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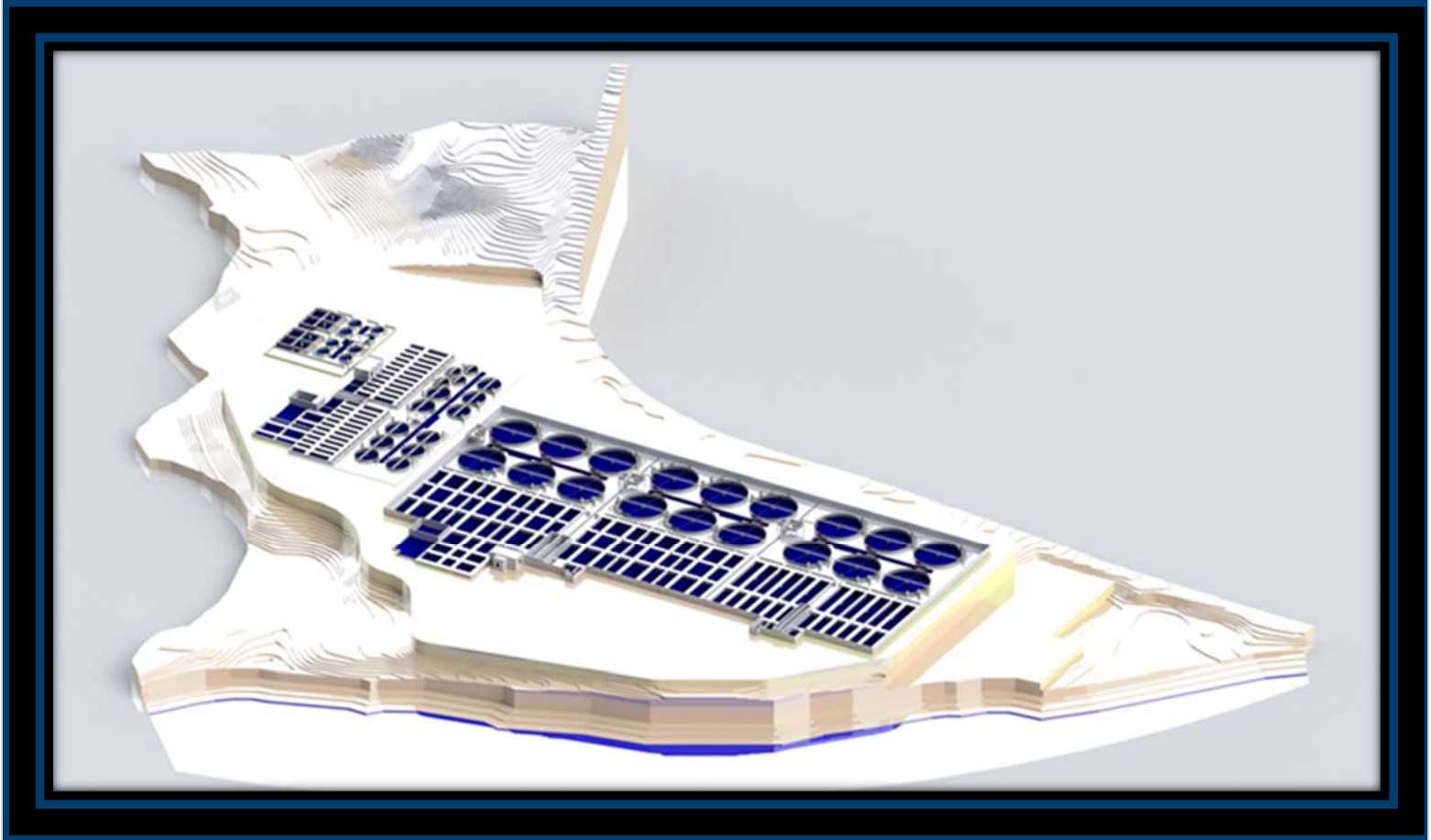

Placentia Bay Atlantic Salmon Aquaculture Project Environmental Protection Plan (EPP): RAS Hatchery Operations

2 October 2020

Suggested format for citation:

LGL Limited. 2020. Placentia Bay Atlantic Salmon Aquaculture Project. Environmental Protection Plan (EPP): RAS Hatchery Operations. LGL Rep. FA0159. Rep. by LGL Limited, St. John's, NL for Grieg Seafood Newfoundland, Marystown, NL. 34 p.

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Preface

Grieg Seafood Newfoundland's Environmental Protection Plan (EPP) for the Placentia Bay Atlantic Salmon Aquaculture Project is a directive document that provides detailed steps to avoid or minimize negative effects on the environment. The EPP covers operation of the Recirculating Aquaculture System (RAS) Hatchery located in Marystown, Newfoundland and Labrador (NL). The responsibilities and procedures presented in this document are designed to ensure the efficacy of the plan and to allow for ongoing updates to the plan to accommodate improvements. This Preface includes overviews of the following:

- Distribution List
- EPP Responsibilities
- EPP Revision Procedures

Distribution List

The EPP will be provided to relevant Grieg Seafood Newfoundland (GSF NL) personnel, contractors, subcontractors, and government agencies designated as having a surveillance responsibility.

GSF NL Personnel

- Managing Director
- Director of Production
- Compliance Manager
- Environment, Health and Safety Advisor
- Owner Representative
- GSF NL Site Manger(s) (Land and Sea) where appropriate

Contractors

- General Manager
- Environment, Health and Safety Manager

Subcontractors

- General Manager
- Environment, Health and Safety Manager

Government Agencies

- Department of Municipal Affairs and Environment (DMAE)
- Department of Fisheries and Land Resources (DFLR)
- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC)
- Transport Canada

EPP Responsibilities

The responsibilities of GSF NL and its employees as well as those of contractors and subcontractors are summarized below.

As the proponent, GSF NL shall:

- Provide approval for the final issued version of the EPP and subsequent revisions.
- Inspect and monitor project activities during operation of the RAS Hatchery.
- Conduct EPP reviews on a regular and as-needed basis.
- Communicate with relevant government agencies and local stakeholders as required.

The GSF NL Environment, Health and Safety (EHS) Advisor or their designated representative(s) shall:

- Be responsible for implementation of the EPP.
- Review and approve revision requests.
- Conduct EPP reviews on a regular and as-needed basis.
- Ensure the most up-to-date version of the EPP is available to all staff which need access
- Ensure the EPP holders and their personnel are familiar with the EPP and its procedures.
- Strive for compliance with all permits, authorizations, and approval conditions; and ensure that appropriate supervisory personnel are on site during project activities as appropriate.

The GSF NL Site Managers or their designated representative(s) shall:

- Distribute revisions to EPP holders.
- Be familiar with all aspects of the EPP.
- Confirm that all activities are conducted in accordance with the EPP.
- Hold an environmental awareness session for each Contractor and its personnel, and other personnel to be involved in the Project.
- Report on the efficacy of the EPP.
- Attend weekly contractor meetings.
- Identify any deficiencies in the plan and propose appropriate changes.
- Direct appropriate contingency actions and enact external notifications procedures in the event of an incident.
- In his or her absence, designate a qualified replacement.
- Manage the environmental inspection and monitoring needed to meet EPP requirements and reporting requirements of GSF NL.

EPP holders shall:

- Keep EPP copy current and enter all revisions on the revision control record.
- Familiarize themselves and their personnel with the EPP and any revisions.
- Initiate changes to improve the EPP.

Contractors, Subcontractors and Site Personnel shall:

- Become familiar with the EPP.
- Become knowledgeable of reporting procedures.
- Comply with the EPP, contract requirements, and applicable laws/regulations.

- Obtain applicable permits, approvals and authorizations in coordination with GSF NL personnel.
- Attend all required EHS training and orientation programs.
- Report all incidents of non-compliance with the EPP.

EPP Revision Procedures

The EPP is a controlled document and revisions may only be made with the approval of GSF NL. EPP users are encouraged to submit suggestions for changes and improvements to the EPP, using the *EPP Revision Request Initiation Form* (see below). Upon receipt of suggestions, and where appropriate, designated GSF NL personnel will prepare a proposed revision to be submitted for approval by GSF NL's EHS Advisor or another designated representative. Approved revisions will be issued to all members of the EPP Distribution List (see above), accompanied by a Revision Control Record (see below), which will provide the EPP section(s) being superseded and revision instructions. Each revision will also be accompanied by an updated EPP Table of Contents.

Within two working days of receiving an approved EPP revision, EPP users are to:

- Confirm all listed pages have been received in accordance with the Revision Control Record;
- Read the revised text;
- Insert the revised pages into the appropriate position within the EPP, and remove and destroy the superseded pages;
- Confirm the EPP document is in accordance with the updated Table of Contents;
- Enter the revision number and date on the Revision Control Record, and sign; and
- Incorporate the revision into Project activities, and ensure all personnel are familiar with the revision.

GSF NL Placentia Bay Atlantic Salmon Aquaculture Project Environmental Protection Plan (EPP)

Revision Request Initiation Form

Name:

Affiliation (Position and Company / Government Department):

Date (D-M-Y):

EPP Section to be Revised:

Nature of Revision (e.g., sewage disposal, noise control, etc.):

Rationale for Revision (e.g., environmental or worker safety, etc.):

Suggested Revision:

Please submit to EHS Advisor, Grieg Seafood Newfoundland at the following address:
205 McGettigan Blvd., Marystown, NL A0E 2M0

Revision Control Record for the EPP

Revision Number	Date (D-M-Y)	Revised EPP Section(s)	Revision Instructions and Source	EPP Holder's Signature
01	22-07-20	All	Update to reflect company name change - Management	
01	22-07-20	Section 4 (4.8, 4.10)	Update text as per new Aquaculture Policies and for discharge and Fluoride – DMAE Request	
02	1-10-20	Section 4 (4.8, 4.10)	Update based on request/recommendations for reverse osmosis and UV treatment - WRMD Request	

List of Acronyms

AAHD	Aquatic Animal Health Division
AAR	Aquaculture Activities Regulations
AP	Aquaculture Policies
BMA	Bay Management Area
BPWMC	Burin Peninsula Waste Management Corporation
CEPA	*Canadian Environmental Protection Act*
CFIA	Canadian Food Inspection Agency
CWS	Canadian Wildlife Service
DAV	Designated Aquaculture Veterinarian
DFLR	Department of Fisheries and Land Resources
DFO	Fisheries and Oceans Canada
DMAE	Department of Municipal Affairs and Environment
DSTI	Daily Safe Task Instruction
ECCC	Environment and Climate Change Canada
EHS	Environment, Health and Safety
EIS	Environmental Impact Statement
EPP	Environmental Protection Plan
FCR	Feed Conversion Ratio
GAP	Gasoline and Associated Products
ID	Identification
ISA	Infectious Salmon Anaemia
MARPOL	Marine Pollution (International Convention for the Prevention of Pollution from Ships)
MSDS	Material Safety Data Sheets
NL	Newfoundland and Labrador
OCI	Ocean Choice International
PLC	Programmable Logic Controller
PPE	Personal Protection Equipment
RAS	Recirculating Aquaculture System
RO	Reverse Osmosis
SARA	*Species at Risk Act*
SOP	Standard Operating Procedures
UV	Ultraviolet
WDF	Water Distribution Facility
WHMIS	Workplace Hazardous Materials Information System

1.0 Introduction

This Environmental Protection Plan (EPP) has been developed by GSF NL to describe environmental protection procedures for activities associated with the operation of the land-based hatchery, which is a key component of the Placentia Bay Atlantic Salmon Aquaculture Project. The hatchery facility, referred to as the Recirculating Aquaculture System (RAS) Hatchery, is located in the Marystown Marine Industrial Park adjacent to Mortier Bay. The EPP has been developed in compliance with a condition of the Project release issued by the provincial Department of Municipal Affairs and Environment (DMAE) at the conclusion of an environmental assessment process. The EPP will serve as a set of instructions for Project-related activities and will detail the various environmental permits and authorizations to be issued by different agencies. Separate EPP documents will be prepared for the construction and operation of the sea cage sites in Placentia Bay.

