

**Newfoundland and Labrador
Department of Fisheries, Forestry and Agriculture**

**Viral Management of Infectious Salmon Anaemia Virus
Contingency Plan Guidelines**

Introduction

- Infectious Salmon Anaemia is a disease caused by the Infectious Salmon Anaemia virus (Infectious Salmon Anaemia virus). Infectious Salmon Anaemia has been found to cause clinical disease in salmonid fish which includes Atlantic salmon (*Salmo salar*). Infectious Salmon Anaemia virus may be further classified by strain: “HPR-deleted” strains (pathogenic strains which may cause clinical disease in fish) or “HPR0” strains (non-pathogenic strains which are not known to cause disease). Pathogenic strains of Infectious Salmon Anaemia virus may cause high mortality and morbidity on some salmon farms, however this can be variable. The variation in severity of Infectious Salmon Anaemia disease is dependent upon a number of factors including, but not limited to, virus strain, fish age class, and water temperature.
 - Infectious Salmon Anaemia may be spread between finfish by contact with excretions, secretions or water contaminated with the virus.
 - Infected fish may have the following clinical signs:
 - loss of appetite
 - swollen abdomen
 - pale or grey gills
 - exophthalmia (popeye)
 - pale heart
 - hemorrhage in the eye chamber, skin and muscle
 - behavioral changes (such as lethargy and swimming high in the water column)
 - fluid in the abdominal cavity or around the heart
 - dark and swollen kidney, liver, and spleen; and
 - darkening of the intestinal tract.
- There is currently no treatment for Infectious Salmon Anaemia virus. The method of control in Atlantic Canada has been to remove infected fish from the water through depopulation methods, such as harvest or rendering. There is a vaccine available in Canada that may help in the control and spread of the disease.

Reporting

- As required by Newfoundland and Labrador’s Aquaculture Act s7. (2) and the Aquatic Animal Health Reporting policy, a detection of Infectious Salmon Anaemia virus must be reported to the Department of Fisheries, Forestry and Agriculture – Chief Aquaculture Veterinarian.
- According to the Aquatic Animal Health Reporting policy:

- A licensee must immediately report to the Chief Aquaculture Veterinarian any suspicion or knowledge of a Reportable Disease. A written report must be submitted no later than 24 hours after the telephone report. The written report must include the following:
 - Name of licence holder;
 - AQ number;
 - Location of site (address);
 - Contact information (both email and telephone);
 - Species;
 - Age or year class;
 - Average weight of the animals;
 - Total number of animals on the aquaculture site/facility;
 - Total number of cages/tanks/holding units on site;
 - Number of animals suspected affected and the associated cages/tanks/holding units;
 - Any recent movements off the aquaculture site/facility;
 - Presumptive diagnosis;
 - Recent mortality numbers;
 - Clinical signs; and
 - Diagnostic testing results (if applicable).

- The suspicion or detection of a Reportable Disease (including Infectious Salmon Anaemia) will initiate the Aquatic Animal Health Division Contingency Plan policy (AP 33).

- According to the Public Reporting policy:
 - Detection of federally Reportable Diseases or quarantine or depopulation orders or directives issued by the Provincial Government for a licensed aquaculture site, must be reported to the public within 24 hours of the detection or order or directive being given. The department may issue a fine, directive or penalty in the event that these deadlines are not met.
 - For all detection of federally Reportable Diseases or quarantine or depopulation orders or directives, the licensee is required to publically report on:
 - the site(s) impacted;
 - the species stocked on that site;
 - the estimated number of finfish or shellfish species affected;
 - any orders and directives issued in relation to the action initiated;
 - information related to disease detected;
 - the underlying reason for order, directive and/or action;
 - the method of depopulation or other mitigations; and
 - any other information deemed by the department to be reportable.
 - Detection of federally Reportable Diseases, or suspected escape or confirmed escape or quarantine or depopulation directed or ordered or approved by the province must be reported by the licensee on their corporate or industry association website.

