their ecological function (ecological, hydrological, wildlife, socio-economic, etc.) and species composition;
- b) Surface-water flow, groundwater movement and aquifer recharge zones;
- c) Hydrogeologic assessment of the water-supply well for the hatchery, including all testing results for quantity and quality, including metals;
- d) Groundwater monitoring plan to ensure the long-term security of the groundwater supply well;
- e) Terrestrial fauna, including mammals, migratory avifauna, waterfowl, gulls, terns and shorebirds;
- f) Terrestrial flora, including ecological land classifications;
- g) Species and areas of conservation concern (e.g. Endangered Species Act, Species at Risk Act); and
- h) Human-wildlife interaction.

#### 4.2.4 *Land and Resource Use*

The proponent shall describe relevant land- and resource-use within the study area of the VECs, including the following:

- a) Existing and potential commercial, recreational, and Indigenous fisheries;
- b) Tourism operators, outfitters camps, cabins, and recreational activities (e.g. boating, swimming diving, etc.) within and/or adjacent to the study area;
- c) Marine navigation (e.g. commercial and recreational boat traffic);
- d) Unique sites or special features in the study area, environmentally sensitive areas, reserves, or protected areas, conservation agreement lands and habitat enhancement projects; and
- e) Landscapes, including effects of the project on aesthetics.

#### 4.2.5 *Heritage Resources*

The proponent shall describe relevant cultural heritage resources in the study areas of the VECs, including the following:

- a) Historic and archaeological resources;
- b) Paleontological resources;
- c) Architectural resources; and
- d) Burial, cultural, spiritual and heritage sites.

#### 4.2.6 *Communities*

The proponent shall describe relevant community elements in the study areas of the VECs, including the following:

- a) Communities, industries, and population demographics;
- b) Health services and social programs;
- c) Family life, recreation, and culture;
- d) Education and training facilities and programs; and
- e) Housing, accommodations, and property values.

#### 4.2.7 *Economy, Employment and Business*

The proponent shall describe relevant economy, employment and business elements in the study areas of the VECs, including the following:

- a) Economy of the Burin Peninsula and of the province;
- b) Employment on the Burin Peninsula and in the province;
- c) Availability of skilled and unskilled labour on the Burin Peninsula and in the province;
- d) Business capacity relative to goods and services;
- e) Employment equity and diversity including under-represented groups; and
- f) Eco-tourism opportunities relative to recreational fishing and outfitters camps.

#### 4.3 Component Studies

Component Studies shall address baseline data requirements to support the evaluation of environmental effects and/or to develop mitigation measures and follow up monitoring programs. Component Studies shall be prepared for at least the following VECs, including:

##### 4.3.1 *Wild Atlantic Salmon*

The component study shall provide a detailed description of the status of wild Atlantic salmon in the Southern Newfoundland Designatable Unit (as defined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) 2010), mitigative measures that will be undertaken to protect wild Atlantic salmon from the potential effects of the project, and follow up monitoring that will be conducted to determine the effectiveness of mitigative measures and residual effects. The component study will include, but not be limited to, a discussion of the following features:

- a) a characterization of the distribution, abundance, genetic population structure, morphology, health, and fitness of wild Atlantic salmon in the waters of Placentia Bay;
- b) genetic and ecological interactions of farmed salmon escapees on wild Atlantic salmon populations;
- c) a literature review of the effects of sea lice and disease from farmed salmon on wild Atlantic salmon populations;
- d) proximity of the sea cages to streams, rivers, and freshwater inputs and the potential effects of disease from farmed fish on migrating juvenile wild Atlantic salmon;

- e) oceanographic and meteorological data at the sea-cage sites including water currents, wind and wave action, flood and tidal zones, ice dynamics, and storm patterns;
- f) aquatic dispersion modeling to examine the effects of feed, feces, therapeutants, disinfectants, disease pathogens and parasites, and fuels from sea cages on surrounding receptors, including but not limited to receptors in nearby rivers, streams and salmon migration corridors.