This GSF NL EPP is considered a living document and will be reviewed and updated on a regular and as-needed basis throughout the various stages of the Project life. Consequently, this is a controlled-distribution document, intended to be maintained in an updated condition by each listed/approved recipient (see Preface for details).

1.1 Purpose of the EPP

The EPP is an important component of overall Project planning and implementation of Project activities. It is considered part of GSF NL's overall Environment, Health and Safety management system (see Section 3).

The EPP is a stand-alone document describing the responsible Project staff and environmental protection procedures for activities associated with the operation of the RAS Hatchery. Environmental protection procedures for the decommissioning and rehabilitation phase of the Project will be developed at a later date. A construction EPP for the RAS Hatchery has been prepared. In addition, the EPP clearly outlines responsible company personnel include front-line workers, occupational health and safety and environmental staff.

This EPP will be used to ascertain that GSF NL's environmental-related commitments are implemented, adhered to, and monitored. The EPP will serve to:

- Provide a record of mitigation measure implementation.
- Provide a functional management framework to ensure regulatory compliance and to identify opportunities for continuous improvement in environmental performance.
- Identify and document compliance with applicable legislation, permits and authorizations associated with each Project phase and ensure adequate communication with government environmental surveillance staff.

1.2 Organization of the EPP

The EPP is organized as outlined below and is designed to address DMAE requirements and to facilitate ease of use. The organization of the EPP follows the outline provided in the GSF NL Environmental Impact Statement (see Section 8.2 of the EIS; LGL Limited 2018) to the extent possible.

Preface – Identifies the distribution list for the EPP and provides document revision and control procedures.

Section 1: Introduction – Lays out the organization of the EPP and overviews the purpose of the document.

Section 2: Overview of the Project – Highlights the key components, location, activities, and timeline for the Project to provide context for the EPP user.

Section 3: Environment, Health and Safety System – Overviews GSF NL's Environment, Health and Safety (EHS) system, the relationship of the EPP to the GSF NL Policy on sustainability; the organization, development and implementation of the EPP; and employee environmental orientation.

Section 4: Environmental Protection Procedures – Details environmental protection procedures to be employed during routine operation activities. This section also includes a summary of key environmental concerns associated with Project activities.

Section 5: Contingency Plans – Provides contingency plans for potential unplanned and accidental events such as spills of fuel or other hazardous material and wildlife encounters.

Section 6: Legislation, Permits and Authorizations – Outlines the legislation, required permits, approvals and authorizations for the operation of the RAS Hatchery.

Section 7: Contact List – Provides emergency, advisory and other contact numbers for corporate personnel, contractors, external resources and regulators.

Section 8: Resource Material – Identifies guidelines and resource material relevant to environmental protection measures, mitigation and monitoring.

2.0 Project Description

The Placentia Bay Atlantic Salmon Aquaculture Project has two primary components: (1) a land-based Recirculating Aquaculture System (RAS) Hatchery located in the Marystown Marine Industrial Park and (2) sea cage sites located in the northern portion of Placentia Bay that will be used to grow the salmon to market size (Figure 2.1). The development of the Project, including construction and operation of the RAS Hatchery and sea farms, will undergo a phased approach before reaching peak production of seven million salmon per year. The RAS Hatchery will be operational in 2020 and reach full production capacity in 2025. The first harvest at peak production at the sea farms is anticipated to occur in 2027.

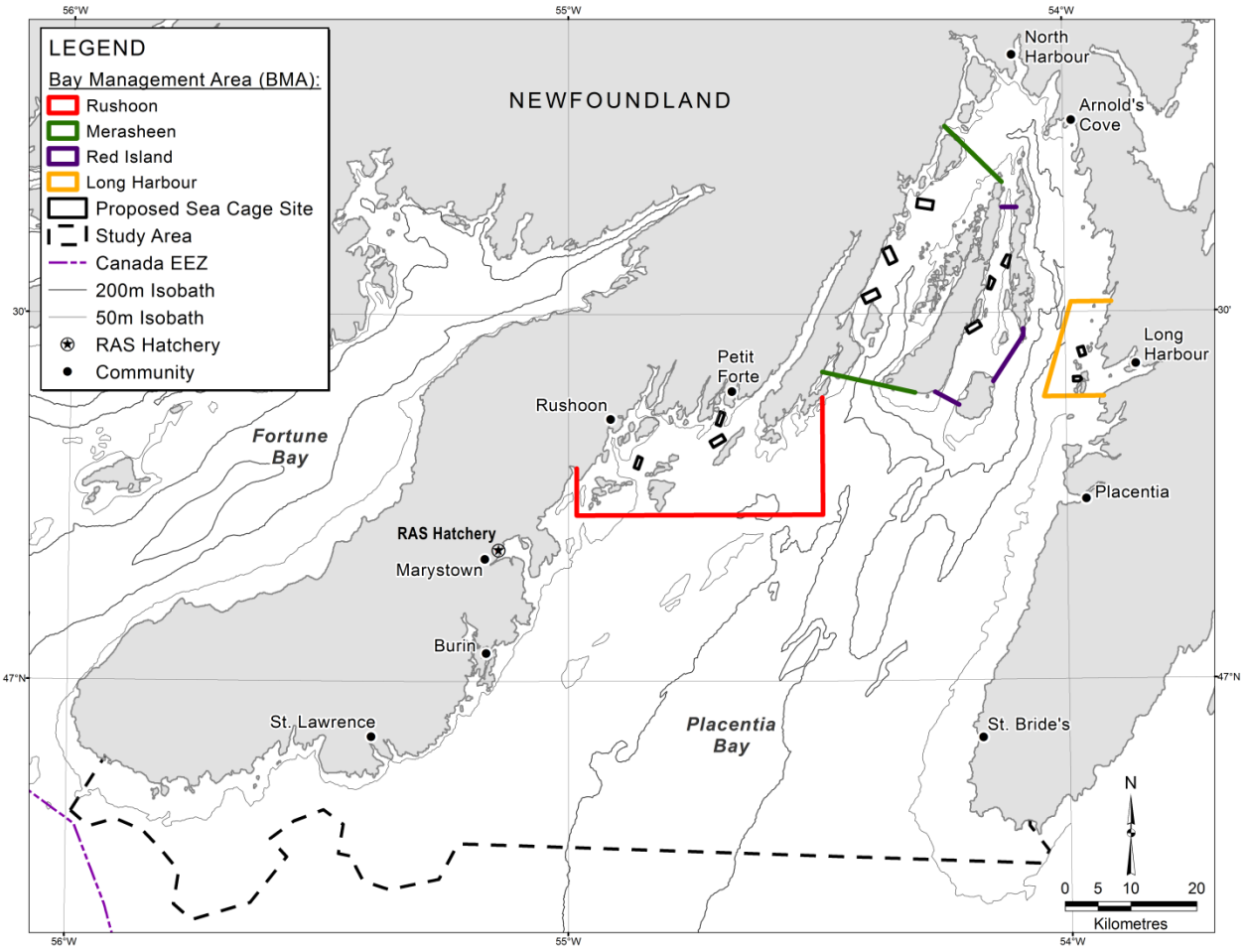

Figure 2.1. The locations of the RAS Hatchery, sea cage sites, and Bay Management Areas for GSF NL's Placentia Bay Atlantic Salmon Aquaculture Project. [Also shown is the Study Area used in the Environmental Impact Statement].

At the RAS Hatchery, smolt will be grown to sizes ranging from 350–1,400 g and then will be transferred to a well boat and delivered directly to sea cage sites. Eleven sea cage sites will be located within four Bay Management Areas (BMAs), which have been established for biosecurity purposes. Three of the BMAs are planned for semi-annual production and one BMA is planned for seasonal production. The semi-annual and

seasonal sea cage sites will each have a maximum of 12 and 6 sea cages, respectively. Each of these sea cages can hold 160,000 salmon. At peak production, there will be seven active sea cage sites with 78 sea cages in operation per year. Each year, the sea cage sites in one BMA will be fallowed before the sea cages will be restocked with salmon.

Each sea cage site will be attended by several vessels including a feed/accommodation barge, satellite feed barge, service vessel, crew vessel, and a work boat. Once salmon have reached market size (~5 kg) they will be transferred to a dead hold vessel and then onto a third-party for processing.

Personnel working at the sea cage sites will be transported via dedicated crew vessels. GSF NL anticipates one-week shifts at sea where personnel will live aboard the feed/accommodation barge. The crew change sites will have specific areas for embarkation to and disembarkation from the proposed sea cage sites, which is designed to avoid cross-contamination. Crew changes for the proposed sea cage sites in the Rushoon, Merasheen and Red Island BMAs will be conducted in Petit Forte and in Long Harbour for the Long Harbour BMA.

Services and supplies for all BMAs will be provided using wharf facilities at two former Ocean Choice International (OCI) premises, one each in Marystown and Burin. One of the resupply sites will be designated "inflow" and the other "outflow" to prevent cross-contamination of clean/new equipment going to the sea cage sites and used equipment returning for cleaning and servicing. Additionally, the resupply site designated as outflow will receive waste from the sea cage sites.

2.1 RAS Hatchery

The RAS Hatchery consists of three primary biosecure facilities (i.e., First-Feeding, Smoltification, and Post-Smolt) that have a total area of 30,000 m^2 (Figure 2.2). The RAS that will be used at the hatchery is considered state-of-the-art and operates by filtering water from the fish tanks, so it can be reused. The system uses 300 L of water per minute versus the 500,000 L of water per minute, which is typical in a flow-through system that is not reusing any water to accomplish an equivalent production of smolt.