Infectious Salmon Anaemia Virus Contingency Plan

- Aquatic Animal Disease Contingency Plan
 - According to the Aquatic Animal Health Division Contingency Plan policy (2): Licensees will follow the Aquatic Animal Health Division Viral Management of Infectious Salmon Anaemia Virus - Contingency Plan Guidelines for Newfoundland and Labrador during an Infectious Salmon Anaemia virus event or outbreak.
 - The aim of the Contingency Plan is to:
 - Outline the procedures that will assist in eradicating pathogenic Infectious Salmon Anaemia virus, if possible.
 - Outline the procedures that will assist in preventing the spread of the virus, if possible.

- Quarantine Order
 - This section references components of the Aquatic Animal Disease Contingency Plan:
 - The department may issue a Quarantine Order when a Reportable Disease is suspected, designating any aquaculture site/facility, growing region (e.g. Bay Management Area), equipment, vessel or vehicle as a quarantined area.
 - Note for Infectious Salmon Anaemia virus: a Quarantine Order is issued once the disease is confirmed.
 - Upon receipt of the Quarantine Order, the licensee must submit to the Chief Aquaculture Veterinarian an inventory of all items within the quarantine area. This must be provided to the Chief Aquaculture Veterinarian within 72 hours of the Quarantine Order being issued. Items to be included:
 - Fish numbers
 - Fish cages/tanks with cage/tank identification numbers
 - Fish nets with net identification numbers
 - Vessels
 - Barges
 - Trucks
 - Equipment
 - Buoys
 - Lines
 - Trays/cages/tanks/socks or other applicable holding units
 - Other items/equipment contained within the quarantine area
 - A Quarantine Order, issued by the department, will remain in effect until it is lifted by the department. Criteria that will allow the Quarantine Order to be lifted:
 - Animals in the quarantined area are not confirmed positive and are no longer suspect positive of a Reportable Disease. In addition, a Depopulation Order must not have been issued;
 - For Atlantic salmon at marine cage sites: all animals, equipment and things have been removed from the quarantined area with an approved Licence To Move and this has been reconciled with the original site inventory. After

the quarantined area has been lifted, the site must remain fallow for 4 months. Restocking of fish at marine cage sites can only occur in accordance with the Bay Management Areas Agreement or Bay Management Area principles;

- For Atlantic salmon marine cage sites exposed to Infectious Salmon Anemia virus with only grid lines remaining in the quarantined area: All animals, equipment and things with the exception of grid lines have been removed from site, with an approved Licence To Move, and this has been reconciled with the original site inventory. After a negative Infectious Salmon Anaemia virus test results, using viral culture, has been received by the Chief Aquaculture Veterinarian for the grid lines, the quarantine will be removed. The site must remain fallow for 4 months. Restocking of the fish at marine cage sites can only occur in accordance with the Bay Management Areas Agreement or Bay Management Area principles;
- For salmonid hatcheries or nurseries: All animals, equipment and things that must be removed from the quarantined area are removed, cleaning and disinfection of the facility and negative specific pathogen test results have been received by the Chief Aquaculture Veterinarian. After the Quarantine Order has been removed, the site must be fallow for 4 months.
- Upon receipt of the Quarantine Order, the licensee must submit Standard Operating Procedures to the Aquatic Animal Health Division for review. Standard Operating Procedures will be approved by the Chief Aquaculture Veterinarian or their designate.
 - Standard Operating Procedures to be submitted:
 - General Site Biosecurity
 - Personnel Movement to and from the Site
 - Cleaning and Disinfection protocols
 - Mortality Removal
 - Mortality Disposal
 - Other as deemed necessary by the Designated Veterinarian or the Chief Aquaculture Veterinarian
- Upon receipt of the Quarantine Order, the licensee will be provided with the Aquatic Animal Health Division Reportable Disease Questionnaire from the Chief Aquaculture Veterinarian or their designate. This must be returned to the Chief Aquaculture Veterinarian within 72 hours after receipt.
- Movement Controls
 - Licence To Move
 - According to the Aquatic Animal Contingency Plan policy:
 - Prior to any animal, animal by-product (including mortalities), object or thing being removed from a quarantined area and Standard Operating Procedures must be submitted to the Aquatic Animal Health Division for review 72 hours prior to movement. Standard Operating Procedures will be approved by the Chief Aquaculture Veterinarian or their designate and a Licence to Move will be issued.