#### *4.3.2 Impacts of the Project on Fish and Fish Habitat*

The component study shall provide a detailed description of the status of fish and fish habitat in the project area, mitigative measures that will be undertaken to protect these components from the potential effects of the project, and follow up monitoring that will be conducted to determine the effectiveness of mitigative measures and residual effects. The component study will include, but not be limited to, a discussion of the following features:

- a) biological diversity, composition, abundance, distribution, and population dynamics of fish and fish habitat at the sea-cage sites, including, but not limited to cod, lobster, crab, green crab, eel grass, sponges, marine mammals, species at risk, and features that led to the designation of Placentia Bay as an EBSA;
- b) oceanographic and meteorological data at the sea-cage sites including water currents, wind and wave action, flood and tidal zones, ice dynamics, and storm patterns; and
- c) aquatic dispersion modeling to examine the potential effects of sea-cage deposits on fish and fish habitat.

#### *4.3.3 The Cultural, Recreational and Commercial Importance of the Waters of Placentia Bay*

The component study shall provide a detailed description of the cultural, recreational and commercial usage of Placentia Bay, mitigative measures that will be undertaken to protect these uses from the potential effects of the project, and follow up monitoring that will be conducted to determine the effectiveness of mitigative measures and residual effects. The component study will include, but not be limited to, a discussion of the following features:

- a) Existing and potential recreational, commercial, and Indigenous fisheries;
- b) Tourism operators, outfitters camps, cabins, and recreational activities (e.g. boating, swimming, diving, etc.);
- c) Marine navigation (e.g. commercial and recreational boat traffic); and

- d) Unique sites or special features in the study area, environmentally sensitive areas, reserves or protected areas, conservation agreement lands, and habitat enhancement projects.

#### 4.3.4 *Aqualine Midgard Sea-Cage Study*

The proponent shall contract an independent panel of experts within the province of Newfoundland and Labrador to analyze and evaluate the proposed Aqualine Midgard sea-cage design and technology. The study shall include, but not be limited to:

- a) a summary of the successes, failures, and lessons learned from Midgard cage system installations at marine aquaculture sites in Northern environments;
- b) results of structural and operational tests conducted for/by the panel of experts on the Midgard cage system, and a synopsis of test results and conclusions for any previous structural and operational tests conducted on the cage system;
- c) the application of oceanographic and meteorological data to model the performance of the sea cages in the study area;
- d) a description of the proposed Aqualine Midgard cage system, which has been designed against a Norwegian technical standard that has been viewed as effective at reducing escape incident rates in other jurisdictions; and
- e) evaluation of the Norwegian technical standard in comparison to current containment practices and standards in Newfoundland and Labrador, with a view to confirming the integrity of the proposed system in the Newfoundland marine environment.

Component studies generally have the following format: i) Rationale/Objectives, ii) Study Area, iii) Methodology, and iv) Study Outputs.

##### i. Rationale/Objectives

In general terms, the rationale for a component study is based on the need to obtain additional data to determine the potential for significant effects on a VEC due to the proposed undertaking, and to provide the necessary baseline information for monitoring programs.

ii. Study Area

The boundaries of the study area shall be defined depending on the characteristics of the VEC being investigated.

iii. Methodology

Methodology shall be proposed by the proponent, in consultation with resource agencies, as appropriate. The methodologies for each component study shall be summarized in the EIS.

iv. Study Outputs

Study outputs shall be proposed by the proponent. Information and data generated shall be sufficient to adequately predict the effects of the undertaking on the VEC.

Where new information becomes available as a result of baseline studies, additional component studies may be required.

## **5.0 DATA GAPS**

Information gaps from a lack of previous research or practice shall be described indicating baseline/information which is not available or existing data which cannot accurately represent environmental conditions in the study area over four seasons. If background data have been extrapolated or otherwise manipulated to depict environmental conditions in the study area, modeling methods and equations shall be described and shall include calculations of margins of error and/or confidence limits.