2.2 Sea Cage Sites

The proposed sea cage sites (see Figure 2.1) have areas ranging from 0.8 km^2 to 3.2 km^2 and occur in water depths ranging from ~10 m to 308 m. Sites have been selected based on suitable water currents and depths, bottom type, shelter from wind and waves, and input from local users and regulatory agencies. Semi-annual and seasonal sea cage sites will have 12 or 6 sea cages, respectively; sea cages will be arranged in a line with a feed barge located between the cages. The sea cages and associated mooring system used to house fish will be state-of-the-art, heavy duty Aqualine Midgard Systems. Each sea cage is 50 m in diameter, extends approximately 37 m below the surface, and will consist of a cage net, floating collar, gangway, sinker ring (tube), winches, and fish mortality removal system.

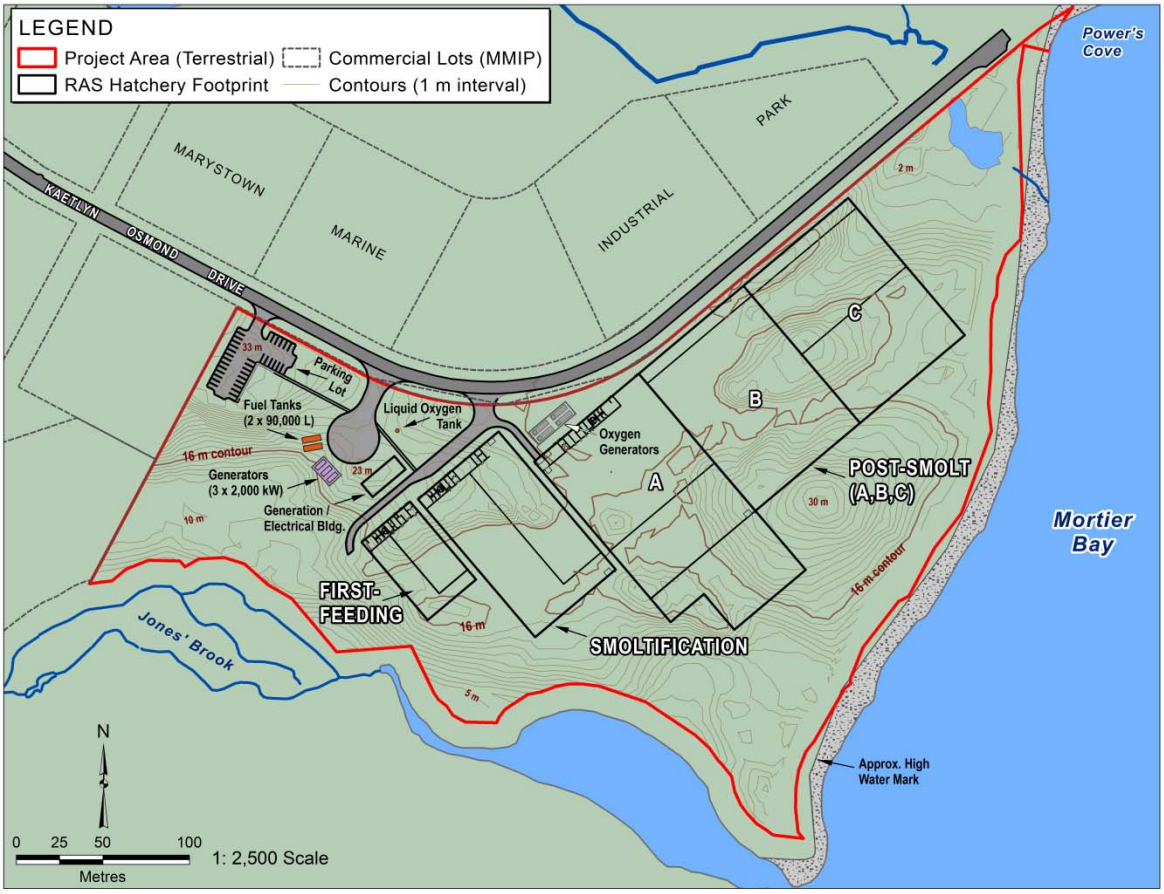

Figure 2.2. Schematic of RAS Hatchery in the Marystown Marine Industrial Park.

2.3 Best Available Technology

GSF NL will use the best available technology at the RAS Hatchery and sea cage sites, along with a number of mitigation measures that go beyond the common aquaculture industry standard. These measures include such approaches as the utilization of sterile triploid all-female Atlantic salmon to minimize potential effects on wild salmon, the use of lumpfish (*Cyclopterus lumpus*) to control sea lice, and fallowing protocols that exceed government requirements.

3.0 Environment, Health and Safety Management System

GSF NL recognizes environmental protection as one of their guiding principles and a key component of sound business performance. GSF NL is committed to providing a quality service in a manner that ensures a safe and healthy workplace for its employees and minimizes potential negative effects on the surrounding environment. GSF NL will operate in compliance with all federal, provincial and municipal environmental legislation, and strive to use pollution prevention and environmental best practices whenever possible.

GSF NL's EHS system will:

- Integrate the consideration of environmental concerns and interactions into all decision making and activities.
- Promote environmental awareness among its employees and require them to work in an environmentally responsible manner.
- Train, educate and inform its employees about environmental issues that may affect their work.
- Promote sustainability through the practice of reuse, recycle, refurbish and reduce waste.
- Avoid or reduce use of hazardous materials and products, seek substitutions when feasible, and take all reasonable steps to protect human health and the environment when such materials must be used, stored and disposed of.
- Operate by the highest standards possible to ensure protection of the environment while avoiding unplanned events (spills).
- Develop and maintain appropriate emergency and spill response capabilities.
- Train all employees in best practices for health and safety.
- Provide necessary Personal Protective Equipment (PPE) and instruction for its use and care.
- Develop and enforce safety and health rules, requiring that employees comply with these rules as a condition of employment.
- Investigate every accident, promptly and thoroughly, to determine its cause, and whenever possible, put measures in place to ensure against recurrence.
- Strive to continually improve environmental performance by periodically reviewing and updating EHS policy.

3.1 Roles and Responsibilities

The following section outlines the management structure, roles and responsibilities of personnel, for the implementation of GSF NL's EHS policy for the operation phase of the RAS Hatchery.

GSF NL Managing Director: Primary person responsible for overall development of the RAS Hatchery, including environmental issues. Specific environmental responsibilities include:

- Ensuring environmental considerations are a part of the Project decision making process.
- Ensuring adequate plans and resources are in place to achieve environmental commitments to minimize environmental effects.
- Reviewing incident reports as they are submitted and ensuring the proper course of action is taken to manage unexpected environmental conditions or events.

GSF NL Director of Production: Primary person responsible for day-to-day operation of the RAS Hatchery. Reports to the GSF NL Managing Director. Specific environmental responsibilities include:

- Ensuring adequate plans and resources are in place to achieve EPP commitments.
- Approve incident reports as they are submitted and ensuring the proper course of action is taken to manage unexpected environmental conditions or events.

Compliance Manager: Primary person responsible for ensuring commitments for Provincial and Federal Policies, Procedures and EA Process are adhered to and reporting procedures are followed. Reports to the GSF NL Managing Director. Specific environmental responsibilities include:

- Compiling submitted EPP data for reporting purposes.
- Submitting EPP reports as required by Provincial and Federal Policies and Procedures.
- Submitting reports as required by conditions of release in EA process.
- Ensuring all Environmental permits and licenses are valid and in place and completing necessary application and/or renewal forms to meet permitting requirements.

GSF NL Land-based Site Manager(s): Report to the GSF NL Director of Production. Specific environmental responsibilities include:

- Ensuring personnel properly implement EPP procedures and reporting requirements.
- Completing and submitting incident reports to the GSF NL Director of Production.

GSF NL EHS Advisor: Primary GSF NL employee responsible for overall environment, health and safety. Reports to the GSF NL Director of Production and is responsible for:

- Providing environmental orientation to new employees.
- Providing awareness training on an as-needed basis.
- Ensuring that equipment is installed correctly/safely.
- Identifying potential environmental hazards.
- Determining ways of reducing EHS risks.
- Liaising with relevant authorities and contractors.
- Keeping up to date and ensuring compliance with current EHS legislation.

GSF NL Water Quality Specialist: Responsible for routine monitoring of water quality and water level in the well. Reports to the GSF NL Director of Production. Specific environmental responsibilities include:

- Routine monitoring of water quality of incoming water and water within all land-based production facilities.
- Routine monitoring of water levels in well supplying water to all land-based facilities.
- Maintaining and submitting records of all monitoring to the GSF NL Director of Production.

GSF NL EHS Representatives: Land-based personnel designated as employee representatives for EHS. Report to their appropriate Site Manager and are responsible for:

- Ensuring provision of orientation of new employees or awareness training is conducted as required.
- Coordinating routine EHS meetings.
- Maintaining EHS documentation of routine meetings.

3.2 Sustainability Policy

A key component of the GSF NL EHS system is its sustainability policy, which is overviewed here and promoted throughout the EPP. Ultimately, GSF NL's vision is to provide Placentia Bay Atlantic salmon for the world. Achieving this vision in a sustainable manner will be met through the company's commitment to the following principles: leadership, transparency, integrity, continuous improvement, inclusivity, and stewardship.

3.2.1 Priorities

GSF NL's goal is the sustainable production of Atlantic salmon in the waters of Placentia Bay. Based on the expectations of GSF NL and its stakeholders, the following priorities have been identified as key elements that are important for GSF NL's achievements, profitability and survival with a focus on local and global sustainability:

- Fish health and welfare;
- Sea lice control;
- Fish escape control;
- Minimal emissions;
- Minimal interactions with wildlife; and
- Climate change.

3.2.2 Commitment and Scope

The sustainability policy will apply to all operations under GSF NL. GSF NL will utilize third-party service companies for many aspects of its operations and acknowledge that although GSF NL cannot control the decisions of these parties, it commits to educate them of its policy. These third-party service providers will be encouraged to align their operating procedures with GSF NL policy objectives. GSF NL's priorities and any relevant decisions will be compliant with local, provincial and federal laws and regulations. GSF NL will strive to exceed legal requirements with regard to sustainability, in order to be innovative and to demonstrate sustainability leadership.

3.2.3 Objectives

GSF NL commits to:

- Focus on a safe and environmentally friendly food chain that produces quality products for consumers.
    - Strive to improve the feed conversion ratio (FCR) to a 1:1 ratio combined with optimization of fish products using the processing discards for human and other pharmaceutical or nutraceutical products.
- Balance profitable growth and innovation with environmental sustainability by using innovative technology and enhanced data collection to improve ecosystem understanding and sustainability decision-making.
    - Utilizing a RAS that requires minimal water consumption during smolt production.
    - Target to utilize fish feed that is produced using protein not designated for human consumption.
- Balance sustainable aquaculture and productive seas to maintain fish health and welfare, while also protecting the shared natural resources of the sea.
    - Utilizing sterile triploid all-female Atlantic salmon for all production in Placentia Bay.
- Providing a work environment that will attract and retain employees with a focus on health and safety, diversity, equity and integrity in the workplace.
    - Direct employment approaching 150 people in the Province upon reaching steady-state production.
- Local value creation, not only by hiring local residents, supporting local industries and utilizing third-party service contractors, but also contributing to the local communities by volunteering and donating resources.
- Publishing an annual Sustainability Report reviewing progress on achieving its goals that will be available to stakeholders and the public.