Nothing can move out of a quarantined area without a Licence to Move. Once a Licence to Move is issued by the Chief Aquaculture Veterinarian, 72 hours notice of movement must be given. The Chief Aquaculture Veterinarian has the discretion to alter these timelines under special circumstances. The Chief Aquaculture Veterinarian will list on the Licence to Move the approved wharf that may be utilized by a site under a Quarantine Order.

- According to the Aquaculture Motor Vehicle, Vessel, Boat and Barge Biosecurity and the Aquaculture Equipment Biosecurity policies:
 - Motor vehicles and trailers included in a Quarantine Order must obtain a Licence to Move.
 - Any vessels, boats or barges included in a Quarantine Order must obtain a Licence to Move.
 - Aquaculture equipment included in a Quarantine Order must obtain a Licence To Move
- Wharves
 - To prevent cross contamination, the use of wharves during an Infectious Salmon Anaemia virus event/outbreak must be considered. According to the Inflow and Outflow Wharves policy:
 - The Chief Aquaculture Veterinarian may place additional biosecurity restrictions or measures on any inflow or outflow wharf and their activities during a disease event.
- Depopulation Order
 - According to the Aquatic Animal Disease Contingency Plan policy:
 - The department may issue a Depopulation Order for a group of animals with an agreed upon deadline for animal removal and timeline for cleaning and disinfection for the site. The Depopulation Order will include the date required for animal removal as well as the cleaning and disinfection completion date. The department may issue a fine, directive or penalty in the event that these deadlines are not met.
 - The licensee must start preparations for depopulation within 24 hours of receiving a Depopulation Order. All activities involved in Depopulation must have Standard Operating Procedures approved by the Chief Aquaculture Veterinarian or their designate. Any animals, animal products, equipment or things that are removed from site must have a Licence to Move.
 - A licensee that depopulates a site which is under a Quarantine Order must submit a Standard Operating Procedures to the Aquatic Animal Health Division for review. Standard Operating Procedures must include a deadline for animal removal and timeline for cleaning and disinfection for the site. The department will issue a Depopulation Order which will include the date required for animal removal as well as the cleaning and disinfection completion date. The department may issue a fine, directive or penalty in the event that these deadlines are not met. All Standard Operating

Procedures will be approved by the Chief Aquaculture Veterinarian or their designate. Any animals, animal products, equipment or things that are removed from site must have a Licence to Move.

- According to the Public Reporting policy:
 - Detection of federally Reportable Diseases or quarantine or depopulation orders or directives issued by the Provincial Government for a licensed aquaculture site, must be reported to the public within 24 hours of the detection or order or directive being given. The department may issue a fine, directive or penalty in the event that these deadlines are not met.
 - For all detection of federally Reportable Diseases or quarantine or depopulation orders or directives, the licensee is required to publically report on:
 - the site(s) impacted;
 - the species stocked on that site;
 - the estimated number of finfish or shellfish species affected;
 - any orders and directives issued in relation to the action initiated;
 - information related to disease detected;
 - the underlying reason for order, directive and/or action;
 - the method of depopulation or other mitigations; and
 - any other information deemed by the department to be reportable.
 - Detection of federally Reportable Diseases, or suspected escape or confirmed escape or quarantine or depopulation directed or ordered or approved by the province must be reported by the licensee on their corporate or industry association website.
- Case Investigation and Disease Confirmation
 - When Infectious Salmon Anaemia is suspected the Aquatic Animal Health Division will start a case investigation.
 - According to the Aquatic Animal Disease Contingency Plan policy:
 - All aquatic animal health records must be available for review upon request by the Chief Aquaculture Veterinarian.
 - Additional data requested by the Aquatic Animal Health Division as part of the case investigation must be provided within three days of the request.
 - The Chief Aquaculture Veterinarian or their designate may order the following:
 - Diagnostic testing
 - Epidemiological investigation
 - Treatment of the fish
 - Vaccination of the fish
 - Fish movement
 - Enhanced biosecurity
 - Disease Confirmation: Samples are collected by the Aquatic Animal Health

Division and sent to a Newfoundland Fisheries, Forestry and Agriculture Designated Laboratory for diagnostic testing of Infectious Salmon Anaemia virus to confirm that the population of fish are positive for pathogenic Infectious Salmon Anaemia virus.