## **6.0 ENVIRONMENTAL EFFECTS**

### **6.1 Predicted Future Condition of the Environment if the Undertaking Does Not Proceed**

The EIS shall describe the predicted future condition of the environment within the expected life span of the project, if the project were not to proceed. The predicted future condition of the environment shall

help to distinguish project related effects from environmental change due to natural processes and shall include a discussion of Atlantic salmon populations and climate change. The socio-economic environment to be described will undergo change regardless of the project. The analysis shall consider the current hatchery capacity for salmon aquaculture in the province and likely trends in the area in the absence of the project, given available information about other planned major projects or social, economic, or institutional changes within the time frame of the project.

## 6.2 Predicted Environmental Effects of the Undertaking

The EIS shall contain a comprehensive analysis of the predicted environmental effects of each project alternative for the VECs. If the effects are attributable to a particular phase of the project (construction, operation, and/or maintenance), or to a particular component (hatchery, sea cages, navigation corridors), then they should be designated as such. Predicted environmental effects (positive and negative, direct and indirect, and short and long-term) shall be defined quantitatively and qualitatively for each project alternative and for each VEC. Environmental-effects predictions shall be explicitly stated and the theory or rationale upon which they are based shall be presented in terms of the following parameters:

- nature;
- magnitude (qualitative and quantitative);
- geographic (spatial) extent;
- timing, duration and frequency;
- degree to which effects are reversible or mitigable;
- ecological context;
- level of knowledge;
- the capacity of renewable resources that are likely to be significantly affected by the project, to meet the needs of present and future generations;
- the extent to which biological diversity is affected by the project; and
- the extent of application of the precautionary principle to project mitigation measures.

Environmental effects of the project shall include, but not be limited to a comprehensive analysis of the following:

- a) direct and indirect genetic and ecological interactions between escaped sterile triploid and potential non-sterile European-strain salmon on wild Atlantic salmon, including potential health and fitness effects;



- b) potential effects of cleaner fish (i.e. lumpfish) escapees on the aquatic environment, including direct and indirect genetic and ecological interactions of cleaner fish escapees on wild local conspecifics;
- c) the effect of any differences in endemic pathogen susceptibility;
- d) effects of the project on commercial, recreational and Indigenous fisheries;
- e) effects of the project on tourism operators, outfitters camps, cabins, and recreational activities (e.g. boating, swimming, diving, etc.);
- f) potential effects of the project on features that led to the designation of Placentia Bay as an EBSA;
- g) effects of the project on water quality and benthic characteristics;
- h) effects of the project on wetlands;
- i) effects of increasing salmon hatchery capacity in the province;
- j) effects associated with the handling of mortalities from operations; and
- k) greenhouse gas emissions.

### 6.3 Accidents and Malfunctions

The proponent will identify and describe the potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including the potential environmental effects), the worst case scenarios as well as emergency scenarios that can reasonably be expected to occur, and the effects of these scenarios. The proponent will explain the potential quantity, mechanism, rate, form, and characteristics of the deposits and other materials likely to be released into the environment during the malfunction and accident events. Potential accidents and malfunctions may include, but not be limited to the following occurrences:

- a) escapes of farmed salmon into the surrounding environment;
- b) mass mortality at sea farms due to super chill or any other factor, and associated waste management;
- c) mass mortality at hatchery, and associated effluent and solid waste management;
- d) spills of food, therapeutants, disinfectants and other chemicals, fuels and hazardous materials on-land and/or in-water;
- e) failure of water supply and/or power supply at the hatchery;
- f) lost/estranged gear and equipment; and
- g) other project components or systems that have the potential, through accident or malfunction, to adversely affect the natural environment.

The proponent shall assess the likelihood of occurrence and consequence severity of the accidents and malfunctions. The EIS shall include a detailed Emergency Response and Contingency Plan describing measures that will be undertaken to reduce the effects and/ or consequences of an accident or malfunction, should it occur.