3.3 Development and Implementation of the EPP

The EPP is an essential component of GSF NL's EHS system and is intended to ensure that all Project personnel abide by appropriate environmental protection actions, encompassing all Project phases for the RAS Hatchery. As noted earlier, this is a living document that will be revised as necessary based on review and approval of received suggestions, and to meet the requirements of reviewers and environmental approvals. EPP documents are typically revised as needed to reflect site- and/or task-specific activities as they relate to environmental protection measures and are structured to allow for revisions as Project activities progress. A separate EPP was prepared for construction of the RAS Hatchery and in future, an EPP will be prepared for decommissioning activities.

3.3.1 General Practices and Training

GSF NL recognizes that communication and training are key to ensuring that Project activities with the potential to create a negative environmental effect are identified, and that preventative and/or mitigation measures are implemented. All GSF NL employees, contractors, and subcontractors will undergo employee

orientation, which includes a review of environmental concerns and procedures. Additionally, multiple mechanisms are in place to ensure that the EPP contents are communicated to employees throughout the Project. A summary of these general practices is provided below.

3.3.1.1 Employee Orientation

GSF NL recognizes the importance of EHS and is committed to ensuring a safe work environment for its employees, contractors and subcontractors, while also recognizing the importance of procedures and practices that will protect the environment. GSF NL considers good husbandry and a strong focus on environmental protection essential during all Project phases and will emphasize this message to all new employees as part of their training and environmental orientation, and within GSF NL's ongoing EHS management system. GSF NL will ensure that all Project personnel, including contractors and subcontractors, are prepared and capable of completing their jobs competently and responsibly.

GSF NL will maintain records of all environmental training and orientation sessions, including a description of the presented material, session dates and attendance. All GSF NL personnel will receive orientation by a supervisor with awareness training. As well, on-going training will be provided on an as-needed basis. A dedicated software program (i.e., *Intelex*, business intelligence software) will be utilized to maintain these records and certifications.

All Project personnel working on site are required to participate in a site-specific Project and environmental orientation upon commencement of their employment and periodically thereafter as needed. This orientation will increase awareness of the GSF NL EPP, including environmental protections relative to site-specific work activities, regulatory requirements, emergency preparedness and spill response capabilities, as well as client/contractor expectations for individual personnel roles and responsibilities.

Environmental orientation will include the following:

- Details on GSF NL's EHS management system, EHS policy and obligations under the EPP.
- A presentation on environmental protection procedures to be applied to all work activities.
- Procedures for spill response and environmental emergencies.
- Personnel roles and responsibilities, including emergency preparedness.
- Description of tasks and activities, including any relevant activities that could involve environmental concerns.
- Instruction on specific procedures for environmental protection, including prevention, mitigation measures and documentation.
- The importance of enforcement and compliance with the EPP.

3.3.1.2 Operation Phase

During operation of the RAS Hatchery, GSF NL has identified the following general mechanisms for dissemination of and conformance to the EPP:

- *Employee Orientation*: GSF NL is committed to ensuring that its personnel are knowledgeable, trained and prepared for any tasks they may be required to perform. Employee Orientation will be mandatory for new employees. Supplemental orientation sessions will also occur on an as-

needed basis, such as when revised procedures have been developed or new equipment introduced.

- *Daily Safe Task Instruction (DSTI)*: Supervisors will meet daily with their staff to discuss tasks to be performed each day. Risks and hazards will be identified as well as any measures to minimize or mitigate these. For tasks that involve high environmental or safety risks, such as fish transfers, the use of DSTI Forms may be implemented in order to identify the risks involved with these tasks, and to ensure that these risks have been clearly communicated to staff, with documentation to be provided of this communication.
- *Weekly Toolbox Meetings*: Personnel will be required to participate in a Weekly Toolbox Meeting. These meetings will provide an opportunity for staff to relay any safety or environmental concerns to their supervisors. Although informal, attendance will be recorded, topics discussed (and action commitments) will be documented. All meeting records will be maintained on file.
- *Environmental Action Meetings*: Should an environmental issue arise that requires action, and is deemed manageable within GSF NL's responsibility, a site manager and/or the Director of Production can request an Environmental Action Meeting to discuss the issue. Upon request, staff will participate in efforts to address and resolve the specific environmental issue.

3.3.1.3 Overall Operations

- *Annual Environmental Performance Review*: In order to continually improve on its performance, GSF NL will hold annual environmental performance review meetings. Site managers, along with the Director of Production and/or Managing Director, will review environmental performance and compliance at the RAS Hatchery. These meetings will provide an opportunity to ensure EPP procedures as well as permitting and governmental policies are consistent.
- *Monthly/As-needed Toolbox Meetings*: The Director of Production will meet monthly or as required with site managers from the RAS Hatchery. These informal meetings will address, among other topics, Health, Safety, Environment and Security issues. These monthly meetings will provide an avenue to discuss any concerns or recent incidents.

4.0 Environmental Protection Procedures

Environmental protection procedures are provided here for each of the primary operation activities associated with the RAS Hatchery. As the work proceeds, these procedures may be modified or new procedures implemented, to account for new Project activities, site conditions, changes in engineering design or operational methods, and as a result of lessons learned during activities.

For Project activities at the RAS Hatchery, GSF NL will have Standard Operating Procedures (SOPs) in place, which provide step-by-step instructions for conducting various operation activities. These SOPs will also contain steps to protect the environment and which are in line with the procedures provided below. Employees, contractors and suppliers are required to follow and adhere to all environmental protection procedures. Also, as per the terms and conditions of the EIS release issued by the DMAE, GSF NL shall adhere to all mitigation, monitoring, and commitments stated in the EIS.

4.1 Storage, Transportation, Transfer, Handling and Disposal of Fuel and Other Hazardous Substances

Environmental Concern

During the operation phase, some substances will be used which are or may be classified as hazardous including petroleum, oil and lubricants; chlorinated and non-chlorinated solvents (e.g., cleaner-degreasers); waste petroleum products (e.g., used engine/motor oil); glycol (e.g., antifreeze), paints, and epoxies. The primary concern regarding the use and storage of fuel or other hazardous materials is an uncontrolled or accidental release into the environment and subsequent negative effects on terrestrial and aquatic habitat and species, soil, surface and groundwater quality and human health and safety.

Environmental Protection Procedures

The following procedures will be implemented to reduce the likelihood of accidental release of hazardous substances that may result in negative environmental effects:

1. Procedures for the handling of fuels and other hazardous materials as well as contingency plans for spills will be present in hard copy at receiving, storage, transfer and disposal areas.
2. Any soil contaminated by small leaks of fuel, oil or grease from equipment shall be cleaned up and disposed of in accordance with the applicable regulations, under the provincial *Environmental Protection Act* (2006) and Used Oil Control Regulation (82/02). The Used Oil Control Regulation (82/02) will be used as a guideline to the DMAE requirements for such disposal.
3. Smoking will not be permitted on the GSF NL facility property.
4. A complete inventory of the hazardous materials on the job site shall be maintained according to the Workplace Hazardous Materials Information System (WHMIS) Regulations and will be made available to regulatory agencies upon request or in case of any emergency.
5. All sub-contractors and GSF NL employees shall be required to observe strict compliance with the requirements of WHMIS regarding employee training, use, handling, storage, and disposal of hazardous materials and regarding labeling and provision of Material Safety Data Sheets (MSDS), as required by WHMIS legislation.

6. Tanks shall be located in areas where spills, should they occur, shall not flow to watercourses, water bodies, ditches or the marine environment.
7. Fuel tanks shall be located on concrete pads surrounded by a containment barrier to prevent spills to the environment as described in section 27 – Construction and Installation Standards of *Storage and Handling of Gasoline and Associated Products Regulations, 2003*. Tanks for fuels and other hazardous materials shall be self-dyked or be positioned over an impervious mat, surrounded by an impervious dyke of sufficient height, more specifically:
    a. Where a dyked area contains only one storage tank, the dyked area will retain not less than 110% of the capacity of the tank; and
    b. Where a dyked area contains more than one storage tank, the dyked area will retain not less than 110% of the capacity of the largest tank or 100% of the capacity of the largest tank plus 10% of the aggregate capacity of all the other tanks, whichever is greater.
8. All storage facilities shall be located away from operation activities, provided with secondary containment, and inspected on a regular basis in compliance with all government laws and regulations.
9. Oils, grease, gasoline, diesel or other fuels or any material deemed to be hazardous shall be stored at least 100 m from any watercourse or the ocean.
10. Fuel and other hazardous materials storage areas and non-portable transfer lines shall be clearly marked or barricaded to protect against damage by moving vehicles. The markers will be visible under all weather conditions. Barriers shall be constructed in compliance with the provincial Storage and Handling of Gasoline and Associated Products (GAP) Regulations (58/03).
11. Hazardous materials shall be properly labelled and stored in an appropriate storage cabinet, cupboard or designated area.
12. Containers containing hazardous materials shall be appropriate for the material being stored and shall always be kept sealed when not in use.
13. The transportation, use and storage of fuel and other hazardous materials is regulated by The Storage and Handling of GAP Regulations and Amendments, *Transportation of Dangerous Goods Act* (1992) and *Dangerous Goods Transportation Act* (2006). Employees and contractors shall follow all required regulatory policies and procedures.
14. Hazardous Storage Areas shall be equipped with appropriate firefighting equipment.
15. All Occupation Health and Safety regulations regarding the use, storage and training on all classes of fire extinguishers that may be required shall be followed.
16. Waste oils, lubricants and other used oil shall be retained in a tank or closed container and shall be disposed of regularly under contract with a licensed used oil collector in accordance with the Used Oil Control Regulations (82/02).
17. Greasy or oily rags or other materials at risk of spontaneous combustion shall be deposited and stored in appropriate receptacles. This material shall be removed from the work site on a regular basis and shall be disposed of in an approved existing waste disposal facility. Removal of these materials from the job site is regulated under the *Transportation of Dangerous Goods Act*.
18. All hazardous materials shall be handled according to the provincial *Environmental Protection Act* (2006) and disposed of in accordance with government laws and regulations at an approved off-site hazardous waste disposal facility.