Aquatic Animal Health Finfish Surveillance

- Surveillance
 - According to the Aquatic Animal Health Finfish Surveillance:
 - All licensees must have access to a Designated Veterinarian for the purposes of the Surveillance Plan.
 - Licensees are required to provide tissue samples and disease testing results as described by the species specific Surveillance Plan.
 - According to the Aquatic Animal Health Disease Surveillance Designation policy:
 - Only Aquatic Animal Health Division (Aquatic Animal Health Division) designated veterinarians, fish health technicians and laboratories can be utilized as part of the Surveillance Plan.

- Enhanced Surveillance
 - According to the Aquatic Animal Disease Contingency Plan policy:
 - Licensees must participate in the Aquatic Animal Health Division enhanced surveillance plan.
 - The enhanced surveillance plan for Infectious Salmon Anaemia virus will be initiated when pathogenic Infectious Salmon Anaemia virus has been detected, enhanced surveillance will be implemented for the site under Quarantine and surrounding licensed aquaculture sites.
 - Details of the enhanced surveillance program will be influenced, but not limited to, the following factors:
 - oceanography/hydrography,
 - local knowledge of the area,
 - biosecurity risk factors (e.g. epidemiological links),
 - seaway distance, and
 - other related factors.
 - Termination of an enhanced surveillance plan will be determined by a risk assessment as conducted by the Fisheries, Forestry and Agriculture Aquatic Animal Health Division.

Depopulation Methods

- Current acceptable methods of depopulation for fish at any life stage include harvest, rendering, landfill, composting, and ensiling. All methods must comply with federal and provincial Acts and Regulations.

- According to the Fish Disposal policy:
 - All farms will have a Fish Disposal Plan, outlined in a Waste Management Plan.
 - Fish Disposal Plans must be submitted by the licensee and approved by the department.
 - During a Reportable Disease event, the Fish Disposal Plan will be subject to additional requirements are required under the Newfoundland Aquatic Animal Health Division Contingency Plan.
- The Aquatic Animal Disease Contingency Plan policy requires that before fish are removed from site that Standard Operating Procedures are submitted and approved by the Chief Aquaculture Veterinarian. Fish or fish waste (including mortalities) can be removed from the site without a Licence to Move.
- If the fish are to be harvested and processed at a fish processing plant, the Blood Water and Offal policy must be followed in order for the plant to process High Risk Material .The processing plant must pass envelope testing and a phage testing which must be completed every 5 years. In addition, Standard Operating Procedures must be approved by the Chief Aquaculture Veterinarian prior to handling High Risk Material.

Biosecurity Audits

- Biosecurity is a set of preventative measures designed to reduce the risk of transmission of disease.
- According to the Aquatic Animal Disease Contingency Plan policy:
 - Aquatic Animal Health Division staff, or a designated representative, must be granted permission to audit the facilities/activities.
- According to the Biosecurity and Biosecurity Audits policy:
 - Licensees must grant Aquatic Animal Health Division staff or a designated representative access to company records for the purposes of conducting an audit.
 - The auditor has the power to do any of the following:
 - Enter and inspect any aquaculture site/facility or location
 - Accompany individuals who are collecting or analyzing samples
 - Accompany individuals who are auditing equipment or gear
 - Document procedures and activities
 - Obtain samples
 - Inspect records (both written and electronic)

Fallowing

- According to the Aquatic Animal Disease Contingency Plan policy:
 - For marine cage sites: The site must remain fallow for 4 months. Restocking of fish at marine cage sites can only occur in accordance with the Bay Management

- Areas Agreement or Bay Management Area principles;
- For salmonid hatcheries or nurseries: The site must remain fallow for 4 months.
 - If a risk assessment conducted by the Aquatic Animal Health Division concludes that a different fallow period is required for the specific Reportable Disease event or outbreak then this fallow period must be adhered to; and
 - Once the Quarantine Order has been lifted and restocking has resumed, the Chief Aquaculture Veterinarian may order the licensee to conduct specified diagnostic testing of the new stock for a specified period of time.