#### 6.4 Cumulative Environmental Effects

The proponent shall identify and assess the project's cumulative environmental effects. Cumulative effects are defined as changes to the environment and resident species in the area due to the project and combined with the effects of past, present, and planned projects and/or activities. The proponent shall consider the cumulative environmental effects of the project where those overlap with those of other projects and activities within or near the study area, and shall:

- a) identify and justify the environmental components that will constitute the focus of the cumulative effects assessment, including but not limited to, other aquaculture projects, sewage outfalls, industrial operations, marinas, sawmills, cottages and proposed developments. The proponent's assessment should emphasize the cumulative effects on the main VECs that could potentially be most affected by the project. Consideration should be given, but not limited to, endangered or valued wildlife (including fish), and endangered or valued aquatic habitat;
- a) present a justification for the geographic and temporal boundaries of the cumulative effects assessment;
- b) describe and justify the choice of projects and selected activities for the cumulative effects assessment; and
- c) describe the mitigation measures and determine the significance of the residual cumulative effects.

#### 6.5 Effects of the Environment on the Project

Environmental changes and hazards that may occur and may affect the project shall be described (e.g. wind, ocean currents, waves, storm surges and destruction, algal blooms, severe precipitation events, flooding, ice, and super chill). The EIS shall take into account the potential influence of climate change scenarios (e.g. sea level rise, increased severity and frequency of storms and flooding), as well as local knowledge. The influence that these environmental changes and hazards may have on the project shall be predicted and described. The environmental effects that may occur as a result of the environment acting on the project shall be assessed.

## 7.0 ENVIRONMENTAL PROTECTION

### 7.1 Mitigation

The EIS shall identify and discuss proposed measures that will be implemented to mitigate the significant adverse effects and enhance beneficial effects of the project. The rationale for and effectiveness of the proposed mitigation and enhancement measures should be discussed and evaluated. The proponent, where possible, should refer to similar situations where the proposed mitigation has proven to be successful. Mitigation failure should be discussed with respect to risk and severity of consequence.

The proponent shall identify who is responsible for the implementing the mitigative measures and the system of accountability, including the obligations of contractors and subcontractors. Mitigation measures shall be described for construction, operation, maintenance, modification, and decommissioning activities associated with the hatchery, seafarms, and transport corridors and shall include, but not be limited to, the following:

- a) procedures that will be undertaken to monitor sea cages for structural integrity on a routine basis during operations, including frequency of monitoring as per the requirements of the Code of Containment;
- b) procedures that will be undertaken to prevent and respond to low level and mass escapes and procedures for recapture of escapees;
- c) procedures that will be undertaken to identify potential predators (including migratory birds), and to protect caged salmon from predators;
- d) procedures that will be undertaken to minimize the risk of capture or harm to commercially important species (i.e. large pelagics) and marine mammals from the sea cages and project equipment;
- e) procedures that will be undertaken to minimize the genetic consequences of wild Atlantic and farmed salmon interactions, such as the use of all-female triploid salmon;
- f) procedures that will be undertaken to increase confidence in the triploidy of eggs. An alternative sampling protocol with appropriate sample sizes and levels of significance needs to be established to confirm the acceptable triploid induction level;
- g) confirmatory triploid validation testing prior to authorization of entry to sea cages;
- h) diagnostics to be performed on all stock prior to transfers occurring into and around the province in order to minimize the risk of disease and passenger transfer;