19. Regular inspections of hydraulic and fuel systems on machinery shall be performed, and all leaks shall be repaired immediately upon detection. Worn or damaged hoses, seals and fittings shall be promptly repaired or replaced.
20. All deliveries of fuel shall be in conventional fuel delivery trucks that are operated by licensed distributors.
21. When fuelling equipment, operators shall:
    a. Be in attendance for the duration of the operation;
    b. Use leak-free containers and reinforced rip and puncture-proof hoses and nozzles;
    c. Use hoses that have a design pressure rating of at least 150% of the maximum head of the system;
    d. Lock out all tank nozzle valves except the valve currently in use;
    e. Seal all storage container outlets except the outlet currently in use; and
    f. Ensure drip pans, and other precautionary measures as required, are in place prior to the start of refueling activities.
22. Fuel unloading facilities shall be equipped with drip pans to collect hose drainage and drips. Hoses or pipes used for fuel transfer shall be equipped with properly functioning and approved check valves, spaced to prevent backflow of fuel in the case of failures.
23. A fuel and other hazardous materials spill contingency plan, and appropriate emergency spill equipment, shall be in place on site.
24. All spills of fuel and hazardous materials shall be reported immediately to the EHS Advisor. Any spill of any volume to the marine environment or spills of 70 L or more on land shall be reported immediately in accordance with provincial regulation.
25. Any spill on land regardless of size that may enter a waterbody frequented by fish shall be reported immediately to Canadian Coast Guard Environmental Emergencies: (709) 772-2083 or 1-800-563-9089, as required by the *Fisheries Act* and Section 201 of *Canadian Environmental Protection Act* (*CEPA*). All such spills shall also be reported immediately to the EHS Advisor and Director of Production.
26. During the operations phase, GSF NL intends to register and become a member of a local Response Organization to avail of these services should a spill incident exceed the company's ability to respond.
27. Spill kits shall be maintained at the RAS Hatchery for quick response purposes.
28. All selected response equipment shall be selected for its suitability/acceptability for deployment.
29. All employees and contractors shall be made aware of the Spill Management Plan (within the Emergency Incident Response Management Plan) and their role.
30. All petroleum-based products used in the facility during operation including oils, fuels, and greases shall be reused when possible (e.g., waste oil can be collected and burned).
31. When possible, environmentally friendly options shall be used (e.g., food grade grease/oil).
32. Reduce the use of products such as paints and only paint areas as needed. Unused paint shall be recycled when possible or disposed of at an approved waste disposal area.

4.2 Storage, Handling, and Disposal of Solid Waste

Environmental Concern

The release of solid waste is a concern to human health, drinking water quality, aquatic and terrestrial ecosystems.

Solid waste (e.g., domestic waste, paper, cardboard, wood, metals, etc.) will be generated periodically during operation activities. These wastes, if not properly controlled and handled, will be unsightly and may cause human safety and health concerns. Uncontrolled waste may also attract wildlife leading to potential human-wildlife encounters.

Environmental Protection Procedures

1. The amount of waste generated and requiring disposal shall be minimized as much as possible.
2. All wastes shall be handled according to procedures in GSF NL's *Environmental and Waste Management Plan: RAS Hatchery Operations (Rev. 04)* and in compliance with all relevant regulations including Aquaculture Policies (AP): AP2, AP4, AP7, AP16, and AP23 (DFLR 2019).
3. A refuse wood site shall be identified for local use for disposal of wood pallets and other excess wood materials.
4. Wood products shall be chipped for disposal whenever possible.
5. Scrap steel and plastic products such as piping will be retained by GSF NL for use in facility repairs.
6. Where this is not practical due to materials being damaged or too small, steel products will be recycled through local companies.
7. Plastic products shall be recycled where possible with disposal only when no other option remains.
8. All operational debris produced at the facility including general waste, electronic waste, feed bags, pallets, and litter will be recycled, reused or reduced if appropriate (e.g., buy feed and products in bulk, buy products with less packaging, pallets can be reused for transportation within the facility or broken down for chipping, recycle cardboard, feed bags, aluminum cans, plastic bottles and electronic waste, etc.).
9. On-site waste shall be disposed in accordance with the Burin Peninsula Waste Management Corporation (BPWMC).

4.3 Sewage Disposal

Environmental Concern

The release of untreated sewage may pose risks and/or concerns to human health, drinking water quality and marine and freshwater ecosystems.

Environmental Protection Procedures

1. During operations, a BMS Blivet waste water treatment system will be utilized. The Blivet system discharges its treated effluent to dedicated exfiltration galleries installed on the shore of the Marystown Marine Industrial Park. The Town of Marystown also has an operational Abydoz engineered wetlands system, which diverts and treats a relatively small portion of its sanitary sewer contents.

4.4 Use, Storage, and Transfer of Eggs

Environmental Concern

There is concern that the imported European strain of Atlantic salmon used in the RAS Hatchery may upon transfer to the sea escape, leading to potential interactions with wild salmon that may affect their biological fitness.

Environmental Protection Procedures

1. GSF NL shall acquire fertilized all-female sterile triploid Atlantic salmon eggs from Stofnfiskur (based in Iceland), an approved exporter to Canada of Atlantic salmon eggs.
2. GSF NL shall continue to renew its CFIA egg import permit every three months as per regulations.
3. Prior to shipment of the eggs from Stofnfiskur, eggs shall be tested and certified as disease free, triploid and all-female.
4. As per AP 12 (DFLR 2019), A *Permit to Transfer and Transport* will be obtained from DFLR before the transfer of eggs into the RAS hatchery.
5. Prior to transfer of eggs, a *Transfer License* will be obtained from DFO and the local Field Supervisor will be notified of the transfer.
6. Fertilized all-female triploid eggs shall be shipped via Air Cargo at 350 degree day development in styrofoam containers. Upon arrival, the boxes of eggs shall be transported to the RAS Hatchery in Marystown.
7. Upon arrival, all containers of eggs shall enter a disinfection room where they will be rinsed, disinfected (with an iodine solution) and de-boxed. All equipment encountering the eggs or egg container prior to disinfection shall also be disinfected. Records of time, source, and location of eggs shall be maintained.

4.5 Storage, Transportation, Handling and Dispensing of Fish Feed

Environmental Concern

Fish feed at the RAS Hatchery site may attract pests (e.g., wild animals) and will also generate plastic feed bag waste.

Environmental Protection Procedures

1. Fish feed will be stored indoors to minimize the attraction of wild animals, eliminate the chance of disease transfer from wild animals, and minimize the lethal control of pests/predators.
2. Feed shall be delivered in bulk and stored in silos.
3. An automatic feeding system shall be used where appropriate based on feeding tables/software, cameras and people to ensure no spill or waste of feed.
4. Feed bags will be secured by bailing (or other mechanism approved by the department) prior to transport to BPWMC in order to mitigate risk of loss prior to disposal as per AP 16 (DFLR 2019).

4.6 Storage, Handling and Dispensing of Chemotherapeutants

Environmental Concern

GSF NL may be required to periodically use antibiotics and anesthetics. All smolt will require vaccinations prior to leaving the RAS Hatchery for transfer to the well boat. Antibiotics and vaccines will not be stored in the RAS Hatchery but will only be on site as required. Anesthetics will be stored in the RAS Hatchery.

It is important that fish health is maintained but with the judicious use of chemotherapeutants. Additionally, it is important that unused or spilled chemotherapeutants are handled properly.

Environmental Protection Procedures

1. GSF NL shall closely follow its *Fish Health and Biosecurity Management Plan* and SOPs for the proper storage, handling, and dispensing of chemotherapeutants. The *Fish Health and Biosecurity Management Plan* and SOPs shall be reviewed and approved by GSF NL's designated aquaculture veterinarian (DAV) and the provincial aquaculture veterinarian prior to commencement of hatchery operations.
2. All chemotherapeutants shall be approved for use in Canada and administered by trained/licensed professionals.
3. Antibiotics shall be administered with approval of the provincial veterinarian. Antibiotics shall be administered in fish feed and will not be stored in the RAS Hatchery but in secure feed silos.
4. Vaccinations (type, amount) shall only be administered with the approval of the provincial veterinarian and by trained/licenced GSF NL personnel or contracted vaccinators. Vaccines shall only be present in the RAS Hatchery during periods when vaccination is ongoing.
5. There shall be judicious use of anesthetics as determined in consultation with GSF NL's private veterinarian.
6. If euthanasia of fish is required it shall be accomplished via an overdose of anesthetic, complete spinal severance, or a sharp blow on the top of the head ensuring a result of fish that are permanently unresponsive to stimuli. Records of all fish either culled or sampled shall be maintained.
7. Any antibiotics, anesthetics, or vaccines (or diluent) requiring disposal, as well as biomedical waste such as needles shall be handled according to biomedical waste disposal guidelines and municipal regulations.

8. GSF NL shall publicly release all confirmed reports of disease in hatchery fish within 24 hours as per DMAE conditions of EIS release.
9. GSF NL shall publicly release all use of chemotherapeutants (antibiotics, vaccinations, and anesthetics) annually as per DMAE conditions of EIS release.

4.7 Storage, Handling and Disposal of Fish Mortalities, Ensilage, and Hatchery Sludge

Environmental Concern

There is concern that the volume of fish mortalities, ensilage, and sludge generated at the RAS Hatchery may not be properly handled and will overwhelm local disposal facilities. Also, there is concern about the potential transfer of disease from fish to wild animals.

Environmental Protection Procedures

1. As per AP 23 (DFLR 2019), a Fish Disposal Plan, approved by DFLR, outlining the procedures to dispose of fish, fish by-products and mortalities during routine operations, mass mortality events, and reportable disease events will be implemented. All required permits and approvals will be acquired by GSF NL.
2. A mortality vacuum and ensilage system will be used to transfer dead fish from each facility to a centralized ensilage tank approved for this material.
3. A mortality vacuum system shall be utilized within each facility in the RAS Hatchery.
4. This vacuum system is equipped with a funnel receptacle to transport the fish in a biosecure manner into a grinder that chops the mortalities into small pieces, while a doser adds acid to produce ensilage with a pH of 4.5 or lower.
5. Access to the ensilage storage tank shall be limited to authorized personnel only.
6. Ensilage shall be stored until sufficient quantities are acquired to justify transport to either a local company in Newfoundland that will use the product as a commercial fertilizer and/or animal feed additive or a feed supply company located in Denmark.
7. Ensilage shall be collected by an approved third party using approved transport containers and disposed in the most economical manner (fertilizer, composting or other viable options).
8. All waste produced by the fish including fish feces and uneaten feed shall be separated out of solution and treated by mechanical and biological treatment.
9. The collected waste from the fish (sludge with ~20% dry solid content) shall be collected by truck by the BPWMC or another approved purchaser.
10. Prior to operations, GSF NL shall provide estimates of the quantity and composition of sludge that will be produced to determine if a Certificate of Approval for Composting is required through the DMAE.
11. GSF NL shall demonstrate that waste from the RAS Hatchery can be managed in a manner that meets the approval of DMAE, prior to commencement of hatchery operations as per DMAE conditions of EIS release.