- i) procedures that will be undertaken to regularly sample fish health through all life stages prior to authorization of entry to sea cages;
- j) the application of commercial rations of triploid specific nutrition and improvements in husbandry and genetics to improve triploid growth rates and decrease incidences of cataracts and skeletal deformities in post-smolts;
- k) methods that will be adopted to recover and minimize excess feed such as the use of feed tables, calculations to optimize feed use, pellet size, feed cameras, or other electronic feedback systems;
- l) procedures that will be undertaken to prevent the spread of disease within a sea cage and/or seafarm, and to the surrounding aquatic environment;
- m) procedures that will be undertaken to prevent the spread of disease from wild Atlantic salmon to the farmed stock;
- n) procedures that will be undertaken to protect the aquatic habitat beneath and surrounding the seafarms from the effects of deposits (e.g. excess food, fecal matter, antibiotics, vaccines, anesthetics, pesticides, and disinfectants), including, but not limited to; a description of the monthly minimum water depth below the bottom of net cages at low tide, and a description of planned fallow periods for the seafarms;
- o) procedures that will be undertaken to avoid and protect environmentally sensitive habitat and areas, such as EBSAs, and migration routes and spawning periods for wild Atlantic salmon;
- p) details of site security and bio-security plans at the hatchery and seafarms, including standard operating procedures regarding the travel of vessels, employees and/or equipment between sea-cage sites, from the hatchery to sea-cage sites, and from the sea-cage sites to the fish processing facility;
- q) procedures that will be undertaken to reduce the attraction of sea cages to fish-eating birds;
- r) procedures that will be undertaken to prevent/minimize sedimentation and erosion and to stabilize disturbed shoreline areas during construction and operation of facilities and access roads;
- s) procedures that will be undertaken to minimize project-related greenhouse gas emissions;
- t) procedures that will be undertaken to prevent or minimize deposits in water frequented by fish and/or migratory birds; and
- u) procedures that will be undertaken to avoid, minimize, or as a last resort, compensate for potential loss of wetlands or wetland functions.

Other mitigation measures that were considered may be identified, and the rationale for rejecting these measures explained. The best available technology and best management practices shall be considered. Avoidance of environmental effects through implementation of scheduling and siting constraints and

pollution prevention opportunities shall be considered. Trade-offs between costs and predicted effectiveness of the mitigation measures shall be justified.

## 7.2 Emergency Response/Contingency Plans

The EIS shall include Emergency Response/Contingency Plan outlining procedures to respond to accidents, malfunctions and emergencies, including but not limited to:

- a) accidental spills and/or releases of chemicals, fish feed, therapeutants, pesticides or any potentially hazardous substance on land or in water;
- b) security breach at the hatchery and/or seafarm(s);
- c) mass mortality at the hatchery and/or seafarm(s);
- d) escape and/ or accidental release of smolt and/ or grow-out salmon into the surrounding environment; and
- e) identification of unhealthy fish, parasites, and /or pathogens within or originating from the hatchery and/ or sea cages.

The Emergency Response/ Contingency Plan may be included as an appendix.

## 7.3 Waste Management Plan

The EIS shall include a Waste Management Plan describing the handling, storage and final disposal of all liquid and solid wastes expected to be generated by the project during construction and operation of the hatchery, seafarms and transport, including, but not limited to:

- a) sanitary wastes;
- b) fish waste and fish mortalities, including a description of procedures and mass mortality plans;
- c) chemical waste (e.g. petroleum products, paints, and cleaning products);
- d) operational debris and refuse (e.g. feed bags, pallets, rope, nets, buoys, cage materials, litter, etc.);
- e) blood water from fish harvesting or other operations;
- f) biofouling material (i.e. organisms and matter that accumulates on nets);
- g) nutrient loadings (e.g. fish feed and fish feces);
- h) procedures that will be undertaken to ensure release water from the hatchery, should this be required, conforms to the requirements of the *Environmental Control Water and Sewage Regulations, 2003*; and

- i) details of the anaerobic digesting process for organic solids at the hatchery and analysis procedures to determine the agricultural grade of the soil amendment.