4.8 Biosecurity

Environmental Concern

There is concern about disease transfer amongst fish within the RAS Hatchery. As a component of biosecurity measures at the RAS Hatchery, proper cleaning and disinfection of equipment will be crucial to eliminate potential cross-contamination between tanks and buildings. Furthermore, there is concern about potential pathogens being transferred to sea when fish are transferred from the RAS Hatchery to the well boat and then to the sea cages.

Environmental Protection Procedures

As per AP 35 (DFLR 2019), a biosecurity plan is in place prior to operation of the RAS Hatchery and includes the following procedures:

1. The highest standards in biosecurity procedures will be maintained including disinfection of equipment, personnel movements, pest control, maintenance and record keeping procedures for the hatchery. These measures will be clearly outlined in numerous SOPs.
2. Cleaning and disinfection shall occur between events such as grading, between year classes, the transfer of fish from one building to another, and a fish health event.
3. Smaller equipment that is used daily shall be cleaned and disinfected at the end of each shift.
4. Electrical equipment shall be wiped down with disinfectant wipes and heat applied.
5. Tanks shall be cleaned and inspected on a routine schedule.
6. There will be separate, biosecure rooms/buildings for each stage of salmon development.
7. In addition to daily husbandry practices noted above, protocols shall be in place to enhance biosecurity as personnel, equipment, and fish move between rooms and/or buildings.
8. Air movement in and out of the facility as well as pressure is controlled and filtered.
9. Doors are controlled by a central access system where each worker must have the required credentials (embedded into an identification [ID] tag) to enter their work area and may not enter other areas to prevent cross-contamination.
10. Entrance to production halls (i.e., where grow-out tanks are located) require strict biosecurity measures and are designed accordingly.
11. Personnel shall have separate work clothes for each facility and will be required to change upon entering a new building. Disinfection procedures for personnel and their clothing will also be in place. These and other procedures are outlined in GSF NL's Fish Health and Biosecurity Management Plan.
12. A combination of biofiltration, ozone and ultraviolet (UV) methods will be used for water treatment in the RAS Hatchery. These methods are designed to effectively inactivate and remove microorganisms and pathogens including the ISA virus.
13. The required amount of ozone[1] for treatment in a RAS is calculated according to the daily feed rate and flow rate of the water. GSF NL will utilize a dosage in a range within 10-25 g ozone/kg of feed, which is recommended by the RAS Hatchery designer Aquamaof.

[1] Ozone is an efficient way of removing particulates and effectively inactivating micro-organisms (including bacteria, virus, protozoans), removing nitrites, dissolved metals and organic concentrations (Goncalves 2011).

14. The UV dosage which will be used to treat the RAS Hatchery water will be at least 300,000 µWs/cm^2. This is the recommended dosage by Aquamaof and is used for complete removal of any harmful pathogens or micro-organisms that may remain in the water following biofiltration and ozone[2]. The UV system will run continuously at the RAS Hatchery and the PLC (Programmable Logic Controller) for the UV system is equipped with an uninterruptable power supply with electrical surge protection.
15. The UV system in operation is equipped with an advanced PLC cabinet that includes both audio and visual failure alarm indicators to validate lamp operation, efficiency and operating hours.
16. SOPs will be implemented for operation and maintenance of the UV disinfection system as recommended by the manufacturer. These SOPs will ensure routine cleaning, replacement and inspection is performed for the system for all equipment including sleeves and surfaces in contact with the effluent.
17. Prior to transfer to the sea cages, a fish transport permit will be obtained as per AP 12 (DFLR 2019) indicating the fish are healthy and certified disease free to prevent the entry of any potential pathogens (e.g., ISA virus) to the marine environment. Clinically ill fish will not be moved.
18. The day prior to transport of fish from the RAS Hatchery to the sea cages via well boat, all transfer equipment (i.e., pipes, hoses, pumps, counters) shall be checked and prepared, including checking the pipe and hose for breaches.
19. Using the live fish transfer pipes that exit the center bottom of production tanks, fish will be pumped from the tanks and through a flexible hose that is connected to a dewatering unit. The dewatering unit will separate the water from the fish and return this production water into the RAS system to the water treatment system where it will be filtered and purified before re-entering the production tanks. As the fish pass through the dewatering unit, they will be counted using a digital fish counter before moving into a sea transfer pipe. To facilitate the transfer of fish to the well boat, the sea transfer pipe will be supplied with the clean purified water that has been filtered and treated via ozone and UV filtration. This will prevent any microorganisms and pathogens (including the ISA virus) from potentially entering the sea.
20. In cases of suspected disease outbreak and/or high mortalities, the Fish Health Management team (i.e., DAV, Facility Manager, Director of Production) will assess the situation and determine the response required. Following AP 17 (DFLR 2019), Quarantine Order procedures may be implemented and will remain in effect until criteria set in AP 33 for lifting the order have been met. Once a Quarantine Order is issued by the Province, all policies and procedures outlined in AP 17 and AP 33 will be followed. A Quarantine will help prevent the introduction or spread of a disease by controlling/prohibiting movement of fish, fish products, feed, equipment or any other thing to or from the facility
21. In the event of a disease event/outbreak of Infectious Salmon Anaemia virus (ISAv), GSF NL will additionally follow the guidelines of the AAHD Viral Management of Infectious Salmon Anaemia Virus Contingency Plan. All Aquaculture Policies and Procedures including, but not limited to, AP 17, AP 23, and AP 33 will be followed during any mass mortality/depopulation event (DLFR 2019).

[2] The Guide to RAS Aquaculture (Bregnballe 2015) recommends a dosage of 10,000 µWs/cm^2 to kill 90% of organisms and a dosage of 200,000 µWs/cm^2 to kill small parasites. This is supported by several studies which indicate that many fish pathogens are inactivated by UV doses of 30,000 µWs/cm^2 (Summerfelt 2003). More specifically, the ISA virus is inactivated at 8,000 µWs/cm^2 (https://www.rk2.com/uv-information.php).

22. During a Reportable Disease Event, GSF NL will follow the NL Aquatic Animal Health Division (AAHD) Contingency Plan (AP 33; DFLR 2019) as well as all federal requirements. If any tank/building has a confirmed case of a federally Reportable Disease that results in fish mortality (or an ordered depopulation of fish), the stock that has died will be disposed of under direction of the Canadian Food Inspection Agency (CFIA) and/or DFLR. GSF NL will adhere to these regulations and guidelines for disposal. Any fish or fish waste being moved from the facility will require approval and documentation, as per AP 23 (DFLR 2019).
23. In the case of a Reportable Disease Outbreak, GSF NL will adhere to all reporting requirements as outlined in AP 17 and AP 29 (DFLR 2019).

4.9 Fish Transfers at RAS Hatchery

Environmental Concern

There is concern that smolt from the RAS Hatchery may escape during transfer to the wellboat leading to potential interactions with wild salmon that may affect their biological fitness.

Environmental Protection Procedures

The transfer of smolt shall be in such a way as to minimize the likelihood of escapes through proper equipment use and transfer procedures including:

1. Each RAS Hatchery building shall be equipped with a fish pump and a counting system, which facilitates transfer of fish between tanks and between buildings.
2. Health checks by a veterinarian shall be conducted, including sampling a number of fish from each tank that is being transferred to sea.
3. As per AP 12 (DFLR, 2019), A *Permit to Transfer and Transport* will be obtained from DFLR before the transfer of fish from the hatchery to a sea cage site. In addition, a *Transfer License* will be obtained from DFO and the local Field Supervisor will be notified of the transfer. The fish will not be permitted to leave the RAS Hatchery until all necessary approvals are received.
4. Smolt shall not be transported if there are any health concerns or until the transfer permit from the DFLR, DFO and Canadian Food Inspection Agency (CFIA) is received.
5. The day prior to transport, all transfer equipment (i.e., pipes, hoses, pumps, counters) shall be checked and prepared, including checking the pipe and hose for breaches.
6. A checklist shall be followed on the day of transfer for personnel at the hatchery.
7. Fish shall only be transferred to the well boat from the facility during calm conditions.
8. Fish are transferred via flexible hose transfer pipes which will only be connected when in use and stored when not in use.
9. Smolt shall be transferred to a well boat via a double pipe (~150 m in length) leading from the Post-Smolt Facility to Mortier Bay. The pipeline shall be constructed such that a protective sacrificial pipe surrounds the transfer pipe, protecting the transfer pipe from wear and abrasions.
10. A reinforced, continuous hose extending ~50 m from the shoreline to the well boat shall be used to transfer the fish. The hose will sit at the water's surface and shall be continuously monitored by personnel.

11. Fish shall be counted via video monitoring and a counter as they exit the hatchery and as they enter the well boat.
12. Drop nets of appropriate mesh size and sufficient size to cover the entire work area shall be placed under the work area and above the sea surface to contain any fish in the event one is "dropped" while being handled.
13. As per AP 17, GSF NL shall publicly release all reports of salmon escapes within 24 hours.

4.10 Groundwater Use

Environmental Concern

Water that will be used to initially fill the RAS Hatchery tanks, as make-up water to replenish the small amount of water lost due to evaporation, and to supply water to the hatching units (maximum 300 L/min) will be supplied by a nearby well, located in the town of Marystown near the intersection of McGettigan Boulevard and Centennial Road (47.180115°N, 55.142401°W). The well was drilled specifically for the Project, with the intention of reducing the effects on Marystown's municipal water supply.

There is concern that water use by the RAS Hatchery may become contaminated and/or become depleted thereby impacting hatchery operations. Furthermore, water quality parameters will be closely monitored to ensure the water is adequate to support the growth of fish.

Environmental Protection Procedures

1. A groundwater monitoring system shall be in place to monitor the quality and quantity of the water supply for the RAS Hatchery.
2. Water levels in the well shall be monitored via the installation of a level monitoring system and routine (i.e., quarterly in the first two years and sampling frequency to be determined in consultation with DMAE thereafter) water samples tested for deviations from samples collected during initial well tests.
3. A back-up water supply shall be identified as part of a contingency plan for the RAS Hatchery including contingency for failure of the pump and/or well. This contingency plan shall be developed for DMAE approval prior to operations.
4. To confirm water use numbers, a well-head protection and water quality monitoring plan (ambient and real-time) has been developed and approved by DMAE prior to operations (as per the conditions of EIS release).
5. The RAS Hatchery facilities requiring the largest volume of water shall be located on the down slope portion of the building site so that water can be gravity fed, thereby reducing the pumping energy requirements.
6. The local town water reservoir is a surface water supply source. GSF NL shall utilize a groundwater source for its operations that will not impact the town water supply.
7. Prior to operations, GSF NL has quantified the amount of water required to fill hatchery tanks and to maintain water levels during production.
8. All incoming groundwater to the RAS Hatchery from the main well will first pass through a Water Distribution Facility (WDF) to be treated before it enters to the RAS Hatchery.
9. Inside the WDF, the first treatment is the microfiltration drum filter (10 micron) to remove any fine particles in water and to reduce the turbidity. Then the water will pass through a UV system

to inactivate any potential pathogens and to sterilize the water. The UV water treatment system has an intensity of (30,000 μWs/cm^2) and is designed for achieving adequate disinfection for drinking water supplies by removing possible microorganisms from the groundwater.