#### 7.4 Environmental Effects Monitoring and Follow-up Program (EEMP)

The EIS shall describe the environmental and socio-economic monitoring and follow-up programs to be incorporated into construction, operation and maintenance activities. The purpose of the follow-up program is to verify the accuracy of the predictions made in the assessment of the effects as well as the effectiveness of the mitigation measures. The duration of the follow-up shall be as long as is needed to evaluate the effectiveness of the mitigation measures. If the EEMP identifies unforeseen adverse environmental effects, the proponent shall commit to adjusting existing mitigation measures, or, if necessary, develop new mitigation measures. The proposed approach for monitoring shall be described and shall include:

- a) the objectives of the monitoring program and a schedule for collection of the monitoring data required to meet these objectives;
- b) the sampling design, methodology, selection of the subjects and indicators to be monitored, and their selection criteria;
- c) the frequency, duration and geographic extent of monitoring, and justification for the extent;
- d) reporting and response mechanisms, including criteria for initiating a response and procedures;
- e) the approaches and methods for monitoring the cumulative effects of the project with existing and future developments in the project area;
- f) procedures to assess the effectiveness of monitoring and follow-up programs, mitigation measures and recovery programs for areas disturbed by the project; and
- g) a communications plan to describe the results of monitoring to interested parties.

The proponent shall consider the development of monitoring plans to describe the following, including, but not limited to:

- a) the performance of the Aqualine Midgard sea cages in the waters of Placentia Bay;
- b) direct and indirect genetic and ecological interactions between escaped triploids and wild Atlantic salmon;
- c) negative impacts on native species and their habitats;
- d) the performance of sea cage triploids in Placentia Bay including growth, survival, health, fitness, and pathogen susceptibility;

- e) a water-quality and benthic monitoring program including a description of sampling locations, sampling frequency, sampling parameters, regulatory thresholds; and a response plan if regulatory thresholds are exceeded, consistent with the baseline and operational monitoring requirements of the provincial aquaculture licensing process and Aquaculture Activities Regulations under the Fisheries Act;
- f) a groundwater-monitoring program to monitor water levels and water quality of the hatchery production well and select monitoring wells, to be developed in consultation with the Water Resources Management Division of the Department of Municipal Affairs and Environment; and
- g) climate and meteorological data in the study area, including monthly and annual minimum, maximum and mean values for precipitation, temperature and wind speed, prevailing wind direction, and storm events.

The proponent shall prepare and submit the EEMP subsequent to the completion of the EIS, but before the initiation of project construction.

## **8.0 RESIDUAL EFFECTS AND DETERMINATION OF SIGNIFICANCE**

Residual effects are those adverse environmental effects which cannot be avoided or mitigated through, or that remain after, the application of environmental control technologies and best management practices.

The EIS shall list and contain a detailed discussion and evaluation of residual effects, which shall be defined in terms of the parameters outlined in section 6.2.

The EIS shall contain a concise statement and rationale for the overall conclusion relating to the significance of the residual adverse environmental effects. The EIS will, for ease of review, include a matrix of the environmental effects, proposed mitigation, and residual adverse effects.

## **9.0 ASSESSMENT SUMMARY AND CONCLUSIONS**

The EIS shall summarize the overall findings of the EA, with emphasis on the key environmental issues identified.

## **10.0 PUBLIC PARTICIPATION**

A public consultation/meeting is required of the proponent during the preparation of the EIS, to present the project proposal and to record public interests and concerns including those received in response to the Registration. These concerns shall be addressed in a separate chapter of the EIS. Protocol for the public meeting shall comply with the legislation and with divisional policy included in Appendix B.

## **11.0 ENVIRONMENTAL PROTECTION PLAN (EPP)**

The proponent shall prepare an EPP for each construction site for approval by the Minister of Municipal Affairs and Environment before starting construction. The EPP shall be a stand-alone document that targets the site foreperson, the proponent's occupational health and safety staff, the proponent's environmental staff and any government environmental surveillance staff. The EPP shall address construction, operation and maintenance activities associated with the project. A proposed Table of Contents and an annotated outline for the EPPs is to be presented in the EIS which shall address the major construction and operational activities, permit requirements, mitigation measures and contingency planning as follows:

- proponent's environmental policies;
- environmental compliance monitoring;
- environmental protection measures;
- mitigation measures;
- permit application and approval planning;
- contingency planning for accidental and unplanned events;
- statutory requirements; and
- revision procedures and contact lists.