10. Members of the GSF NL Fish Health Team which includes a Designated Aquaculture Veterinarian (DAV), a bio-analytical chemist (Ph.D.), and a process engineer (B.Eng.) will monitor water quality and fish health daily.
11. Should the health and welfare of the salmon at the hatchery be deemed at risk by health officials because of water quality concerns, GSF NL will implement a plan to ensure the water quality (including fluoride levels) is adequate to support the growth of the salmon in the RAS Hatchery.
12. A Reverse Osmosis (RO) System[3] has been identified by GSF NL as the preferred method for reducing fluoride levels should it be deemed necessary for the health and welfare of the fish. The RO System can be installed in the WDF of the RAS Hatchery to treat incoming water.
13. Should a RO system be implemented, the rejected water from the RO system (backwash) will contain the residual fluoride removed from the incoming well water and will need to be disposed. Disposal options for discharge of this backwash can include municipal wastewater or the environment. The disposal method for the backwash should a RO system be required will be determined in consultation with municipal and Provincial Departments.
14. All discharge water will meet the *Environment Control Water and Sewage Regulations*, 2003 including Schedule A or B as applicable.

[3] RO technology is considered a highly effective method for reduction of fluoride levels (Feenstra et al 2007; Modi and Soni 2013; Razbe et al. 2013; Ingle et al. 2014). RO technology utilizes pressures to force the water through semi-permeable membranes to filter out ions including fluoride ions. Efficiencies of up to 98% have been documented and in recent years, RO has become the preferred method for providing safe drinking water without the problems associated with other methods (Razbe et al. 2013).

5.0 Contingency Plans

Contingency plans to address incidents and unplanned situations that may occur during the operation of the RAS Hatchery have been developed and will be modified as required. GSF NL has developed a separate *RAS Hatchery Emergency Incident Response Plan* that details procedures for personnel health and safety and response to accidents, malfunctions, and emergencies. These documents are the first point of reference for emergency responders in case of an emergency on site. Information provided in this section is meant to support the *RAS Hatchery Emergency Incident Response Plan* and be available as an additional reference.

The following contingency plans have been developed to address accidental and unplanned situations that may occur during the operation phase at the RAS Hatchery:

- Fuel and Hazardous Materials Spills
- Forest Fires
- Wildlife Encounters
- Extreme Weather Events
- Discovery of a Species at Risk
- Mass Mortality Event
- Catastrophic Failure of Water Supply

Notwithstanding these contingency plans, GSF NL supports preventative measures as the first line of defence against the possibility of incidents.

5.1 Fuel or Hazardous Material Spills

GSF NL will lead and coordinate any field response to environmental incidents related to their activities. During operation of the RAS Hatchery, it is anticipated that spilled material will be primarily fuel, lube, and hydraulic fluid originating from equipment wear and tear and/or malfunction. Therefore, in the event of a spill, procedures for responding to hydrocarbon spills outlined herein, shall apply:

1. Assess the situation (Safety First). Personnel shall not approach the spill area without appropriate PPE.
2. Identify priorities while considering the threat to people, property, and the environment.
3. Initiate the appropriate response actions:
    - The individual who discovers the leak or spill shall make a reasonable attempt to immediately stop the leakage and contain the flow, where safe to do so.
    - Contact emergency personnel and request additional support if necessary.
    - Reporting: spill location, type of product, estimated volume and terrain condition at the spill site will be determined and reported immediately to GSF NL's EHS Advisor for further reporting to authorities, as appropriate.
    - Initiate the containment and recovery of any free product and/or contaminated material.

4. Dispose of all waste material in the appropriate manner.
5. Restore the site to the satisfaction of the Project representative or governing regulatory body.
6. Document and investigate as required.

Reportable spills include:

- A spill or leak greater than 70 L on land;
- A spill or leak on land, regardless of quantity, that has the potential to contaminate nearby property or enter a water body or sewer;
- Spills or leaks from storage tanks; or
- A spill or leak in the water, regardless of quantity.

Spills meeting the above criteria shall be reported immediately to regulatory authorities via the **Environmental Emergency Report Line at (709) 772-2083 or 1-800-563-9089**.

In reaching decisions on containment and clean-up procedures, the following criteria will be applied:

- Minimize danger to persons;
- Minimize pollution of water courses;
- Minimize area affected by spill; and
- Minimize the degree of disturbance to the area and watercourses during cleanup.

GSF NL will take all necessary precautions to prevent a reoccurrence of the incident and the EHS Advisor shall prepare a written report as required.

All fuel-powered equipment shall contain appropriately-sized spill kits (23 L). The contents of spill kits shall be routinely inspected and supplies replenished as necessary.

5.2 Forest Fires

A fire at the RAS Hatchery site has the potential to spread to the surrounding area. Conversely, a forest fire or fire at another facility within the Marystown Marine Industrial Park could spread to the RAS Hatchery site. Terrestrial fires could result in habitat alteration or loss and/or mortality of wildlife. Fire fighting chemicals or spilled materials associated with fires could enter freshwater or marine environments, potentially negatively affecting habitat and biota, particularly if permitted to disperse and persist. Fires may also adversely affect air quality and pose risks to human health and safety.

GSF NL shall take all necessary precautions to prevent fire hazards when working at the site, including, but not limited to, the following:

- Adhering to appropriate permits, including operating permits.
- Storing, handling and disposing of flammable materials and waste appropriately and in accordance with appropriate regulations.
- Smoking in designated areas only.

- Ensuring personnel trained in fire prevention and response including the use of appropriate fire-fighting equipment will be available on site.
- Providing fire-fighting equipment that is in proper operating condition, in compliance with manufacturer standards, and in sufficient quantities.
- Ensuring all fire extinguishers are marked and easily accessible to anyone who may need to use them.

If a fire is encountered, the following protocol shall be followed:

- The individual who discovers the fire shall raise the alarm to alert all on-site personnel.
- Immediately stopping work and controlling all sources of further ignition.
- Personnel trained in fire-fighting and the use of appropriate equipment shall take immediate steps to contain or extinguish the fire.
- Fires shall be reported immediately to the EHS Advisor, Marystown Fire Department, and the nearest Forest Management Unit office for further reporting to the local authorities. The following information shall be provided:
    - name and telephone number
    - time of detection
    - size of fire
    - location of fire
    - weather conditions (rain, sun, wind direction and speed, etc.)
- Follow the appropriate route to the construction site muster station.

Personnel are also referred to Section 7.1, *Fire Emergency Plan (Land-based RAS Hatchery*) of GSF NL's Emergency Response Plan for fire prevention and response actions.

5.3 Wildlife Encounters

Wildlife encounters pose a potential risk for stress or injury to both the wildlife and site personnel. To reduce the risk to both wildlife and site personnel, the following measures will be implemented:

- Hunting, trapping or fishing by Project personnel is not permitted on site.
- Site and working areas shall be kept clean of food scraps and garbage.
- Wildlife protected disposal containers will be used and will be regularly emptied and transferred to the local landfill.
- No personal pets, domestic or wild, will be allowed on the site.

In addition to the above protection measures, the following protocol will be followed in the event of a wildlife encounter:

- Workers shall not attempt to chase, catch, divert, follow or otherwise harass wildlife by vehicle or on foot.
- Equipment and vehicles shall yield the right-of-way to wildlife.
- Wildlife sightings or encounters shall be reported to the EHS Advisor. All actions in response to nuisance animals shall be the responsibility of GSF NL.

- If the nest of any bird is encountered during operation activities, work around the nest will be immediately stopped and the EHS Advisor notified.
- Any incidents that result in the displacement or killing of wildlife shall be reported to the EHS Advisor, complete with details on the incident and the names (and contact information) of the persons involved, for reporting as required.

5.4 Extreme Weather Events

Extreme weather events, such as severe winter storms, hurricanes or post-tropical storms, can bring strong winds, heavy snow, rain or freezing rain, flooding, high waves or ice. Such events can disrupt unsecured materials or equipment, or damage buildings. In anticipation of an extreme weather event, precautionary measures to prevent negative impacts to the environment include:

- Securing loose materials, coverings and containers, including waste containers.
- If applicable, appropriately collecting and disposing/storing product from equipment drip pans or tank dyke pads and ensuring drainage equipment is in good condition and clear of debris, snow or ice.
- Checking that sedimentation control structures are secure and in good working order, and capable of handling anticipated flow.

Immediately following an extreme weather event, all on-site environmental protective measures will be checked. Any required repairs will be completed as soon as conditions allow, before any work occurs utilizing the equipment to be repaired/replaced.

5.5 Discovery of a Species at Risk

The following species at risk (as listed on Schedule 1 of the *Species at Risk Act [SARA]*) may occur within the RAS Hatchery site: Red Crossbill (Endangered), Olive-sided Flycatcher (Threatened), Peregrine Falcon (Special Concern), and Rusty Blackbird (Special Concern). Though unlikely to be found within the RAS Hatchery site, these species may occur within the general area.

There is some potential that operation activities may affect Species at Risk. The following measures will be put into place to ensure that the Project does not negatively affect Species at Risk:

- All personnel working on site will adhere to all stipulations set out in the *SARA*, and will be informed that it is illegal to kill, harass, capture or harm any species listed under it; and
- If a Species at Risk, as listed above or otherwise, is discovered, all work in proximity to the location (i.e., outside of the RAS Hatchery) will cease and it will be reported to the EHS Advisor who will then contact ECCC-CWS for further action.

5.6 Mass Mortality Event

If a mass mortality of salmon occurs at the RAS Hatchery, there is concern that the volume of fish mortalities may not be properly handled and will overwhelm local disposal facilities. Also, there is concern

about the potential transfer of disease from fish to wild animals. The following procedures will be undertaken:

- As per AP 23 (DFLR 2019), a Fish Disposal Plan outlining procedure to dispose of fish, fish by-products and mortalities during, mass mortality events, and reportable disease events has been developed and approved by DFLR.
- GSF NL would implement its mass mortality response plan (detailed in GSF NL's *Environmental and Waste Management Plan*) which includes the notification of regulatory agencies and activation of depopulation, if required.
- All mortalities at the RAS Hatchery will be removed using equipment and procedures similar to those used during fish transfers to sea cage sites. In this instance, either a well boat or an OCI vessel equipped with industry standard containers will be used to transport the mortalities to a designated outflow wharf in a biosecure manner.
- Biosecure handling and transport will be undertaken to avoid any spillage.
- In the case of a confirmed presence of a reportable fish disease, GSF NL will contact local providers that are approved to receive the collected mortalities as well as the fish that are live harvested and weigh less than 1 kg.
- During a Reportable Disease Event, GSF NL will follow the NL Aquatic Animal Health Division (AAHD) Contingency Plan (AP 33; DFLR 2019) as well as all federal requirements.
- If the mass mortality event is not as a result of a reportable disease, the mortalities will be collected and ensilaged to dispose as outlined in Section 4.7
- Fish that weigh more than 1 kg would be harvested and processed according to CFIA recommendations.
- GSF NL will adhere to governmental guidelines and regulations for the disposal of organic material and fish mortalities

5.7 Catastrophic Failure of Water Supply

There is concern that failure with the well supplying the RAS Hatchery or the pump for the well may jeopardize operations and lead to the mortality of hatchery fish. As requested by the DMAE, GSF NL will provide a contingency plan for such an unplanned event prior to commencement of hatchery operations. Details of this plan are contained in the EEMP for Groundwater Quantity and Quality at the Hatchery (LGL 2020).