The proponent shall prepare and submit the EPP subsequent to the completion of the EIS, and prior to the initiation of the project construction.



## **12.0 REFERENCES**

The proponent shall prepare a complete and detailed bibliography of all studies used to prepare the EIS. Supporting documentation shall be referenced in the EIS and submitted in separate volumes or attached as an Appendix to the EIS.

## **13.0 PERSONNEL**

The names and qualifications of all key professionals responsible for preparing the EIS and supporting documentation shall be included. A description of the qualifications of scientists conducting surveys and scientific studies associated with the undertaking shall be provided.

## **14.0 COMMITMENTS MADE IN THE EIS**

The EIS is a statement of the proponent's environmental conclusions and commitments related to the project, and must be explicitly endorsed by the proponent. The EIS shall provide a list of all commitments made regarding environmental mitigation, monitoring and follow-up. Each commitment must be cross-referenced to the section of the EIS where it has been made.

## **15.0 COPIES OF REPORTS**

The EIS should be prepared according with these guidelines and, once completed, the proponent shall submit printed and electronic copies of the EIS to the Department of Municipal Affairs and Environment as specified below:

- 15 electronic copies (USB drives)
- 15 paper copies

Stand-alone studies associated with the EIS, including component studies, environmental protection plans (EPP) and environmental effects monitoring plans (EEMP) shall be submitted to the Department of Municipal Affairs and Environment in the manner specified above. In addition, the proponent shall make

printed copies of the EIS and the associated stand-alone studies available at public viewing centers in the project vicinity, to be designated by the Department of Municipal Affairs and Environment.

## REFERENCES

Newfoundland and Labrador Environmental Protection Act.

<http://www.assembly.nl.ca/legislation/sr/statutes/e14-2.htm>

Newfoundland and Labrador Water Resources Act.

<http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm>

Newfoundland and Labrador Historic Resources Act.

<http://assembly.nl.ca/Legislation/sr/statutes/h04.htm>

Newfoundland and Labrador Aquaculture Act.

<http://www.assembly.nl.ca/legislation/sr/statutes/a13.htm>

Newfoundland and Labrador Code of Containment for the Culture of Salmonids, 2014.

[http://www.fishaq.gov.nl.ca/aquaculture/public\\_reporting/pdf/Salmonid%20Code%20of%20Containment%202014.pdf](http://www.fishaq.gov.nl.ca/aquaculture/public_reporting/pdf/Salmonid%20Code%20of%20Containment%202014.pdf)

Government of Canada Aquaculture Activities Regulations.

<http://www.laws.justice.gc.ca/eng/regulations/SOR-2015-177/page-1.html>

Government of Canada National Code on Introductions and Transfers of Aquatic Organisms.

<http://www.dfo-mpo.gc.ca/aquaculture/management-gestion/2013-IT-Code-Aug-26-eng.pdf>

Government of Canada Species at Risk Act.

<http://laws-lois.justice.gc.ca/eng/acts/s-15.3/page-1.html>

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. 2016/03.

<http://waves-vagues.dfo-mpo.gc.ca/Library/40610834.pdf>

DFO. 2016. Proposed Use of European-Strain Triploid Atlantic Salmon in Marine Cage Aquaculture in Placentia Bay, NL. DFO Can. Sci. Advis. Sec. Sci. Resp. 2016/034.

[http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2016/2016\\_034-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2016/2016_034-eng.html)

Environment and Climate Change Canada, COSEWIC Assessment and Status Report on the Atlantic Salmon in Canada, 2010.

<https://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=357EF835-1&offset=7>

## APPENDIX A

### *Environmental Protection Act, 2002*

#### **Section 57 - Environmental Impact Statement**

57. An environmental impact statement shall be prepared in accordance with the guidelines, and shall include,

- a) a description of the undertaking;
- b) the rationale for the undertaking;
- c) the alternative methods of carrying out the undertaking and alternatives to the undertaking;
- d) a description of the
  - i. present environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking, and
  - ii. predicted future condition of the environment that might reasonably be expected to occur within the expected life span of the undertaking, if the undertaking was not approved;
- e) a description of the
  - i. effects that would be caused, or that might reasonably be expected to be caused, to the environment by the undertaking with respect to the descriptions provided under paragraph (d), and
  - ii. actions necessary, or that may reasonably be expected to be necessary, to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking;
- f) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking;
- g) a proposed set of control or remedial measures designed to minimize any or all significant harmful effects identified under paragraph (e);
- h) a proposed program of study designed to monitor all substances and harmful effects that would be produced by the undertaking; and
- i) a proposed program of public information.

## APPENDIX B

### Department of Municipal Affairs and Environment Environmental Assessment Division

#### REQUIREMENTS FOR PUBLIC MEETINGS/INFORMATION SESSIONS

---

**Purpose:** To clarify for proponents and the public, the format, scheduling, number, notification requirements, etc. for public consultations in relation to undertakings required under the *Environmental Protection Act, SNL 2002 cE-14.2*, (Section 58) to prepare an Environmental Impact Statement (EIS).

1. The proponent is required to conduct public meeting(s) (information sessions) under an EIS process as specified in the legislation. This requirement shall be specified in the project EIS guidelines.
2. A public meeting shall normally be held in the largest local population centre within the project area. This shall be the minimum requirement. In addition, when demonstrated public interest or concern warrants, additional meetings may be required. This may take the form of additional meetings to be held in major regional or provincial population centres, or possibly additional meetings within the original community. Such requirements are at the discretion of the Minister based on consensus advice from the environmental assessment committee (EAC) chairperson, and based upon public interest as evidenced by public submissions received.
3. The format of the public meeting may be flexible, and the proponent is free to propose a suitable format for approval by the EAC. The format may range from formal public meetings chaired by the proponent or representative with presentations followed by questions and answers, to a less formal open house forum where the public may discuss the proposal with the proponent or representatives. Other formats may be considered by the EAC. The purpose of the public information session is to 1) provide information concerning the proposed undertaking to those who may be affected, and 2) to record the concerns of the local community regarding the undertaking. Any format must meet these objectives.
4. The proponent must ensure that each public meeting is advertised in accordance with the following specified public notification requirements, which shall form part of the project guidelines when appropriate (proponent to substitute appropriate information for italicised items):

**PUBLIC NOTICE**

Public Information Session on the Proposed

*Name of undertaking*  
*Location of undertaking*

shall be held at  
*Date and Time*  
*Location*

This session shall be conducted by the Proponent,  
*Proponent name and contact phone number,*  
as part of the environmental assessment for this Project.

The purpose of this session is to describe all aspects of the proposed project, to describe the activities associated with it, and to provide an opportunity for all interested persons to request information or state their concerns.

**ALL ARE WELCOME**

- Minimum newspaper ad size: 2 columns wide.
- Minimum posted ad size: 10 cm x 12 cm.
- Minimum newspaper ad frequency (to be run in newspaper(s) locally distributed within each meeting area or newspaper(s) with the closest local distribution area):
  - for dailies, the weekend between 2 and 3 weeks prior to each session and the two consecutive days prior to each session, OR
  - for weeklies, in each of the two weeks prior to the week in which the session is to be held.
- Minimum posted ad coverage: In the local Town or City Hall or office, and the local post office, within the Town or City where the meeting is to be held, to be posted continually for not less than 15 days prior to each session. The proponent is advised to request that the ad and/or notice of the meeting be placed on the community web site, for each community within/adjacent to the project study area, to be posted continually for not less than 15 days prior to each session.
- Any deviation from these requirements for any reason must receive the prior written approval of the Minister.
- The proponent must provide the chairperson of the EAC with copies of advertisements and public notices.