The cause of the catastrophic failure will determine the course of action:

- Should there be a break in the line supplying the water, the system will be able to continue to run until repairs can be made.
- If the well were to collapse, the backup wells would be used to supply water to the facilities.
- If the groundwater were to become polluted, then water from Mortier Bay would be used. A desalination system will be installed in the facility allowing saltwater to be used as a source for the facility if required.

6.0 Legislation, Permits and Authorizations

GSF NL has identified the various legislation, permits and authorizations to which the company subscribes related to the Project's environmental aspects—see below.

6.1 Legislation

Relevant legislation for the operation of the RAS Hatchery component of the Project includes the following:

- *Fisheries Act*
- *Navigation Protection Act*
- *Transportation of Dangerous Goods Act*
- *Migratory Birds Convention Act*
- *Aquaculture Act*
- *Lands Act*
- *Environmental Protection Act*
- *Urban and Rural Planning Act*
- *Water Resources Act*
- *Occupational Health and Safety Act*
- *Buildings Accessibility Act*
- *Public Safety Act*
- *Fire Prevention Act*
- *Canada Shipping Act*
- *Health of Animals Act*
- Aquaculture Activities Regulations (AAR)
- Town of Marystown Development Regulation
- National Aquatic Animal Health Program
- Tier Three Regulations of Transport Canada
- Annex IV of MARPOL 73/78: Pollution by Sewage from Ships
- Annex V of MARPOL 73/78: Pollution by Garbage from Ships
- Annex VI of MARPOL 73/78: Regulations for the Prevention of Air Pollution from Ships

6.2 Permits and Authorizations

In Canada, the aquaculture industry is regulated and managed by both the federal and provincial governments. GSF NL is required to adhere to these regulations. The Project must also comply with provincial and municipal regulations related to the operation of the RAS Hatchery. A list of required key permits and approvals is provided in Table 6.1. GSF NL will house and manage permits and authorizations in dedicated software (i.e., *Intelex*, business intelligence software).

Table 6.1. Anticipated federal, provincial and municipal approvals and permits for the operation phase of the RAS Hatchery.

Permit, License or Regulatory Approval	Activity Requiring Approval	Legislation	Regulatory Agency Responsible	Status[a]
Government of Canada				
DFO Approval	Any aquaculture activities	*Fisheries Act*	DFO	Approved; (continuous as needed)
Aquatic Animal Health Import Permit	Import of fish eggs	*Health of Animals Act*	CFIA	Obtained (renewed quarterly)
Government of Newfoundland and Labrador				
Aquaculture Licence	Any aquaculture activities	*Aquaculture Act*	DFLR	Obtained
Minister's Approval for the Introduction, Transfer and Transport of Fish	Transportation of fish from one site/facility to another	*Aquaculture Act*	DFLR	Obtained (continuous as needed)
Application for Crown Land Title	Leasing of land for the land-based facility	*Lands Act*	DFLR	Obtained
Development Certificate	Construction and operation of the land-based facility	*Urban and Rural Planning Act*	DMAE	Obtained
Application for Permit Water and Sewage Works	Obtaining/discharging water for use in construction and operation of the land-based facility	*Water Resources Act*	DMAE	Obtained
Diesel Generator Registration Form	Operation of a generator	*Environmental Protection Act* and Air Pollution Control Regulations	DMAE	Pending
Water Use Licence	Obtaining water for use in the land-based facility	*Water Resources Act*	DMAE	Obtained
Certificate of Approval for Industrial Facilities/Processes	Operation of the land-based facility	*Environmental Protection Act*	DMAE	Obtained (Under Aquaculture License)
Certificate of Approval - Water Supply >4,500L/da	Obtaining water for use in the on-land facility	*Water Resources Act*	DMAE	Obtained (Water Use License)
Fire Commissioners Approval under the National Building / Fire / Life Safety Code	Construction of any buildings		Service NL	Pending upon commission
Petroleum Storage Tank Registration	Storage and Handling of Petroleum Products	*Environmental Protection Act* and *Fire Prevention Act*	Service NL	Obtained
Electrical Permit	All electrical wiring and infrastructure installation	*Public Safety Act*	Service NL	Pending upon commission
Certificate of Plant Registration for Power, Heat, Refrigeration, Compressed Gas or Combined Plant	Various project related activities		Service NL	Pending upon commission
Municipal Government				
Occupancy Permit	Permits must be in place for any development of the land-based facility	Town of Marystown Development Regulations	Marystown Municipal Government	Pending upon commission
Compliance with Marystown Municipal Plan	Permits must be in place for any development of the land-based facility	Town of Marystown Development Regulations	Marystown Municipal Government	Compliance

Note: [a] All permit requirements, responsible agencies, and legislation will be reviewed and updated (as required) on a regular basis.

In addition to the abovementioned required permits and authorizations for Project activities, GSF NL must abide by the National Code on Introductions and Transfers of Aquatic Organisms, whereby GSF NL is required to submit an application to DFLR and DFO, which addresses three main risks: genetics, ecosystem and disease prior to any transfer of the fish from the RAS Hatchery to the sea cages for grow-out. The fish will not be permitted to leave the RAS Hatchery until approvals from DFLR and DFO are received.

GSF NL may also need a Domestic Movement Permit Application to move Finfish and/or Things within Canada (CFIA/ACIA 5743) from CFIA. Whether a permit is required to move aquatic animals or equipment (including nets and cages) depends on the declarations of the reportable disease status of the areas being transferred from and to. CFIA must be contacted by GSF NL prior to any domestic movements of fish or equipment.

7.0 Contact List

Contact lists will be posted in central, visible locations at the RAS Hatchery. The lists will be kept up to date, and all contacts on the lists will be made aware of their expected role(s) during routine and/or emergency situations.

7.1 Emergency Numbers

Contact information that may be utilized during an emergency is provided in Table 7.1.

Table 7.1. Emergency contact phone numbers for the Project.

Title	Number
Emergency Personnel	911
Marystown Ambulance	709-279-2121
Marystown Fire Department	709-279-1333
Burin Peninsula Health Care	709-891-1040
Marystown Police	709-279-3001
Poison Control	1-866-727-1110
Search and Rescue	1-800-563-2444
Canadian Coast Guard	709-772-4423
Marine Pollution	1-800-563-9089
Emergency Response Organization	TBD
Marine Communication and Transport Center, Placentia	709-227-2181
Marine Mammal in Distress	1-888-895-3003
Poaching and Fisheries Violations	1-800-222-8477
Department Fisheries and Land	709-292-4111
Department Fisheries and Oceans	709-772-5202
Invasive Aquatic Species	1-888-435-4040

7.2 Advisory and Other Contact Numbers

Contact information for appropriate GSF NL and other advisory personnel are provided in Table 7.2. These designated personnel can be reached at any time, in accordance with established communications protocols.

Table 7.2. Advisory and other contact numbers for the Operation of the RAS Hatchery.

Title	Name	Number
GSF NL Managing Director	Knut Skeidsvoll	TBD
GSF NL Director of Production	Candice Way	TBD
EHS Advisor	Justin Bolt	TBD
Owner Representative	Craig Moore	TBD
Contractor Project Manager	TBD	TBD
Contractor EHS Coordinator	TBD	TBD
Compliance Manager	Magdalena Maeland	
First Feeding Site Manager	Julia Norris	TBD
Smoltification Manager	Chris Malanka	TBD
Post Smolt Manager	TBD	TBD
Marine Site Manager	TBD	TBD
Marine Site Manager	TBD	TBD
Marine Site Manager	TBD	TBD
Water Quality Specialist	Osama Ali	TBD
EHS Representative land-based	Cyril Drowns	TBD
EHS Representative marine	Shalyn Ryan	TBD

8.0 Resource Material

Information documents relevant to the Project were included as appendices to the Environmental Impact Statement (EIS). Copies of the EIS and associated documents can be found at GSF NL's office in Marystown and at public libraries in Marystown (as well as Corner Brook and St. John's).

8.1 Key Reference Material

Environmental documents previously completed for the Project and relevant to the RAS Hatchery are listed in Table 8.1. Personnel are also referred to further documentation referenced throughout this EPP.

Table 8.1. Key Project reference material relevant to environmental protection measures, for operation of the RAS Hatchery. Some material was provided as appendices to the Project EIS (LGL Limited 2018).

Document Name and Author	Summary	Release Date
Emergency Incident Response Plan GSF NL	Details the emergency procedures to be implemented in response to any situation that may endanger the safety and/or health of people; the environment; property and/or equipment.	February 2020
Environmental and Waste Management Plan GSF NL	Details the procedures to be implemented to manage waste associated with the Project including waste generated during construction of the RAS Hatchery.	February 2020
Fish Health and Biosecurity Management Plan Grieg NL	Details the procedures to be implemented to manage fish health at the RAS Hatchery (as well as the sea cage sites).	February 2020
The Cultural, Recreational and Commercial Importance of the Waters of Placentia Bay Component Study Grattan et al. 2018	Provides a detailed description of the cultural, recreational and commercial usage of Placentia Bay. It focuses on fisheries, tourism, recreational activities, marine navigation, and culturally and ecologically important areas. The study also includes mitigation measures that will be undertaken to protect these uses and areas from the potential effects of the Project, as well as follow-up monitoring.	May 2018
Wild Atlantic Salmon Component Study LGL Limited 2018	Provides a review of wild Atlantic salmon with a focus on the salmon that occur in Placentia Bay. It also reviews the potential genetic and ecological interactions between wild and farmed salmon and the mitigation measures and follow-up monitoring intended to minimize the potential effects of Grieg NL's Project.	May 2018
Fish and Fish Habitat Component Study LGL Limited 2018	Provides a review of the existing fish and fish habitat in Placentia Bay with focus on the sea cage sites, the mitigation measures intended to minimize the potential effects of the proposed Project on fish and fish habitat, and the follow-up monitoring intended to validate the effects conclusions in the EIS.	May 2018
Sustainability Report 2017 Grieg Seafood	Defines Grieg's five essential principles for sustainable food production in the ocean and introduces a greenhouse gas account which maps emissions from Grieg Seafood as an organization.	April 2018

9.0 Literature Cited

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